MONASH University

RURAL AND URBAN?

AN EXPLORATION OF MEDICAL WORKFORCE ISSUES IN REGIONAL CENTRES OF AUSTRALIA

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ABSTRACT

Recent patterns of population change across rural Australia combined with the concomitant centralisation and rationalisation of many key public and private services have seen an expanding role for regional centres, particularly in the provision of primary and specialist medical care. Any undersupply of GPs and/or specialists in regional centres is likely to have serious impacts on services provision and resultant health outcomes for residents both of regional centres and of the large rural hinterlands they serve. To date there is little research evidence of the factors that influence recruitment and retention of the medical workforce specifically in regional centres. This study aims to address this gap by investigating factors associated with medical workforce supply in regional centres of Australia, focusing on key considerations related to recruitment and retention of GPs and specialists in these areas.

The need for a critical mass in regional centres is part of the larger national picture of medical workforce supply. The study highlights the methodological challenges of defining regional centres for health policy purposes and measuring the adequacy of workforce supply. A comprehensive review of the literature informed the development of an initial framework of factors instrumental in decision-making for regional centre practitioners.

The responses of 66 GPs and 62 specialists in four regional centres were explored; in particular, their attitudes towards regional centre practice (work) and life in a regional centre (liveability). Their responses were reviewed with calculation of mean rankings supported by thematic analysis with reflection on both recruitment and retention decisions.

The study found the most highly ranked factors in recruitment and retention were work related, including work variety, after-hours, workplace culture and workload considerations, which are all potentially modifiable in nature. Remuneration was not considered highly important either by GPs or specialists. Support to families and the

role of the community with considerations such as spousal employment were pivotal. Environment attributes and favourable climate were highly important for coastal dwellers. Location trumped other factors for coastal residents and was not rated highly by those living inland. This key finding of the focused career planning of doctors to move to coastal locations, but the lack of consideration by them of job opportunities in inland areas, is cause for reflection.

This study represents one of the most comprehensive pieces of research on GP and specialist recruitment and retention to regional centres of Australia. The new evidence provides the foundation on which to consider targeted policy responses and contributions by government, the profession and the community. Multi-faceted policy options to best target gaps in medical workforce in regional centres are required. The model of the rural pipeline with affirmative selection for regional and rural residents, supportive training and exposure and articulated training pathways supporting resident clinicians may well address current gaps. Policy should ensure competitive levels of remuneration, reflect the importance of employment opportunities for practitioners and their partners and the highlight the need for transparent workforce planning. A key outcome from this study is a new framework, which provides a scaffold on which to consider the policy input of the Commonwealth and state governments, speciality colleges and community leadership.

Regional centres will remain a key feature of the Australian landscape. This study shines the spotlight on medical care in these centres and their rural hinterlands with the intention that a systematic evidence-informed approach can be developed to generate a critical mass of GPs and specialists in regional centres in Australia.

DECLARATION

This thesis contains no material which has been accepted for the award of any other degree or diploma at any university or equivalent institution and, to the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

Signature:

[redacted]

Date: 10.07.2015

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LIST OF ACRONYMS

ABS	Australian Bureau of Statistics
ACRRM	Australian College of Rural & Remote Medicine
AGT	Australian General Practice Training
AHMAC	Australian Health Ministers Advisory Council
AIHW	Australian Institute of Health and Welfare
AMC	Australian Medical Council
AMLA	Australian Medical Local Alliance
AMS	Aboriginal Medical Service
AMWAC	Australian Medical Workforce Advisory Committee
AoN	Area of Need
ARIA	Accessibility/Remoteness Index of Australia
ASGC-RA	Australian Standard Geographical Classification-Remoteness Area
BMP	Bonded Medical Places
COAG	Council of Australian Governments
CPD	Continuing Professional Development
CPMC	Committee of Presidents of Medical Colleges
CSP	Commonwealth Supported Places
DGP	Division of General Practice
DoHA	Commonwealth Department of Health and Ageing
DWS	District of Workforce Shortage
FIFO	Fly-in Fly-out
FTE	Full Time Equivalent
FWE	Full Time Workload
GP	General Practitioner
GPET	General Practice Education and Training
HECS	Higher Education Contribution Scheme
HETI	Health Education and Training Institute

HWA	Health Workforce Australia
IMG	International Medical Graduate
JFPP	John Flynn Placement Programme
LHD	Local Health Districts
LHN	Local Health Networks
MABEL	Medicine –Balancing Employment and Life
MBS	Medical Benefits Schedule
MDANZ	Medical Deans Australia and New Zealand
ML	Medicare Locals
MRBS	Medical Rural Bonded Scholarship Scheme
MSOAP	Medical Specialists Outreach Assistance Programme
MSOD	Medical Student Outcomes Database
NDIS	National Disability Insurance Scheme
NMTAN	National Medical Training Advisory Network
NRHA	National Rural Health Alliance
NSWRDN	Rural Doctors Network (NSW)
OECD	Organisation for Economic Cooperation and Development
OTD	Overseas trained doctor
PBS	Pharmaceutical Benefits Scheme
PGPP	Pre vocational Practice Placements Programme
PGY1	Post Graduate Year 1
PHCRIS	Primary Health Care Research and Information Service
PHN	Primary Health care Network
PIP	Practice Incentive Programme
RACGP	Royal Australian College of General practitioners
RACP	Royal Australian College of Physicians
RACS	Royal Australian College of Surgeons
RAMUS	Rural Australia Medical Undergraduate Scholarship Programme
RANZCOG	Royal Australian and New Zealand College of Obstetricians and Gynaecologists

RANZP	Royal Australian and New Zealand College of Psychiatry
RBE	Rural Background Effect
RCS	Rural Clinical School
RCTS	Rural Clinical School Training and support programme
RCTS	Rural Clinical Training Support Programme
RDAA	Rural Doctors Association of Australia
RDN	NSW Rural Doctors Network
RHCE	Rural Health Continuing Education Programme
RHWA	Rural Health Workforce Australia
ROALS	Rural Obstetric and Anaesthetic Locum Scheme
RRMA	Rural Remote and Metropolitan Areas
RUSC	Rural Undergraduate Support and Coordination Programme
RTS	Return of Service Obligation
RWA	Rural Workforce Agencies
SEIFA	Socioeconomic Index for Areas
SIMG	Specialist international medical graduate
SLA	Statistical Local Area
STP	Specialist Training Programme
SWPE	Standardised Whole Patient Equivalent
TESL	Staff Specialist's Training, Education and Study Leave
UDRH	University Department of Rural Health
VMO	Visiting Medical Officer
VR	Vocational Registration

CHAPTER 1
MEDICAL PRACTICE IN AUSTRALIA'S REGIONAL CENTRES

1.1 Introduction

This thesis investigates the medical workforce in regional centres of Australia, focusing on key considerations related to recruitment and retention of General Practitioners (GPs) and specialists in these areas. Because of their size and position in the urban hierarchy, regional centres are vital non-metropolitan settlements providing a range of vital health care and other services to their city, surrounding rural hinterlands and more remote populations. Indeed, regional centres are increasingly seen to be 'hubs' in providing medical care outside of metropolitan areas (Australian Rural Health Education Network, 2007; Australian Government Department of Health and Ageing & Victorian Department of Human Services, 2006; Disney, 2015). However, some evidence suggests that all is not well amongst medical practitioners in many regional centres (Australian Broadcasting Corporation, 2006; McCarthy 2010; Sweet, 2009). In fact, some of these centres appear to be suffering from similar medical workforce problems to those experienced by smaller settlements, with only very recent recognition from government of any workforce support measures that might be required (Department of Health and Ageing, 2010a; Royal Australian and New Zealand College of Obstetricians and Gynaecologists, 2010). It is within this context that the current study seeks to explore the nature of the medical workforce in regional centres and issues associated with the recruitment and retention of GPs and specialists to these centres, with a view to recommending appropriate evidence-informed policy responses to support the provision of a sustainable medical workforce in regional centres.

The overarching goal of health policy has been to ensure the delivery of high quality, sustainable health care in rural communities with a view to improving health outcomes. In non-metropolitan Australia, where mortality and morbidity rates

continue to outstrip those of capital city populations, access to an appropriate range of health and medical services is increasingly the focus of workforce and other policy initiatives. Indeed, with almost 30% of Australia's population residing in regional and rural areas (Australian Bureau of Statistics, 2012) and significantly poorer health outcomes than their urban counterparts, the need for effective health care has been regularly documented over the last 25 years (Australian Government Department of Health and Ageing 2008; 1998; Humphreys, 1998b; Wakerman & Humphreys, 2012). Increasingly well documented, also, is the maldistribution of the medical workforce, of GPs and also of specialists in regional, rural and remote areas (Australian Government Department of Health 2008; Australian Institute of Health and Welfare, 2009, 2014b; Health Workforce Australia, 2012a; Mason, 2013).

Over the last two decades, in response to the recognition of the mismatch of medical workforce to need, governments have sought to redress imbalances in the medical workforce in rural, remote and regional areas with successive health policies and programmes. In fact, in 2008 there were more than twenty programmes operating in non-metropolitan areas, each addressing some aspect of rural and remote medical workforce recruitment and retention (Australian Rural and Remote Workforce Group 2007). Many of the financial incentives built into these programmes were originally targeted at small rural centres where changes in town size and critical loss of infrastructure have contributed to significant reductions in medical workforce capacity (Australian Rural and Remote Workforce Agencies Group, 2007; Humphreys, Wakerman, Pashen, & Buykx, 2009).

Recent patterns of population change across Australia combined with the concomitant centralisation and rationalisation of many key public and private services have seen an expanding role for regional centres in the provision of primary and specialist medical care for all non-metropolitan residents. As regional centres service not only their immediate population and rural hinterland, but also surrounding smaller towns and remote communities, the need for critical mass in regional centre medical workforce is becoming apparent. As a result, during the last ten years regional centres became eligible to access some of the programmes designed initially to support medical recruitment and retention in rural and remote Australia. For example, there are

regional centres that now have a 'District of Workforce Shortage' (DWS) or 'Area of Need classification' (AoN). This classification is only applied when there is evidence of workforce shortage and significant unmet health care need, allowing the recruitment of international medical graduates (IMGs) to such areas, who then work with temporary visas or under Medicare exemptions (Department of Health and Ageing, 2010a). In addition, a number of other workforce programmes have become available, including recent expansions in GP and specialist training positions and the development of clinical regional teaching hubs through the Rural Clinical Training and Support programme (RCTS) and University Department of Rural Health (UDRH) programmes (Mason, 2013).

The availability of medical workforce in any particular location is, however, a function of three key components: supply (current stock), recruitment and retention. In Australia, supply relates in the main to the availability of domestic graduates, although Australia also recognises IMGs through a number of pathways. Recruitment refers to the numbers who take up practice in a location, whilst retention is a measure of length of stay (Humphreys et al., 2001). Ensuring an adequate supply does not in itself guarantee that sufficient medical graduates take up practice in a particular location, neither will it ensure that those who are recruited will be retained in that location for any length of time. There is currently little research that explores in any detail the factors that influence the recruitment and retention of the medical workforce specifically in regional centres. Given the increasingly vital position of regional centres in the settlement hierarchy, the impact of lower than required supply of GPs and specialists in these towns is likely to be serious in terms of service provision and thence health outcomes for regional populations and the large rural hinterlands they serve. This is an unenviable outcome for the individual and also for the health system in general (Wakerman & Humphreys, 2012). Poorer health outcomes are more costly to the health system as a whole, the community and the individual. For example, delayed access to health services may result in higher and more complex treatment costs such as hospitalisation, loss of income and greater degree and duration of disability. Furthermore, lack of access to health prevention and early intervention services can

have long-term health consequences for many health conditions and these individual outcomes have flow-on costs in the public health system.

1.2 The delivery of medical care to non-metropolitan Australians

The vast geographic area of non-metropolitan Australia provides a unique challenge for the delivery of health services, covering as it does more than 7.5 million square kilometres (Geoscience Australia, 2010). This is particularly the case given that Australia is one of the most urbanised countries in the world (Beer & Clower, 2009). Indeed, the human geography of Australia is one of a densely settled coastal population combined with a highly dispersed rural one. Although more than two-thirds of the Australian population (approximately 14.7 million people) resides in the metropolitan areas, clearly there remains a considerable proportion of the Australian population residing outside capital cities. Current population estimates indicate that approximately 11% of Australia's population is resident in regional centres (Australian Bureau of Statistics, 2014a), a proportion that is expected to increase with the continuing loss of population from rural hinterlands combined with metropolitan out-migration from larger cities (Argent, Rolley, & Walmsley, 2008; Beer & Maude, 1995; Budge & Chesterfield, 2011; McGuirk & Argent, 2011).

Given this complex settlement pattern, larger regional centres have become increasingly important in the urban hierarchy as key hubs for supplying important public and private services such as banking, finance, retail, education, health and medical services. Many of these services, once located in smaller towns and outlying rural areas, have been increasingly rationalised and centralised into regional centres. Moreover, continuing trends of rural–urban migration and counter-urbanisation are further reinforcing the significance of both coastal and inland regional centres in the Australian settlement hierarchy.

Many smaller inland settlements have experienced population decline over recent decades, with considerable movement of people from rural areas and small towns to regional centres, capital cities and coastal areas (Argent et al., 2008). In contrast, regional centres (both inland and coastal) have been growing strongly over the last ten

years (Australian Bureau of Statistics, 2011). Whilst patterns of population change have not been uniform across coastal and inland locations, as a general rule it is coastal centres that have grown more quickly than regional centres located in inland areas (Australian Government Department of Infrastructure and Regional Development (BITRE), 2014).

Thus, given Australia's unique settlement hierarchy and current pattern of population change, it is important to consider the growing role of regional centres in providing services required to meet the health needs of non-metropolitan Australians. Medical services are vital in addressing the now well-recognised health inequalities and poorer health outcomes experienced by non-metropolitan residents. (National Rural Health Alliance, 2009; Wakerman & Humphreys, 2012; Wakerman, Humphreys, Wells, Kuipers et al., 2006). Whereas metropolitan centres are able to provide the full spectrum of tertiary, secondary and primary medical care, and smaller rural centres only limited primary care, regional centres are usually able to provide a range of primary and secondary care to their inhabitants and their hinterland populations. The provision of secondary care requires the availability of procedural hospital beds, qualified nursing and allied health staff, access to diagnostic services in addition to a specialist medical workforce (Smith , Kelly, & Veitch, 2002; Wakerman et al., 2006).

Concurrently, there has been a change in the scope of practice in smaller rural towns, with a well-documented reduction in procedural GP services, including GP anaesthetics, surgical and other operative services, as well as GP intra-partum care (Brodribb, 2014; Knox et al., 2005). This service retraction has increased the reliance of smaller communities on regional centres for emergency transport and management, diagnostic and specialist care, as well as maternity care (Hays, Evans, & Veitch, 2005; Kildea, Kruske, & Bowell, 2006; Pesce, 2008). Thus, increasingly regional centres have a vital role of providing both secondary health care for their rural feeder populations and primary care for their regional residents. A recent discussion paper by NSW Health, for example, suggests that in one regional centre 87% of care received by rural residents was provided from within their local health district, centred on a regional centre (NSW Ministry of Health, 2013).

Despite the now extensive literature on rural health inequalities and the problems of access to medical services in rural areas, little is known about how these issues play out in regional centres. Importantly, the availability of medical practitioners in these hubs is of increasing significance given their central role in providing medical care. Media discourse suggests that access to both GPs and specialists remains problematic in many regional centres (Australian Broadcasting Corporation, 2010; McCarthy 2010). One measure of access collected by Divisions of General Practice/ Medicare Locals indicate for example lower GP/population ratios in a number of regional centres compared with metropolitan areas (National Health Performance Authority, 2013; Primary Health Care Research and Information Service, 2012). National statistical collections also demonstrate lower relative numbers of specialists in inner regional areas compared to metropolitan areas (Australian Institute of Health and Welfare, 2014b). Other indirect ways of measuring the availability of GPs, such as general practitioners with 'closed books' and patients having to access emergency departments for their primary care, would also indicate that consumers in some regional centres have experienced difficulty in accessing appropriate care (ABC News, 2010; Hancock, Steinbach, Nesbitt, Adler, & Auerswald, 2009; McCarthy 2010; Mossman, 2008). There is also evidence of lower bulk-billing rates in some regional centres and reduced access to diagnostic and treatment services in other regional centres compared with metropolitan areas (Australian Government Department of Health, 2010). Such evidence would suggest that in some regional centres at least there might not be adequate numbers of GPs or specialists. Furthermore, it would seem that there is a strong case to support exploration of targeted policy interventions as there may be inherent problems with using market forces alone to manage the recruitment and retention of medical workforce to all non-metropolitan areas (May, 2007; McGrail, Humphreys, Joyce, Scott, & Kalb, 2011b).

Although there is considerable evidence relating to the factors influencing recruitment and retention of GPs in rural areas (Hays, Wynd, Veitch, & Crossland, 2008; Hegney, McCarthy, Rogers-Clark, & Gorman, 2002; Humphreys et al., 2001; Humphreys, Jones, Jones, & Mara, 2002; J. Jones, Humphreys, & Adena, 2004), there has been little attention paid to similar issues specifically in regional centres. Clearly, the decision-

making processes of medical practitioners about both their practice and residential location are complex and multifaceted (Hancock et al., 2009). While factors known to be important in recruitment and retention to smaller rural centres include a range of professional, social and community considerations, there is little understanding about factors influencing the decision-making of practitioners who choose to locate in regional centres. It is also not known whether the factors important in retention for regional practitioners are the same for all doctors or whether they differ between GPs and specialists, by gender, age, IMG status, or preferred geographic location such as a coastal or inland centre. If policy responses are to be effective and appropriate to the health care needs of Australia's non-metropolitan population as a whole, empirical evidence is required from which to produce evidence-informed policy. This thesis seeks to take up this challenge by exploring the nature and adequacy of medical workforce in regional centres from the perspective of those medical practitioners living and working in regional centres with a particular focus on the key factors influencing recruitment and retention.

1.3 Objectives of the thesis

This research has four specific objectives, each with a number of sub-questions:

1: To outline the role of regional centres in the provision of medical care to the inhabitants of non-metropolitan Australia.

i. How are regional centres defined in relation to the delivery of health care?

ii. How is health care organised in regional centres to meet the needs of non-metropolitan inhabitants?

iii. What is the role of health policy in workforce provision in regional centres?

2: To describe the nature of the medical workforce in regional centres.

i. What are the characteristics of the medical workforce (GPs and specialists) in regional centres?

ii. How does the supply of GPs and specialists in regional centres compare with metropolitan and other non-metropolitan areas?

iii. What is the nature and scope of practice for GPs and specialists in regional centres?

3: To identify the issues associated with recruitment and retention of medical workforce in regional centres.

i. Do issues for recruitment and retention differ between GPs and specialists living and working in regional centres?

ii. Do regional centres differ in attractiveness in terms of places to live and work for GPs and specialists?

iii. Do recruitment and retention issues differ between subgroups of medical practitioners?

4: To recommend appropriate evidence-informed policy responses to support a sustainable medical workforce in regional centres.

i. What policy responses are required to ensure an adequate and sustainable medical workforce in regional centres?

1.4 Methodology and Research Design

To fulfil these research objectives and sub-questions, this study utilised a mixed-methods approach, incorporating both quantitative and qualitative approaches to data collection. The inherent value of incorporating such an approach to a complex problem has been affirmed in social science and health-related fields (Creswell & Clark, 2007; Denzin & Lincoln, 2011). The study was informed by the essentially pragmatic underpinning perspective of the researcher; that is, the research on which this study is based was question–led rather than theory driven. It was also interpreted through the lens of an insider as well as a researcher, as the author was a resident GP in one of the regional centres in the study.

The study, then, focused on the experiences of those practitioners living and working in four regional centres in NSW. Whilst those who have elected not to practice in regional centres and those who have come and then left regional centres would also provide a valuable window into this issue, this study focuses on the lived understandings of medical practitioners currently resident in regional centres. Prior to considering the content of each chapter of this study, key definitions central to this thesis are outlined.

1.5 Key definitions

While the limitations and rationale behind some of the terms defined below will be discussed in Chapters 2, 3 and 4 there is a need to clarify some of the key terms and concepts used in the thesis. In fact, differing definitions and the lack of explicitness about data sources has contributed to the sometimes confusing picture of workforce in regional centres. The definitions are grouped, looking at the definitions of practitioners, the places that contextualise this study and the processes of recruitment and retention.

Medical workforce (as defined by the Australian Institute of Health and Welfare (AIHW)) means registered medical practitioners. For the purposes of this study and in the context of non-metropolitan Australia, medical workforce relates to general practitioners and specialist medical practitioners.

A clinician is a medical practitioner who spends most of the total weekly working hours engaged in clinical practice (Australian Institute of Health and Welfare, 2014b).

General practitioners are defined in the AIHW medical labour force survey (2014b) as medical practitioners who were employed as clinicians and their main area of clinical practice was general practice or primary care.

A specialist is a medical practitioner who holds specialist registration and has met the eligibility, suitability and qualification requirements identified by the Medical Board of Australia. They are self-identified on the Medical Workforce Survey 2012 (Australian Institute of Health and Welfare, 2014b) and a specialist in training (registrar) is a

medical practitioner who has been accepted by a specialist college into a training position supervised by the college.

Australian Trained Graduates. Medical students enrol in either an undergraduate or a postgraduate medical course for four to six years. The current pathway involves satisfactory completion of professional-entry medical training and then two postgraduate hospital training years. General medical registration can then be sought. In order to obtain Medicare benefits, graduates must obtain specialist status. They can join specialist training programmes (including general practice) or stay within the hospital system on a non-specialist pathway. Following successful completion of postgraduate training, specialist registration can be sought from the Medical Board and graduates may commence autonomous practice. Decisions about work location at this point are largely 'free ones' with no geographic provider restrictions providing they have completed accredited specialist or general practice training (Medicare Australia, 2010).

International Medical Graduates (IMGs) entering Australia without Australian-recognised GP qualifications must apply for restricted registration and do not have freedom of location. They can apply and work in areas mandated as 'Areas of need' or 'Districts of Workforce Shortage' (Australian Government Department of Health and Ageing, 2010b). They then work under a 'moratorium' where they must spend five years or more in underserved communities and complete specified specialist qualifications before being able to attain an unrestricted provider number and freedom of work location (McGrail, Humphreys, Joyce, Scott. 2012a).
Rural Whilst rural can be used for any area or experience that is non-metropolitan, it can also be used in a sociocultural context. There is much controversy around its definition (Muula, 2007). 'Rural' in this study refers to areas of low population density incorporating small towns and hamlets with populations less than 25,000 people (Budge & Chesterfield, 2011).

Non-metropolitan The term non-metropolitan is used to refer to all parts of Australia outside of centres with more than 100,000 inhabitants. This therefore means the definition of metropolitan areas includes capital cities and those urban areas with

populations of more than 100,000 inhabitants. This means that cities such as Toowoomba, Newcastle and the Gold Coast are all classified as metropolitan (Hugo, 2009).

Regional For the purposes of this study, regional refers to those areas outside metropolitan areas based on large centres that are not considered rural (low population density) or remote (even lower population density) (Budge & Chesterfield, 2011).

Regional Centres Centres of population with 25,000–99,000 inhabitants. This corresponds with RRMA 3 (Large rural centre) under the RRMA classification (Australian Institute of Health and Welfare, 2004).

Supply reflects the pool of local and overseas graduates currently within or able to enter the medical workforce, reduced by the number of medical practitioners dying, retiring and those reducing their hours.

Recruitment involves the attraction and selection of practitioners to a particular organisation, role or location. Recruitment is a prerequisite for retention.

Workforce retention refers to the length of time between commencement and termination of employment. Retention does not imply indefinite length of service in one location, employer or organisation, but refers to some minimum length of stay (Humphreys, 2009).

1.6 Thesis outline

The thesis has nine chapters. Following this introductory chapter, Chapter 2 reviews the health environment in regional centres. This chapter addresses definitional issues around regional centres and their role within the settlement hierarchy. It considers the way health care is organised in regional centres, taking into consideration the impact of geographic catchments and the changing role of regional centres in delivering government and industry services to smaller rural locations. It also considers key determinants of health and health outcomes, reviewing available data relating to regional, rural and remote Australia. The difficult issue of the utility of recent

classification systems for regional and rural areas is explored, and a brief resume of the history of workforce policy as it pertains to regional centres is given. Finally, the health policy environment within which regional health care and medical workforce provision takes place is outlined.

Chapter 3 explores the available data on medical workforce in regional centres. The chapter considers the current measures used to assess medical workforce supply, and the challenges in evaluating under and over supply. Current workforce data for GPs and specialists are reviewed, considering both the national picture and the available data that include regional centres by age and gender. The chapter concludes with an analysis of the evidence on the nature of both specialist and general practice in regional centres, with particular attention to current service delivery.

Chapter 4 comprises a review of the extensive literature on recruitment and retention of medical workforce in rural locations. The literature relating to rural GPs is considered for its relevance to regional centres and the available evidence of specialists working in non-metropolitan areas is critically evaluated. This literature provides a backdrop for the development of a conceptual model of factors relevant to regional centre medical workforce recruitment and retention

Chapter 5 outlines the research design and methodology adopted for this study. This chapter reviews the decision-making in terms of research design and method consistent with the study's objectives and research questions. The chapter reports study locations, survey instruments, data collection and analysis techniques and concludes with acknowledgement of methodological assumptions and limitations.

Chapters 6 and 7 describe and discuss the research findings from four locations for GPs and then specialists, grouped into professional, social and location specific factors. The chapter begins by reporting the characteristics of the GPs and specialists involved in the survey. Then, the responses of each group of doctors are explored; in particular, their attitudes towards regional centre practice (work) and life in a regional centre (liveability). Their responses to various professional, social and locational aspects are reviewed via mean rankings for recruitment and retention. The mean rankings are strengthened by the thematic analysis with reflection on the effects of age, gender and

country of primary medical degree (IMG status) on recruitment and retention decisions.

Chapter 8 seeks to incorporate the study results into a more comprehensive picture of the recruitment and retention of medical practitioners to regional centres. A revised framework is presented that comprises predisposition, recruitment and retention factors identified by this study in relation to regional centre practitioners. In the context of this new evidence, existing and potential policy settings are examined and reviewed in the light of the multiplicity of strategies required and key stakeholders requiring engagement are identified. Such policies need to be multifaceted and contribute to a long term 'pipeline' that recognises the role of Commonwealth, state and local governments, medical professional organisations, and regional community organisations in supporting and advocating for appropriate and adequate medical workforce in regional centres.

Finally, Chapter 9 reviews the aims of the study, addressing the study findings and summarising the study within a wider context. The study then concludes with discussion of the direction and utility of further research effort on a topic that has direct implication in ensuring the delivery of medical care for residents in non-metropolitan Australia.

CHAPTER 2
REGIONAL CENTRES AND THE PROVISION OF MEDICAL CARE TO NON-METROPOLITAN AUSTRALIANS

2.1 Introduction

The key objectives of this study, as outlined in Chapter 1, are to consider the specific role of regional centres in the provision of medical care to non-metropolitan Australians; describe the nature and assess the adequacy of the medical workforce supply in regional centres; identify the issues associated with recruitment and retention of medical practitioners in regional centres of Australia; and recommend appropriate policies based on available evidence to improve the recruitment and retention of medical practitioners to regional centres. In order to undertake the empirical investigation required to achieve these objectives, it is necessary to outline several key issues relating to the role of regional centres in the provision of medical care to non-metropolitan Australians. This chapter is therefore structured in four parts. First, Section 2.2 outlines the function of regional centres in the Australian settlement system and their pivotal role in service provision, especially essential medical care to regional and rural inhabitants. Key to this discussion is the problematic nature of defining and classifying 'regional' in this context and the limitations of the classifications used in delimiting rurality. The next section of the chapter outlines the health care need and considers available evidence of morbidity and mortality for non-metropolitan residents (Section 2.3) and is followed by a brief resume of the Australian health care system and its role in addressing these needs (Section 2.4). Finally, the health policy environment within which regional health care and medical workforce provision takes place is outlined in Section 2.5. This sets the scene for Chapters 3 and 4, which detail the factors influencing the supply of medical practitioners in regional centres.

2.2 Regional centres – role, definition and classification

Australia's population is highly concentrated in the metropolitan centres and a narrow coastal belt along the south-east and south-west of the country. Although big city living is the norm for the majority of Australians, almost one-third live outside the capitals, and the majority of these inhabitants reside in large country towns and their hinterlands (Australian Bureau of Statistics, 2012). These regional centres play a vital role in the Australian settlement hierarchy, providing a range of higher order goods and access to essential services to non-metropolitan residents. Indeed, the notable absence of many medium-sized towns in the settlement system of Australia has helped to cement the pivotal role of regional cities in the delivery of health and medical care, not just to their inhabitants but also to a much larger referral catchment (Murphy, 2005; Regional Cities Victoria, 2011).

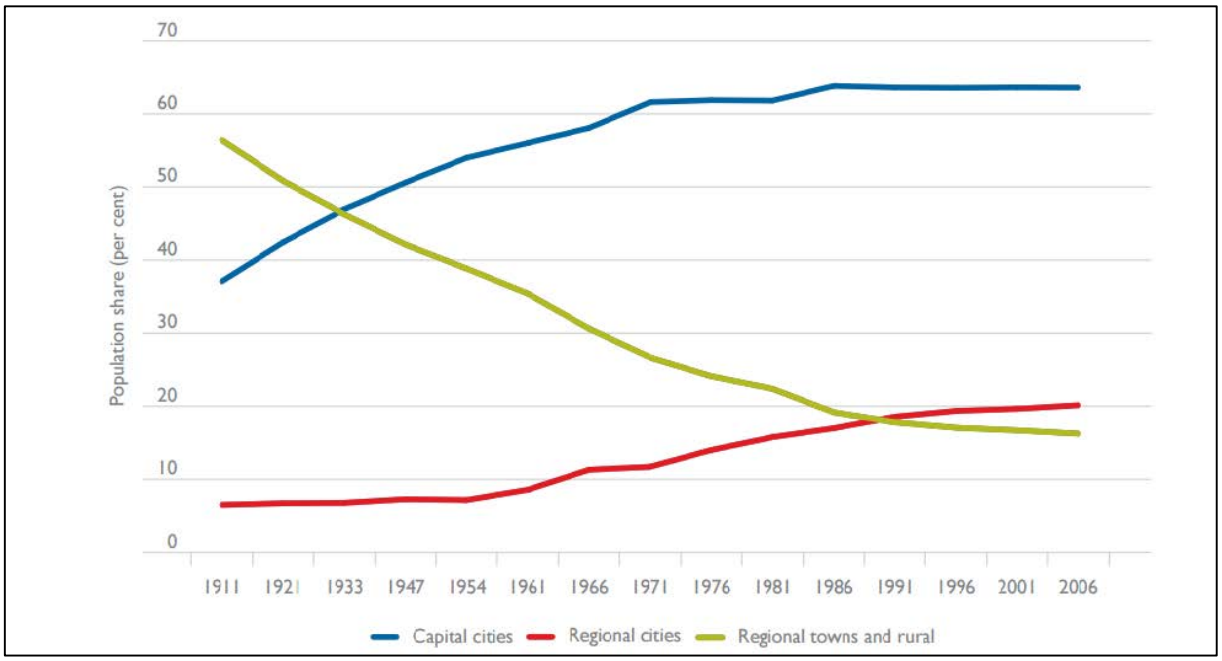

Figure 2.1: Population share by percentage for capital cities, regional cities and other regional from 1911 to 2006

Source: Reprinted from *The evolution of Australian towns* (p. 67), by Australian Government Department of Infrastructure and Regional Development (BITRE) Report 136, 2014 with permission.

Regional and capital city growth has been a feature of Australian population redistribution for more than a century, while at the same time many smaller country towns and rural areas have seen steady decline (see Figure 2.1). While capital cities are

facing continuing concerns regarding the impacts and management of rapid population growth, non-metropolitan areas face a number of more complex patterns of growth and decline (McGuirk & Argent, 2011). Population growth in regional Australia is concentrated in those areas immediately surrounding metropolitan areas, especially along the east and south-west coast; in resort and retirement areas; some inland regional centres, particularly along major transport routes; and in resource-based, more remote areas. As Hugo (2001) also notes, there is a spatial concentration of the areas experiencing population decline: the dryland, inland areas of the wheat–sheep belt of the eastern states, and South and Western Australia; many pastoral areas in central Australia; and some declining mining and industrial centres. The same spatial trend is evident when the population growth of large country towns is considered – those with relatively rapid growth are clustered around or have access to capital cities and along the coastal fringe, while the dryland farming areas tend to have smaller towns, which are experiencing decline (Figure 2.2). For the most part, population change in regional Australia varies according to the degree of accessibility/remoteness, with 'a decline in the rates of growth with increasing distance away from the large cities' (Hugo, 2001, p.60).

The factors associated with the economic futures of regional cities include the resource base, access to infrastructure, distance from capital cities, the quality of human capital, population size and historical growth rates (Beer & Clower, 2009). Regional city growth has been fuelled principally by internal migration, with the populations of coastal and riverine regional cities especially augmented by a combination of retirement and amenity-led migrants (Argent, Tonts, Jones & Holmes, 2010). Retirement migration to coastal centres has been especially notable over the last forty years, and combined with the continuing migration of socioeconomically disadvantaged people from metropolitan areas to regional and rural centres, has been a major growth driver in both inland and coastal regional centres. Such retirement and amenity-led migration has occurred not only because of the relative attractiveness of regional centres, but also because conditions in capital cities, such as high housing prices, cost of living pressures and level of amenity, have acted as 'push' factors (Disney, 2015; Murphy, 2005).

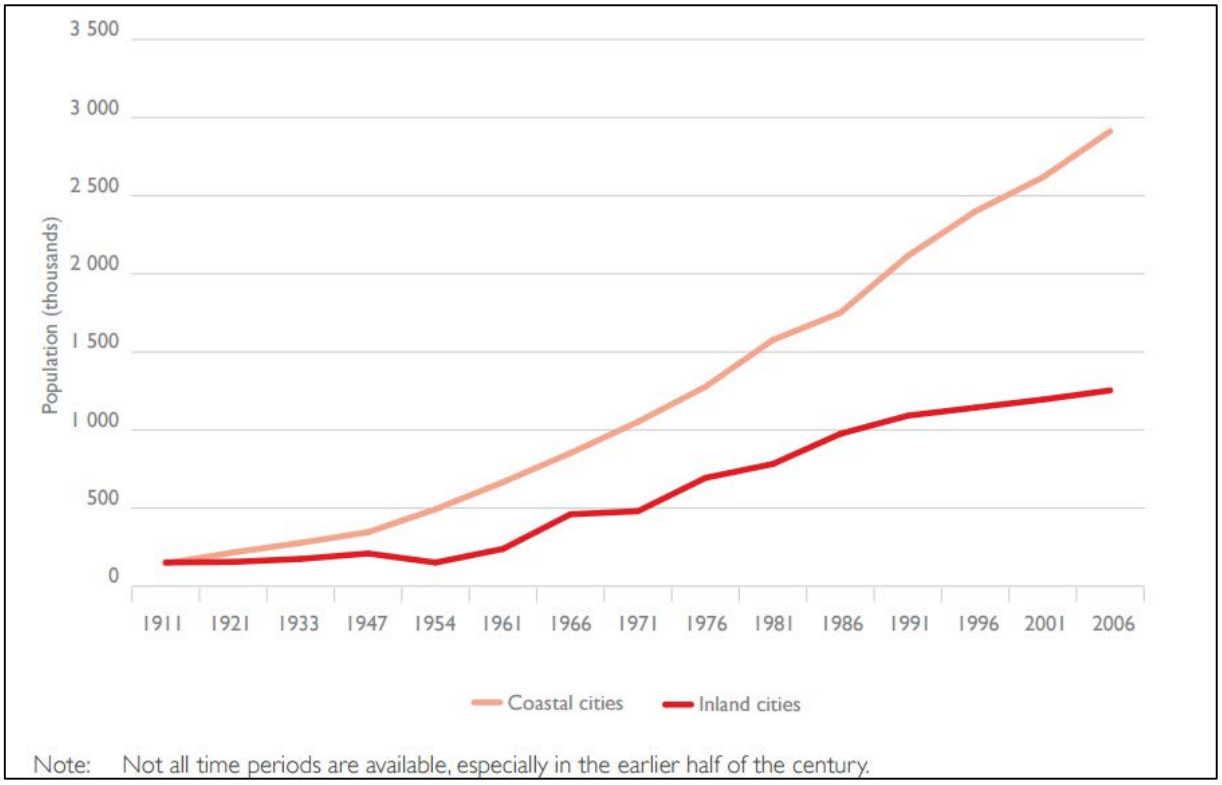

Figure 2.2: Population of inland and coastal regional cities from 1911-2006

Source: Reprinted from *The evolution of Australian towns* (p. 68), by Australian Government Department of Infrastructure and Regional Development (BITRE) Report 136, 2014 with permission.

Not only are many regional centres facing different population growth trajectories from metropolitan and smaller rural centres, but these cities are also socio-demographically distinct. As Australia's population ages, the proportion of aged people living in regional centres has also increased. In fact, the higher old age dependency ratio in non-metropolitan areas reflects, in part, the migration of retired people from major cities to regional centres and the move of ageing individuals from outer regional hinterlands to regional centres (Costello, 2007; T.Wilson, 2008, 2015). For example, the ratio of persons ≥ 65 years for every 100 people of working age is 24:100 in inner regional areas compared with 19:100 in major cities (Australian Institute of Family Studies, 2011). Not only is the proportion of those over the age of 65 years often higher in regional cities and rural areas, but the impact of ageing residents on health service demand is well documented (Australian Institute of Health and Welfare, 2014c). Indeed, it was noted in the recent Intergenerational Report that ageing residents with higher health needs will often move to regional centres where they can better access a range of health services (Commonwealth of Australia, 2010).

Regional cities are also notable for a higher level of overall socioeconomic disadvantage than metropolitan areas. With few exceptions, population groups with the worst health status are generally also characterised by higher poverty rates and lower levels of education (Smith, Humphreys, Murray, & Wilson, 2008).This gradient of socioeconomic disadvantage can be seen with capital cities being overall most advantaged, while levels of disadvantage increase in regional centres and the highest levels are in most remote locations. An analysis published in 2000 by the Australian Medical Workforce Advisory Committee, for example, highlighted this gradient of disadvantage in non-metropolitan communities, with large regional centres and smaller rural towns having significant percentages of residents with greater disadvantage compared with metropolitan areas (Australian Medical Workforce Advisory Committee, 2000).

The implication of such a gradient of disadvantage is twofold. First, those with low income often have higher behavioural health risk factors; and secondly, their capacity to pay for health services is likely to be reduced. Although there is little data specifically relating to regional centres, an analysis of the proportion of residents of rural and remote areas who access medicines under the Pharmaceutical Benefits Scheme (PBS) affirms lower utilisation of medicines amongst those with reduced capacity to pay (National Rural Health Alliance, 2011). It is likely, therefore, that the higher levels of socioeconomic disadvantage in regional centres will also have an impact on health care need.

2.2.1 Defining regional centres

The consideration of what is 'regional' points to a vexing issue around definitions. Not only is regional a word with a multiplicity of meanings, but also the concept of rural or rurality is, like beauty, 'in the eye of the beholder' (Cooper, 2003). Research into medical service provision and workforce in regional centres of Australia is often dependent on the way 'rural' and 'urban' are defined (Humphreys, 1998a). Similarly, the definition of what constitutes 'regional Australia' or a 'regional centre' is fraught with confusion around the terms used for those residing in regional cities (Budge & Chesterfield, 2011).

Regional can mean either a form of governance (as in national, state or regional), or a description of those places outside major cities (National Rural Health Alliance, 2012). Indeed, it can mean those places that are not 'remote' or 'rural', or it can mean all things non-metropolitan. The Department of Regional Australia, Regional Development and Local Government (now known as the Department of Infrastructure and Regional Development) for example, describes its remit as engaging with and empowering local communities, developing informed regional policy, overseeing the rollout of regional initiatives, and providing a dedicated source of advice on regional development (Australian Government Department of Regional Australia Regional Development and Local Government, 2011). Importantly, while there have been a variety of terms used to describe and define areas of non-metropolitan Australia, the term 'regional Australia' is increasingly associated with a range of government policy and programme initiatives linked to a range of funding mechanisms-for example Infrastructure /regional development funding programmes.

In recent parlance, however, the term 'regional Australia' has risen to prominence to describe major non-metropolitan centres, while 'rural' is more commonly used in relation to areas of sparsely settled or smaller populations (Budge & Chesterfield, 2011). Most geographic definitions of regional centres have been based on a critical population size. For example, Budge and Butt (2009) refer to the regional centres of Australia as those urban areas with populations of 40,000 people and over. In fact, almost 20% of all non-metropolitan residents live in 'regional' cities with populations of between 40,000 and 500,000 (Budge & Chesterfield, 2011). Other authors, however, would use different population thresholds to define a regional centre. Stimson (2001), for example, suggested that a non-metropolitan urban area of greater than 10,000 people was a more appropriate population threshold. In the United States 'micropolitan centres' are defined as those with populations of 10–50,000 (Office of Budget and Management, 2013).

The use of population delimiters is has its own set of challenges. Urban Centres and Localities (UCL) are analytically distinct from other units of analysis used by ABS in that they contain only urban areas and exclude adjacent rural and undeveloped land (Beer & Clower, 2009). Another population measurement of large rural towns is the

council SLA boundary. Such definitions are often based solely on the administrative boundaries of local council areas or other boundaries 'convenient' for data collection purposes. Populations of regional cities or centres can vary significantly depending on which unit is used. Commuter and buffer zones can add or subtract rural population zones surrounding them. One drawback when the boundaries are large, contend Beer and Maude (1995), is to make regional cities largely invisible within a larger 'rural' region. Hugo (2007), for example, argues that many such population definitions do not necessarily encapsulate communities of interest, or social catchments. Importantly, he also notes that classifications should be 'fit for purpose', incorporating other key factors apart from settlement size such as concentration of population (dense to sparse) and accessibility (Hugo, 2007). Budge and Butt (2009) propose that the term 'regional centre' should incorporate the concept of an economic and social role, the 'centre' of a definable region. However, according to Duncan (2011) and given the difficulty of defining urban centres within regional Australia, the term 'regional cities' would appear to be the best available for those large urban agglomerations and their hinterlands outside the state capitals. Despite these definitional difficulties, the importance and role of regional centres as a key part of the Australia settlement hierarchy is indisputable. The ways in which regional centres are defined is, of course, of more than simply academic concern, since metropolitan/regional/rural/remote designations are often central to the amount and type of funding from government sources. Indeed, a number of classification systems have been developed as the basis for resource allocation and used for workforce policy and planning decisions. These will now be explored.

2.2.2 Regional centres in geographical classifications

In the context of medical care, the principal objective of identifying a comprehensive, sensitive and widely applicable classification of regional, rural or remote areas is to provide a basis for ensuring the provision of appropriate types and levels of services (National Health Strategy, 1992). It is difficult, however, for any geographical classification to capture in a single measure all of the aspects relevant to health service provision (McGrail & Humphreys, 2009). To date, a number of approaches have been utilised for this purpose, with three classifications dominating rural health policy in

Australia prior to the commencement of the current study in 2010 (McGrail & Humphreys, 2009, p.2). These three key classifications are: Rural Remote and Metropolitan Areas (RRMA); Accessibility Remoteness Index of Australia (ARIA); and the Australian Standard Geographical Classification-Remoteness Area (ASGC-RA (Remoteness Area)).

2.2.3 Rural Remote and Metropolitan Areas Classification

The RRMA classification was developed in 1994 by the Department of Primary Industry and then adopted by the Commonwealth Department of Health (Australian Institute of Health and Welfare, 2004). This classification uses three zones (which are further subdivided) – metropolitan, rural and remote – based on population size. Under this classification system, regional centres (RRMA 3 locations), are delimited as urban centres with populations of between 25,000 and 99,999 people (Table 2.1). RRMA was based on SLAs, a unit of ABS measurement no longer used; hence, there was no capacity to keep it updated. Most rural workforce and GP strategies with rural components were administered using this RRMA classification until 2009, and the classification is still used by some organisations because of its capacity to easily define locations with smaller and larger populations within rural areas (UNSW Medicine, 2015). A full listing of the locations classified as RRMA3 can be seen in Appendix 1.

2.2.4 Accessibility Remoteness Index of Australia (ARIA) classification and ARIA+

These classifications, developed in 1997 and 2001 respectively, represent an entirely geographical approach to defining remoteness (Australian Institute of Health and Welfare, 2004). No socioeconomic, urban/rural and population classifications were included. ARIA used a geographical information system database to define road distance to the 201 service centres in Australia with a population more than 5000 people to produce a sliding scale of geographic remoteness within which there were six zones or categories. ARIA+ was developed with an additional road distance measure to smaller towns (< 5000) when it was noted that 80% of rural areas were classified as Highly Accessible. Since population is not measured, locations with large and small populations were classified similarly.

Table 2.1: Structure of the Rural, Remote and Metropolitan Areas (RRMA) classification

Zone	Class	Abbreviation	RRMA
Metropolitan zone	Capital Cities	M1	RRMA 1
	Other Metropolitan Centres (urban centre population ≥ 100,000	M2	RRMA 2
Rural zone	Large Rural Centres (urban centre population 25,000–99,999)	R1	RRMA 3
	Small Rural Centres (urban centre population 10,000–24,999)	R2	RRMA 4
	Other Rural Areas (urban centre population < 10,000)	R3	RRMA 5
Remote zone	Remote Centres (urban population ≥ 5,000)	Rem1	RRMA 6
	Other Remote Areas (urban population < 5,000)	Rem2	RRMA 7

Source: Adapted from *Rural, regional and remote health: A guide to remoteness classifications,* by Australian Institute of Health and Welfare, 2004, (Vol. AIHW Cat no PHE 63). Canberra: Australia with permission.

2.2.5 Australian Standard Geographical Classification Remoteness Area (ASGC-RA) classification

The ASGC-RA classification was a similar geographic formula updated by the Australian Bureau of Statistics. Adapted from ARIA+, ASGC-RA was based on distance measures from a number of different-sized towns. Data from ABS was classified from collection districts (CDs) and into broad geographic areas called remoteness areas (RA). The advantages were considered to be its ease of updating from ABS data, the ease with which other agencies and departments such as Department of Human Services could build payment systems and the fact that it appeared to have fewer anomalies than previous models (Mason, 2013).

In 2009, it was introduced as a classification of rurality for ABS and AIHW measures and for medical workforce programmes operated by the Commonwealth government. It defined RA1 as Major Cities, RA2 as Inner Regional, RA3 as Outer Regional and RA 4 and 5 for Remote and Very Remote. The geographic nature of the classification meant

that large cities like Cairns, Townsville and Darwin were considered outer regional (RA3) as they were distant from Brisbane as the nearest capital and therefore became eligible for incentives. Also, Hobart was not considered a major city and was classified in RA2. One of the major concerns with this classification related to the lack of heterogeneity within both inner regional and outer regional areas where towns with vastly differing populations and GPs performing different practice activities were considered similarly. Similar to the ARIA classification, ASGC-RA considered only remoteness, not population size meaning towns with populations of 500 and 50,000 were grouped together. Prior to the commencement of ASGC-RA, medical workforce policy targeted its non-metropolitan programmes largely at small communities (RRMA 4-7). The use of the ASGC-RA classification heralded a policy shift to including regional centres and other larger population centres such as Hobart and Darwin within the workforce recruitment and retention programme.

The use of ASGC-RA has been contentious in recent years (Rural Doctors Association of Australia, 2012a; Schuh, 2012). Various approaches have been taken by organisations wishing to prioritise smaller rural and remote locations over larger population centres in allocating incentives or supports. One method of achieving this has been by reallocation of postcodes that were previously RRMA 1 and 2 and considered metropolitan to a separate category so that these postcodes did not achieve similar advantage to more rural postcodes (National Rural Health Alliance, 2014a).

A set of commonly agreed principles were defined as crucial for any rural classification suitable for health workforce training programmes as part of the Mason Review (2013). These included stability over time, discrimination between large and small towns in less remote areas, measures of both remoteness and rurality and the capacity to update preferably by an independent entity like ABS.

Table 2.2: Classification systems

RRMA				ARIA	ASGC RA (remoteness)
Broad Category	Fine Category	Population		Category	Category
Metropolitan	Capital cities M1	All	(RRMA1)	Highly Accessible	Major cities (RA1)
	Other metropolitan centres M2	> 100 000	(RRMA 2)		
Rural	Large rural R1	25–99 999	(RRMA3)	Accessible	Inner Regional (RA2)
	Small rural R2	10-24 999	(RRMA4)	Classification of accessible and moderately accessible not dependent on population size within this box	Classification of inner regional or outer regional not dependent on population size within this box only distance to capital cities
	Other rural R3	<9 999	(RRMA5)	Moderately accessible	Outer Regional (RA3)
Remote	Remote centres Rem 1	>5 000	(RRMA6)	Remote	Remote (RA4)
	Other remote areas Rem 2	<4 999	(RRMA7)	Very remote	Very remote (RA5)
Logical use of 3 zones/Strong influence of population size classifies towns of similar size *Use of straight-line measurements and SLA boundaries very imprecise. Never updated (used 1991 population counts)*				Flexibility to measure remoteness at any geographic level with precision *Only measures geography doesn't measure access as name implies*	More refined methodology adding further service centre category, better separation of major cities. Updated by ABS *Extreme heterogeneity within some areas like outer and inner regional* *Population size not accounted for*

Source: AIHW (2004) and McGrail et al. (2009).

The importance of classifications being 'fit for purpose' is clear (Hugo, 2007). Whatever the definition being utilised, McGrail & Humphreys (2009) had previously affirmed that any classification of regional (or rural) should ensure that people with similar characteristics and problems related to location fall within similar categories. Regional and rural areas are clearly heterogeneous, differing on the basis not just of size, but also in geographic location and attractiveness, patterns of population growth, ageing, and key socio-demographic and economic profiles. Regional centres, with their greater critical mass of GPs and specialists than rural locations, should be classified similarly, if classification has an important influence on the application of workforce recruitment and retention policies, and incentives for non-metropolitan areas (McGrail & Humphreys, 2009). Whilst no classification can adequately delineate commuting distance and hinterland influence, the RRMA classification of RRMA3 large rural does reflect a good 'fit' for size of centre where specialist medical services are likely to operate comprehensive after hours services and general practice in the main is not a hospital-centric activity.

2.3 Health status in regional centres

There is strong evidence that people living in non-metropolitan areas continue to experience poorer health outcomes than their city counterparts (Australian Institute of Health and Welfare, 2014a; National Rural Health Alliance, 2009; Rickards, 2011). They have higher mortality rates and consequently lower life expectancy and experience higher rates of hospitalisation and significantly more chronic illness than residents of metropolitan areas (Council Of Australian Government Reform Council, 2012). Moreover, mortality and morbidity statistics for both men and women show poorer health indicators in virtually all age brackets (Australian Bureau of Statistics, 2011).

Most available contemporary statistics on health status and outcomes for regional centres are currently reported using the ASGC-RA classification (Council Of Australian Government Reform Council, 2012). Regional centres are hard to identify within this classification as they sit within the 'inner regional' or RA2 band, which also encompasses a capital city (Hobart) and other peri-urban population centres that are

considered accessible to metropolitan areas. This means that health trends and outcomes reported for these may reflect the health status of both regional cities and also some of the larger population centres such as Hobart where health access and socioeconomic indicators may be significantly different.

There is, however, a body of empirical evidence to suggest that mortality rates increase with a gradient of increasing geographic remoteness (Australian Institute of Health and Welfare, 2014a). According to Phillips (2009), 70% of the additional deaths in regional and remote areas were due to coronary heart disease, diabetes, chronic obstructive airways disease, cancer and injury. Key indicators point to a higher prevalence of chronic disease in the same gradient moving away from major cities (Australian Bureau of Statistics, 2014b; Australian Institute of Health and Welfare, 2014c).

Suicide statistics also show some striking differences. The highest suicide rates are noted among males from 'large rural centres' (RRMA3), rural and remote areas, a pattern that was described in 1998 (Australian Institute of Health and Welfare) and affirmed in 2010 (Suicide Prevention Australia, 2010).

In terms of cancer, the incidence of new cases of 'all cancers' was 1.1 times higher in inner regional areas compared with major cities (National Rural Health Alliance, 2009). In addition, survival rates remain lower for all major cancers. The excess mortality (in the region of 7%) in rural and regional areas equates to 9,000 additional deaths over the last decade (Fox & Boyce, 2014). Finally, screening rates are lower suggesting that the excess mortality may well be partially explained by poorer access to health services.

Of all the ill health, disability and premature deaths that occur in Australia, almost one-third can be attributed to the presence of health risk factors (Australian Institute of Health and Welfare, 2012). An example is smoking with differing rates related to both geography and to social disadvantage. In metropolitan Australia, 17.5% of the population are current smokers, with over 20% in inner regional areas increasing to 25% in outer regional areas and 27.3% in remote areas (Australian Bureau of Statistics, 2011). Risky rates of alcohol consumption also rise with increasing distance from major

cities. Indeed, there is evidence of greater rates of alcohol related harm in all areas outside major cities. In considering this, community acceptance of drinking and limited social outlets are both possible factors contributing to this incidence in both rural and regional areas (National Rural Health Alliance, 2014b).

Recent commentary has highlighted the complex interaction between occupational, ethnic, racial, socioeconomic and educational backgrounds of rural inhabitants which may partially explain the health differentials (May, Carey, & Curry, 2013; K. Smith et al., 2008). There is a consistent relationship between socioeconomic status and mortality, regardless of whether socioeconomic status is measured by income, qualifications, occupation, and area of residence. Other markers of socioeconomic inequality include lower rates of private health insurance and higher proportions of residents with health care concession cards (Health Policy Analysis, 2011, Australian Bureau of Statistics 2011). Dubbo Hospital catchment, for example, had a rate of private health insurance in 2008 half the national average at 22% (Greater Western Area Health Service, 2008). Aboriginal Australians experience poorer health than the rest of the population. Whilst higher percentages of Aboriginal Australians live in non-metropolitan areas, their outcomes do not explain the total disparity (Australian Institute of Health and Welfare, 2008, 2014a; Council Of Australian Government Reform Council, 2012; K. Smith et al., 2008).

The capacity to attribute the contribution of limited access to health services as a reason for poorer health outcomes is limited. It may reflect any combination of differential availability of services and the differential utilisation of services. Regional centres are characterised by lower health professional to population ratios (Australian Bureau of Statistics, 2008) and reduced availability of both screening and diagnostic services (Deloitte Access Economics, 2011). Table 2.3 demonstrates the reductions in services outside capital cities using Medicare funding. The table shows a lower number of services per capita provided by GPs, specialists and also Medical Benefits Schedule (MBS) funded allied health services in all areas outside metropolitan areas. This table suggests reduced per capita services compared to capital cities with likely impact on the availability of services for patients.

Table 2.3: Services received by rurality 2006-7 as a proportion of services received in capital cities

Service type	Inner regional (ASGC-RA2)	Outer regional (ASGC-RA3)	Remote (ASGC-RA4)	Very remote (ASGC-RA5)
MBS GP services	84%	79%	71%	54%
MBS Specialist services	74%	59%	38%	30%
MBS Allied health services	75%	45%	24%	9%

Source: National Rural Health Alliance (2010b). Reproduced with permission.

Major deficits are seen in most health workforces in non-metropolitan areas including dentists, allied health professionals and registered nurses. These deficits become greater the further from metropolitan areas one goes, with the lowest levels of supply in remote areas (Parliament of Australia Community Affairs References Committee, 2012). The supply issues relating to medical practitioners will be reviewed in Chapter 3.

In addition, the utilisation of health services is a key factor impacting potentially on health outcomes. Dated Australian evidence points to health behaviour of rural residents with definite attitudes to the way they want their health services delivered, allegiance to local health service providers and continuity of care (Humphreys, Mathews-Cowey, & Weinand, 1997; Humphreys & Rolley, 1993). Indeed, the role of cultural attitudes towards health and community interaction in non-metropolitan communities, especially among males, has been recognised (Australian Institute of Health and Welfare, 2010). The ideals of stoicism and individualism can be seen as positive and negative attributes contributing to community cohesion and the development of social capital, but also potentially underplaying health risks (Rickards, 2011).

Given that the availability of health services, their type, and utilisation for those deemed non-metropolitan do not match their metropolitan counterparts in terms of volumes, it is also important to consider the impact of specialist service availability for those who live outside capital cities. These residents are represented by RA2 (inner regional areas), outer regional areas represented by RA3 (outer regional), RA4 (remote)

and RA5 (very remote). Residents may be part of the catchment of a regional centre referral hospital, and their secondary care will come in large part from specialist medical practitioners residing and working in regional centres. Thus, the limited access to specialist service will have a direct bearing on the way in which their health problems can be managed, increasing the GPs' likely scope of practice and increasing social costs to patients for even greater travel distances.

In summary, residents of many regional centres would appear to have poorer health outcomes, higher risk factors and poorer access to health services than those residing in metropolitan areas. These outcomes follow a gradient with poorer health outcomes the more remote the location. Importantly, however, the quantification of the size of this effect for those who live in regional centres is difficult given the lack of distinction within the reporting classifications.

It is clear, therefore, that the patterns of health status and the distinctive health care needs of residents of regional communities warrant an appropriate health care delivery system and responsive workforce recruitment and retention policies. From the broadest perspective, the objectives of any health system are to improve health outcomes, increase equity, control costs and satisfy users (Murray & Frenk, 2000; World Bank, 1993), yet much of the evidence for regional as well as rural populations in Australia points to the operation of Hart's 'Law of Inverse Care' which suggests that the availability of good medical care tends to vary inversely with the need for it in the population served (Humphreys, 1998). Thus, any study of the provision of medical services needs to consider the context of the organisational structure of the system within which these activities take place.

2.4 Organisation of health care in regional centres

It is possible to characterise the contemporary personal health care delivery systems in regional Australia, as in most developed countries, as tripartite (Figure 2.3). At the base of the pyramid at the primary level are general practitioners and Aboriginal medical services, whose main function is primary health care. Specialist doctors and

generalised hospitals make up the secondary level in this tripartite system, with highly specialised hospitals and clinics comprising the tertiary level.

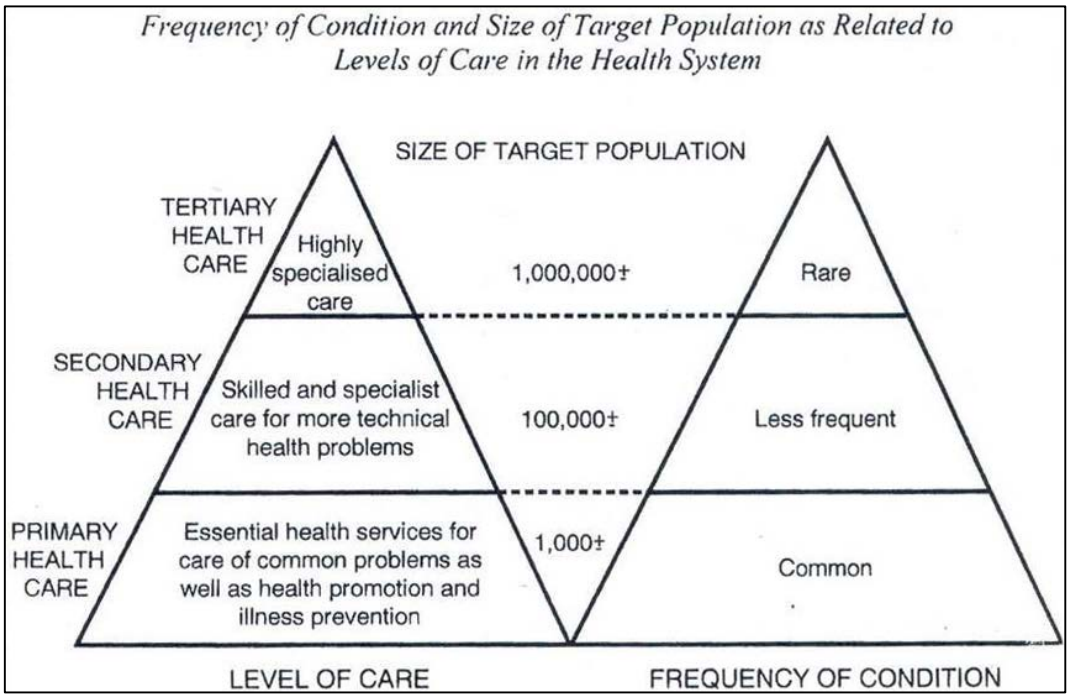

Figure 2.3: Personal health care delivery systems

Source: *Models of Health Service delivery for Small Rural and Remote Communities* (p. 8) by J.S. Humphreys and S. Matthews-Cowey, 1999, Bendigo: La Trobe University. Reproduced with permission.

Primary care is considered the care by a health professional that is the client's first entry point into the health system and is provided in the Australian context predominantly by GPs as well as by practice nurses, early childhood nurses and community pharmacists (Keleher, 2001). GPs act as gatekeepers within the health system (Humphreys et al., 2001; Starfield, Shi, & Macinko, 2005). General practice tends to be considered by consumers as a place where general practitioners are (Australian Government Department of Health and Ageing, 2005; Humphreys & Rolley, 1998), whereas the health system more broadly thinks of it as an organisational structure that provides primary care. There is an increasing emphasis and realisation that general practices are whole units rather than GPs, reflecting the increasingly multidisciplinary nature of general practice (Australian Government Department of Health and Ageing, 2005; Bonney & Farmer, 2010). In regional centres, GPs are not

expected to provide hospital or emergency services as they might in smaller towns. They function independently in stand-alone practices billing residents both privately and via the Medicare rebate (bulk billing).

The traditional 'cottage industry' general practice has been changing over the last twenty years with consolidation of smaller practices into larger groups and a decline in numbers of practitioners working in smaller practices (Harris & Zwar 2014). This is evidenced by the increasing proportion of practitioners working in practices with five or more people (Australian Institute of Health and Welfare, 2013). In addition, since the late 1990s, the rate of corporatisation of medical services in Australia has also increased with as many as 40% of practices in Western Australia corporatised by 2012, although the rate in other states is thought to be lower at around 12% (Australian Government Department of Health and Ageing, 2012). The Commonwealth government supported the development of larger general practices with a GP 'super clinic' policy in 2007 (Australian Government Department of Health and Ageing, 2008). Sixty-four clinics were commissioned Australia-wide to provide a greater range of convenient and co-located primary care services in local communities. The sites for these new clinics did not, however, necessarily correspond with districts of workforce shortage or designated areas of need (East, 2011).

In rural and remote communities, with continuing population decline, there has been rationalisation and centralisation of services once available there. Prior to the 1990s, maternity, anaesthetic and some surgical services were provided by rural GPs in rural hospitals; however, 50% of maternity units have closed in NSW since 1994 (Brodribb, 2014; Squires, 2011). The reduction in procedural GP services (for example anaesthetics, surgical and other operative services) and GP intra-partum care in smaller hospitals has increased the reliance of smaller communities on regional centres for emergency transport and management, diagnostic and specialist care (Pashen et al., 2007), in addition to maternity care (Brodribb, 2014; Kildea et al., 2006). Regional centres therefore increasingly have a dual role of providing secondary health care for their feeder regions and primary care for their regional residents. In fact, regional centres have benefited in terms of growth with the 'pull' towards them, of public and private sector services once based in small rural towns. Financial, legal and retail

services as well as health services have seen this migration. As distances between centres increase and the population decreases, smaller rural towns have had to examine other ways of accessing services including health care. The social, economic and health impacts on rural communities and their residents have been significant and often negative (Alston, 2007; Humphreys, Hegney, Lipscombe, Gregory, & Chater, 2002; Klein, Christilaw, & Johnston, 2002; Townsend, Mahoney, Nesbitt P, & Hallebone E, 1999).

What were once primary care responsibilities in rural towns managed by general practitioners have now become specialist services on the second tier of the tripartite health care delivery system (Figure 2.3). These services then become referred services where the GP as first point of contact refers the patient to the medical specialist who provides care. The referral for obstetric services (obstetricians) and surgical procedures (surgeons) are examples of services previously delivered by GPs in many rural locations. Furthermore, screening services are often only available in regional centres (Australian Institute of Health and Welfare, 2014a). The distinction is complex and secondary care is often thought of as hospital care when in fact it is more about referred care, as many medical specialist providers are working outside hospitals. In addition to consulting with patients in their office practice, private specialists will typically have the ability to treat patients in hospital, both public and private. Alternatively, and in addition, hospitals employ specialists (and doctors in training) directly to provide inpatient services and run outpatient clinics. Hospitals in regional centres have resident, registrar and specialist medical staff. This ensures a 24-hour medical staff presence in these hospitals, often with retrieval capacity to transfer sick patients from surrounding rural towns.

In the early 1990s, Harris (1992) and Gadiel (1994) were commissioned by the Commonwealth government to review rural specialist services. Both studies concluded that specialist services should be planned for, considering the need for a critical mass of clinicians to serve populations within a given catchment. The studies identified that Anaesthetics, General Medicine, General Surgery, Obstetrics and Gynecology, and Orthopedic Surgery were basic specialist services that should be provided by resident specialists based in major regional centres. A larger population base was required to

support a resident service for the specialties of Dermatology, Psychiatry, Ophthalmology; sub-specialist physician practice such as Gastroenterology, Geriatric Medicine, Medical Oncology, Neurology; and the Surgical Specialties such as Ear Nose and Throat, Urology and Plastic surgery (Gadiel & Ridoutt 1994; Harris, 1992). Other specialised services such as Neurosurgery and Cardiothoracic surgery could only be provided on a visiting basis or through patients travelling to visit specialists in capital cities (Australian Medical Workforce Advisory Committee 1996). These services required large referral populations and significant infrastructure and were best located in capital cities. Following modelling work done by the Australian Medical Workforce Advisory committee (1998b), a report was produced considering the requirements for a sustainable supply of specialists in regional Australia. Most recently, new modelling was undertaken by Health Workforce Australia (2012b) reviewing medical workforce and future supply. This will be further discussed in Chapter 3.

It is also important to consider the funding of the Australian health care system and the specific issues that arise for the provision of medical care in regional centres. The health care system is characterised by a mixture of private medical services, government provision, and public involvement in the training of medical and health care professionals, and a high degree of public intervention in the pricing system for services through a mixture of public and private health insurance schemes. The cost of health care is borne in part by citizens and in part by government, with the Commonwealth government contributing 60.5% of total funding (Australian Government Department of Prime Minister and Cabinet, 2015). Since Federation, there has been a division of functional responsibility and financial power that leaves authority for most health matters in the hands of the states, but which gives effective financial power to the Commonwealth (Burrows, 1992; Duckett & Breadon, 2014).

Notwithstanding these complex funding arrangements and despite the major role of governments in the financing of Australian health services, the private sector remains central to Australia's health care system. This is especially the case because most primary medical care is provided by private practitioners (Australian Institute of Health and Welfare, 2014a). Medical practitioners in regional centres are remunerated though a number of different mechanisms. GPs work on a fee for service model. They

may choose to charge private fees or accept the MBS rebates from the government and thus the patient does not pay for the service (bulk billing). The main method through which private practice specialists receive income is through the MBS, although this is supplemented by out of pocket payments by patients and private health insurance gap payments (currently for hospital services). A key factor influencing the distribution of specialist medical practitioners is the extent to which a private practice will be financially viable (Cheng, Joyce, & Scott, 2013). This requires an adequate volume of patients with capacity to pay, or larger volumes of patients if bulk billing is offered. Hospital work is renumerated either on a sessional, per patient or salaried arrangement with staff specialists being based in regional centre hospitals treating but not charging patients directly.

Another factor impacting private practice viability for specialists is that in rural and remote areas there is a significantly lower portion of the population that have private health insurance and thus are likely to utilise private hospital facilities. After accounting for the effects of age, people in major cities are 27% more likely to have private health insurance and 23% less likely to have a health-related concession card than people living outside of major cities (Health Policy Analysis, 2011).

The organisation of specialist medical practice in regional centres could be considered as a hybrid, with elements of remuneration based on patient's capacity to pay (private medicine), combined with the non-market driven service delivery requirements to provide care to a large geographically dispersed catchment. Therein lies a challenge with the need to provide around the clock care (on-call) to a population with evidence of high health need and lower capacity to pay in regional centres.

In summary, the organisation and funding of the Australian health care system, combined with the specific nature and role of regional centres within the Australian settlement hierarchy, the pattern of health status and the distinctive health care needs of residents of regional and rural communities have clear and important implications for the provision and delivery of medical care. However, how these structures work in practice is very much determined by health policy. It is therefore important to review

the main components of Australian health policy as it relates to the supply of medical workforce in regional Australia.

2.5 Health policy, workforce planning and regional centres

Health policy refers to decisions, plans, and actions that are undertaken to achieve specific health care goals within a society (World Health Organisation, 2014). The objectives of the Australian health system as articulated by the Commonwealth government are to improve health outcomes, and support equitable and sustainable health care (Council Of Australian Government 2011b). Matters are by no means as straightforward as this statement might suggest because responsibility for health service delivery is shared amongst Commonwealth, state and local governments (which have responsibility for many institutional and environmental health services). The environment in which health and medical services are planned and administered in Australia has changed dramatically in the last three decades.

Two other stakeholders have a major role in influencing medical workforce policy, in addition to the state, Commonwealth and local government. Specialist medical colleges with roles in selecting trainees, accrediting and overseeing training in their specialties are also key players. Their influence extends to control of the type and location of training positions and the accreditation of clinical supervisors.

The other key stakeholder in health policy is the 'community'. This loosely involves resources both capital and human provided by councils, community groups and individuals. The role of the community in small rural locations in recruitment is well documented (Veitch & Grant, 2004). In regional centres there has been debate about financial responsibility for service delivery, but there is little doubt about the key role the community plays in recruiting and retaining medical personnel (Sweet, 2009).

Changing demographic factors such as the ageing population, increasing per capita utilisation of health services, and the proliferation of medical technology coupled with fiscal constraints, have been potent drivers requiring health service planning attention (Humphreys, 2009). In addition, the interpretation by successive governments of their role to influence health policy to provide or support the equitable distribution of

health care is ever changing. Consider the two levels of government in Australia that have traditionally formulated policy based on their own responsibilities. Broadly, the division of responsibilities for health policy has largely been one that gives the Commonwealth responsibility for national policy development and the states/territories responsibility for administration, intervention and implementation within their own jurisdictions.

Importantly, there has been variability in the policy role as interpreted by successive Commonwealth governments. Following the election of a Labor government in 2007, the new government commissioned the National Health and Hospitals Reform Commission to devise a blueprint for health care (Health and Hospital Reform Commission, 2009). The commission suggested that one level of government should be responsible for health system and suggested this could be the Commonwealth. It also suggested a strengthening of the primary care system and 'connection and integration or health and aged care services over people's lives' (Health and Hospital Reform Commission, 2009, p. 101). Outcomes included a National Health Care Agreement (Council Of Australian Governments 2011a) with the states and a national Primary Care Strategic Framework (2013) with a network of 61 Primary Health Care Organisations (called Medicare Locals at that time). A change of government in 2013 heralded different directions, underpinned by the belief that the role of the private sector and its attendant efficiencies had been underutilised. Medicare Locals and the National Health Care agreement have subsequently been restructured. Medicare Locals have been recast and enlarged as new entities called Primary Health Networks (PHNs). The government also signalled a review of roles and responsibilities between the state and the Commonwealth with the release of a Federalism discussion paper (Australian Government Department of Prime Minister and Cabinet, 2015). The issues paper suggested a review of current funding arrangements and responsibilities.

One way of classifying health policy is to consider mainstream policy that is administered across every location nationally, and rural specific or supported policies that are often targeted to achieve certain workforce or service provision goals. Examples of mainstream policies providing health service funding include payments via Medicare, aged care or via health care agreements with the states. These provide

the bulk of health funding applicable in regional centres. Gable (2013) provides a comprehensive review of mainstream primary health care policy including both the PIP (Practice Incentive Programme) and coordinated care trials, which are policy areas based on blended or capitation funding rather than the fee for service payments that are central to the health system at present.

Targeted rural funding initiatives have included workforce programmes, which will be discussed in the following section. They have included infrastructure programmes, and Medicare billing items that have rural and remote 'loadings'. These policies have been used by successive governments in order to incentivise and address the poorer health outcomes and the distributional challenge of the health workforce (Humphreys & Gregory, 2012).

Historically, targeted rural funding has focused on GPs in small rural centres. GPs had been eligible for an additional bulk-billing incentive for Medicare consultations, introduced in 2003 under a 'Strengthening Medicare' budget initiative (Medicare Australia, 2004). This was applicable originally in RRMA areas 3-7 and then converted to ASGC-RA: 2-5. A practice nurse incentive originally rolled out in RRMA 3-7 with a rural loading supporting increasing remoteness also commenced at this time. The targeting was further widened with extension to outer metropolitan areas and all Tasmania in 2005. With the extension to ASGC RA2 locations in 2009, GPs in regional centres became eligible for rural relocation and retention incentives.

Whilst these policy initiatives have applicability to GPs in regional centres, little direct policy for specialists has been enacted. The state jurisdictions responsible for hospital services have had no publicly available coordinated strategy to support recruitment in regional centres. Visiting Medical Officer (VMO) appointments and vacancies have not been easily visible, with projections for population and health service planning documents not always in the public domain. Substantial upgrades of regional hospitals have been election commitments in NSW, Victoria and Qld (NSW Health, 2012a; Queensland Health, 2011; Victorian Minister for Health, 2005). This has had the effect of improving working conditions in centres where the upgrades have occurred. In addition, Commonwealth commitments through the health reform agenda promised

further funding for emergency and subacute beds (Gillard, 2011). As mentioned previously, the policy settings themselves are in some flux with the responsibilities of State and Commonwealth currently under review (Abbott, 2014).

An example of a targeted rural specialist programme is the Medical Specialists Outreach Assistance programme (MSOAP) which commenced in 2001 and has supported the expansion of fly-in fly-out (FIFO) services to communities both small rural and those in regional centres. Specialists were supported with travel, accommodation and other professional supports to improve the cost effectiveness of service provision to non-metropolitan communities. Specialists who participate in this programme may be resident in regional centres; however, the majority are based in metropolitan areas. An evaluation in 2011 suggested that the programme had considerable utility but that closer integration with primary care could optimise the service (Health Policy Analysis, 2011; Mason, 2013).

Another recent programme applicable to outer metropolitan areas, urban Aboriginal medical services and any RA2 area was the MBS Telehealth incentive. This investment was announced in the Federal Budget in 2008. The commencement of the telehealth initiative supported specialists with additional Medicare incentives and a one-off infrastructure payment to provide telehealth services to patients located in rural and outer metropolitan areas. This has seen a steady expansion of these services (most of which are based in metropolitan areas) to both regional and rural locations (Australian Government Department of Health, 2014b).

Thus while there has been no systematic policy targeting regional centres, there are examples of policy initiatives that impact on these locations. Medical workforce policy, however, remains the most utilised policy lever that the Commonwealth government has used to influence rural and regional medical recruitment and retention.

2.5.1 Medical workforce policy

Workforce planning and policy settings designed to influence a distributed health workforce have been important priorities for governments in many countries with low

population density. Australia is no exception, with the bulk of the policy and planning from the Commonwealth geared to improve rural health access via workforce policy.

Medical workforce policy options available to most governments hinge on a small number of levers available to alter rural/urban mismatch of supply. There has been considerable international research to review strategies useful to both the developed and developing nations to improve the distribution of health professionals (Forcier, Simoens, & Giuffrida, 2004; Ono, Lafortune, & Schoenstein, 2013; Simoens, 2004; World Health Organisation, 2009, 2010). A Cochrane review in 2009 reviewed interventions internationally to increase the number of practitioners in rural and underserved areas (Grobler, Marais , Marindi, Reuter, & Volminkl, 2009). A systematic review looked at policy interventions and evolved domains (see Table 2.4) by which policy options could be considered (N.Wilson et al., 2009). Larkins & Evans (2014) have also recently identified workforce supports that they feel would support generalist practice in rural and regional areas.

When considering the regional centre context the evidence for interventions is scant and much is drawn by inference from data where regional centres are classified as rural or from data where regional centres have been considered as higher density and thus excluded.

Australia has a significant history of medical workforce policy interventions. Whilst inequalities in workforce distribution were recognised from the seventies, it was the late 1980s before rural doctors and others commenced advocacy around the need for greater support, to ensure rural medical services were maintained. A freeze in undergraduate medical places and postgraduate training programmes exacerbated workforce undersupply (Harris & Zwar, 2014). In 1993, the first Commonwealth-funded rural workforce programmes, the Rural Undergraduate Support and Coordination (RUSC) and Rural Health Support Education and Training (RHSET) were offered. In 1996, vocational registration for general practitioners was mandated with a net effect of contraction in the supply of general practitioners. Consequently, policy supporting IMGs working in areas of documented undersupply commenced. GP financial incentives followed in 1998 (Humphreys & Gregory, 2012). Also notable was

the commencement of policies targeting obligation via bonding. These initiatives can be reviewed in greater depth in Appendix 2, where a timeline of reports and initiatives is presented. Specific Commonwealth and state policy interventions available at June 30 2012 can be viewed in Appendix 3.

Responses from government have built on the evolving evidence of rural workforce levers. They have concentrated on selection, rural exposure, coercion and the use of financial incentives. These policy interventions have gradually built over time. In 2007 Rural Health Workforce Australia, a Commonwealth government established rural workforce agency, noted over sixty programmes with some influence on rural workforce (Australian Rural and Remote Workforce Agencies Group, 2007). Appendix 3 has a list of workforce policies at 30 June 2012 detailed separately by Commonwealth and state jurisdiction.

The table below draws on the systematic review undertaken by N. Wilson et al. (2009) using the domains for intervention he described. These are selection, rural exposure, coercion, and incentives. Further review of the evidence for these interventions will be found in Chapter 4. The purpose of this table, at this point in the thesis, is to apply more recent Australian evidence relating to rural areas, consider the regional centre context and describe the current Australian policy responses. Rankings have been adapted from Wilson et al.'s (2009) simple user-friendly grades of evidence: convincing, strong, moderate, weak and absent. A strong rating was defined as 'consistent findings from multiple studies (retrospective and/or prospective) performed in various settings, where the independent effect of the particular variable was confirmed through multivariate analyses. Moderate was defined as 'consistent qualitative and/or quantitative findings from multiple studies and in various settings, but without multivariate analysis'. Weak was defined as 'qualitative and/or quantitative findings that were inconsistent across studies or only reported in a single study'. Absent was defined as 'no evidence meeting any of the set criteria'.

Table 2.4: Policy Interventions for medical workforce recruitment and retention with implications for regional centres

Recruitment Strategy	Evidence for rural	Evidence for regional centres	Current Intervention
Selection-Geographic rural and regional origin	Strong (Laven & Wilkinson, 2003; McGrail, Humphreys, & Joyce, 2011a; Simmons, Bolitho, & Phelps, 2002; Walker, DeWitt, Pallant, & Cunningham, 2012)	Strong: Australian studies included regional centres as part of sample population. .Association increases with increasing years of rural background. Size of town of origin not significant Not specific for regional (regional part of rural)	Increasing medical school intake of rural origin students Rural Clinical Training and Support Programme (RAMUS and RCTS)
-SEIFA	Moderate-(Puddey & Mercer, 2014) (2.5 times more likely to have rural intent		
-Spousal origin	Strong (Laven & Wilkinson, 2003; Simmons et al., 2002)	Strong: Australian studies included regional centres as part of sample population	-
-Gender	Strong (McGrail et al, 2011a, Playford, Evans, & Atkinson, 2014)	Strong: Men make up a greater proportion of specialists in a regional setting regardless of background (Commonwealth Department of Health and Ageing, 2013; Meek, Doherty, & Deans, 2009)	-

Table 2.4: Policy Interventions for medical workforce recruitment and retention with implications for regional centres (contd.)

Recruitment Strategy	Evidence for rural	Evidence for regional centres	Current Interventions
Training-Rural exposure in undergrad curriculum and JMO	Moderate (Clark et al., 2013; Dunbabin, McEwin, & Cameron, 2006; Eley & Baker, 2007; Sen Gupta, Murray, Hays, & Woolley, 2013; Playford et al., 2014; Walker et al., 2012; David. Wilkinson, Laven, Pratt, & Beilby, 2003)	Moderate as per rural Difficulties of attribution as many students rural origin Also structured training exposure only just impacting due to long lead time.	Rural Clinical Training and Support Programme John Flynn Scholarship Scheme
Rural exposure in vocational training	Moderate (David. Wilkinson et al., 2003) (Hogenbirk, Mian, & Pong, 2011)	Evidence for retention increases with length of rural postgraduate training although confounded by rural origin and intention Generalist intention also correlates with rural Strongest in relation to GPs but Canadian study (Specialists) positive	PGPP Specialist Training Positions Rural Generalist training opportunities
Coercion International recruitment	Moderate (Barnighausen & Bloom, 2009; Russell, McGrail, Humphreys, & Wakerman, 2012a)	Evidence for recruitment but longer term retention unknown in regional areas	DWS/ Area of Need including moratorium
Medical School bonding for future rural commitment	Weak (Barnighausen & Bloom, 2009; McDonald, Bibby, & Carroll, 2002)	Early projections of effect in region 13% (Deloitte Access Economics, 2011)	Bonded Medical Places Medical Rural Bonding Scheme

Table 2.4: Policy Interventions for medical workforce recruitment and retention with implications for regional centres (contd.)

Recruitment Strategy	Evidence for rural	Evidence for regional centres	Current Intervention
Incentives Bursaries and scholarships	Weak	NSWRDN cadetship programme appears to show good retention in regional centres(New South Wales Rural Doctors Network, 2004)	Cadetships RAMUS
Financial Compensation	Moderate (may assist with recruitment and short term retention for the period of time related to the incentive (Buykx, Humphreys, Wakerman, & Pashen, 2010)	No evidence from regional areas	Relocation incentives retention incentives commenced July 2010 HECS accelerated payment forgiveness
CPD support	Weak	Specialist support by application only-not evaluated (RHCE)	Available for procedural skills practitioners in rural centres (applicable to very few in regional)
Locum	Not easily quantifiable	No specific evidence of effect reported for regional centres	Specialist and Procedural GPs have access to Rural Obstetric and Anaesthetic Scheme (ROALS)
Family and lifestyle	Weak	Higher levels of satisfaction reported in inner regional areas (McGrail, Humphreys, Scott, Joyce, & Kalb, 2010b)	Rural Task forces and support (Felix, Shepherd, & Stewart, 2003; Veitch & Grant, 2004; Wiseman, 2012)

Source: Adapted from N. Wilson et al. (2009).

In terms of policy evidence internationally and within Australia, there is agreement that no single strategy will impact alone on recruitment and retention in less attractive or rural settlements (Buykx et al., 2010). Australia has used a multifaceted approach with interventions in most of the domains described. This is consistent with the recommendations of the WHO strategy published in 2010 (World Health Organisation, 2010).The building blocks of Australian rural workforce policy have been

support of rural affirmative selection and exposure, with the Rural Clinical Schools providing the focus for funding (Australian Government Department of Health, 2011). There are now teaching facilities in all RRMA3 size regional centres in Australia. These facilities and their staff have recruited rural high school students, supported regional clinicians and supported medical students to ensure regional, rural and remote exposure. Furthermore, strategies such as Pre Vocational General Practice Placement Programme (PGPP) and Specialist Training (STP) programmes have ensured doctors in pre-vocational training and specialist training registrars have rural exposure as part of their training.

Coercion strategies utilised in Australia include two types of bonded places: the Medical Rural Bonded Scholarship Programme (MRB) and the Bonded Medical Placement programme (BMP). The use of IMGs able to access alternative arrangements for vocational registration via the district of workforce shortage (DWS) classification is another form of coercion. Finally, relocation and retention incentives for GPs and scholarship support form the major planks of remunerative support for recruitment.

Retention incentives include support for continuing professional development, locum support and remuneration. Buykx et al. (2010) contend in their systematic review of retention incentives in rural and remote areas that providing adequate infrastructure, fostering workplace organisation, maintaining adequate and stable staffing, realistic and competitive remuneration and shaping the professional environment in addition to ensuring social, family and community support were the strategies with the best evidence. Many of these initiatives would be considered outside the remit of health policy in Australia in 2014.

This workforce policy approach does affirm the contention mentioned previously that multiple strategies or interventions are required working at differing points in the practitioner's trajectory and practice career (Ballance, Kornegay, & Evans, 2009; Humphreys et al., 2009; N. Wilson et al., 2009). In Australia, interventions have been extended gradually over the last fifteen years and through two changes of government. The remuneration part of the retention phase has been the most utilised with

retention bonuses and discounts on repayment of university loans (Buykx et al., 2010; Humphreys et al., 2009).

Finally, it must be noted that health policy per se is only part of the policy milieu facing regional centre residents and potential residents. Policies by government around taxation, financing and support of education, housing, industry and agriculture for instance have direct and indirect impact on the attractiveness and liveability or regional centres (Disney, 2015). Infrastructure spending and, decentralisation policies have been offered by successive governments to support non-metropolitan areas (Department of Regional Australia Regional Development and Local Government, 2011). It is beyond the remit of this study to examine their impact; suffice to say that they remain a key component of the 'bigger picture' of life in regional centres.

2.6 Conclusion

The provision of medical care to non-metropolitan Australians takes place within a complex structural and policy milieu. Although complicated by definitional difficulties, there is consistent evidence that regional centres share with rural Australia some of the poorer health outcomes and poorer health service access outlined in this chapter. The provision of services, however, is clearly predicated on the availability of an appropriate medical workforce. Because of their size and role, regional centres are important non-metropolitan settlements in servicing rural and remote populations in addition to their base population. Indeed, whilst regional centres are key to health care service provision – they are seen as the 'hubs' in the current 'hub and spoke' model of service delivery – the availability of medical workforce in any particular location is a function of the complex interaction of three components: supply, recruitment and retention. The following chapter begins by outlining the supply of two key components of primary and secondary medical care in Australia – general practitioners and specialists – before exploring the scope and nature of medical practice with particular reference to regional centres.

CHAPTER 3
FACTORS IMPACTING ON SUPPLY OF THE MEDICAL WORKFORCE IN REGIONAL AREAS

3.1 Introduction

In Chapter 2, it was established that regional centres are a key part of Australia's settlement hierarchy, with their function in providing goods and services to their residents and also to residents of surrounding rural hinterland affirmed. Thus, given the key importance of hub and spoke models of medical care delivered and centred on regional centres, there is clear need for an understanding of the availability of medical workforce in regional areas. This chapter reviews the Australian medical workforce supply; in particular, the supply of GPs and specialists in regional centres. The following section (3.2) concentrates on the measurement and methodological issues in considering under and over supply. Section 3.3 considers the supply of GPs and specialists at a national level. Sections 3.4 and 3.5 concentrate on current data available at the regional level, looking at the supply and characteristics of GPs and specialists, and the extent to which this differs from practitioners both in metropolitan and in other rural and remote locations. Importantly, there has been rapid change in the last twenty years in the scope and nature of practice in regional centres. Section 3.6 explores the nature and scope of practice for both GPs and specialists highlighting existing evidence of what practitioners 'do'. This is a natural sequela from medical workforce supply data showing a change in the balance between the number and type of medical practitioners being trained and heralds further exploration of the unique elements of regional centre practice which are the focus of this study.

3.2 Medical workforce supply

The availability of medical workforce in any particular location is a function of the complex interaction of three components, *supply, recruitment* and *retention*. *Supply* reflects the pool of local and overseas graduates currently within or able to enter the

medical workforce, in balance with the number of retirees or those reducing their hours. *Recruitment* refers to those who take up (begin) practice in a location whilst *retention* is about maximising length of stay practising in a location (Humphreys et al., 2001). Ensuring an adequate supply does not in itself guarantee that sufficient medical graduates take up practice in a particular location, neither will it ensure that those who are recruited will remain in practice in that location for sufficient length of time.

3.2.1 Methodological issues in measurement of supply

Assessing workforce supply and its adequacy has been an area of much research and controversy over the last twenty years both in Australia and internationally. Most recently, the Organisation of Economic Cooperation (OECD) has been reviewing both the numbers of clinicians in different countries and also the differing methodologies utilised to come up with supply projections (Ono et al., 2013). A key aspect of assessing the adequacy of workforce supply requires categorising and defining what and who are part of the medical workforce. The OECD review of sixteen countries and their workforce projections suggests that there are considerable difficulties in both collecting and analysing data related to the nature and equivalence of workforce numbers. For example, measuring Full Time Equivalence (FTE) in addition to head counts is recognised as important to ensure an accurate measure of future workforce supply.

There are a number of serious methodological issues in defining and measuring medical practitioners. Many countries are unable to differentiate doctors in training, specialists or generalists in their measurements. Not only are there inconsistencies in reporting numbers and activity, but delineation of the locations where doctors work has been difficult (Ono et al., 2013).

In Australia, there has been concern about the accuracy of existing data sets and head counts with large variation seen in available data (Hays, Veitch, Franklin & Crossland, 1998; National Rural Health Alliance, 2013). Most problems of measuring supply can be described under two major categories, firstly being variations and differences in *data sources*, and secondly being differences in *data definitions*. The data definition problem can be seen in variations in definitions such as what delineates a GP. In

Australia, there have been changes both of definition, and the way activity is measured.

Estimates of the Australian medical workforce supply have relied on data from a range of sources, including censuses, surveys and government agencies such as Medicare Australia (Mazumdar 2013). Importantly, the validity of these data sources has been questioned (Australian Medical Workforce Advisory Committee, 1998a; National Rural Health Alliance, 2010a). Another related problem of measuring supply in rural areas arises when workforce numbers are small and low population counts mean anonymity is not guaranteed.

In addition, the consistent use of data definitions has been problematic, with definitions of medical workforce differing between countries. In Australia, whilst there is agreement and separation of doctors in training from doctors with general registration (that is, completed all of their training), there are differing definitions of GPs and specialists. For example, the definition of a GP for workforce planning purposes has recently changed. In 2009, GPs were classified as primary care practitioners who were reported by location. In 2010, they were redefined as GPs, which was measured by those conducting self-reported general practice. This change in definition created challenges in comparing data. Initially GPs were classified as separate from other specialists. They are now described as specialists in some data sets, such as specialist vocational training numbers for instance (Australian Institute of Health and Welfare, 2013; Australian Government Department of Health, 2013). The following table (Table 3.1) describes the major data sets of GP and specialist workforce supply in Australia.

Table 3.1: Summary of sources for GP and specialist supply data

Data Source	Nature of data	Advantages	Availability	Limitations
Australian Institute of Health and Welfare (annual national medical workforce surveys)	Age, gender, geographic distribution and registration status	Methods well-articulated	In the public domain 2 years after collection	Self-reported data via APHPRA registrations No capacity to review in RRMA only ASGC-RA so regional centres invisible
Australian Bureau of Statistics (census 5 yearly)	Number of people identifying as medical practitioners	Includes the total population	Public domain	Methodological changes in the way clinicians are classified Self-reported data
Department of Health Medicare Database	FWE (Full Time Workforce Equivalent) and Medicare income unit data	Unit data giving measure of activity and distribution of practitioners	Need special application other research institutions unable to access within 2 years	Not available in geographic distribution, age. gender Specialists have Medicare and state health income sources Provider location may not be where service occurs
MABEL(Medicine and Australia Balancing Employment and Life)	Self-reported age, gender, geographic distribution	Total numbers large small numbers in regional centres	Simple process for application for data	Reponses rate 17.65% GPs and Specialists 24% (Wave 1)
MSOD (Medical Schools Outcome Database) (Kaur, Carberry, Hogan, & Robertson, 2014)	Age, gender, intention, rural origin, rural undergraduate experience	Comprehensive	Available on application	Commenced in 2006 Collects data to PGY8 after graduation only
State entities of Rural Health Workforce Australia (NSWRDN, RWAV, RWQld)	Age, gender, length of stay self-reported hours, procedural skills, geographic distribution	Comprehensive for rural rather than regional	Have been able to get complete figures for NSW only	Data being classified by ASGC-RA Patchy data on RRMA 3 in Vic and Qld

Table 3.1: Summary of sources for GP and specialist service supply data (contd.)

Data Source	Nature of data	Advantages	Availability	Limitations
Divisions of General Practice, then Medicare Locals, now to be PHNs	Age, gender and self-report hours	Local knowledge for cross reference	Able to get information in 2/4 divisional areas only	Now subsumed by PHNs Differing boundaries than LGA, postcode (RRMA), self-report
Bettering the Evaluation and Care of Health General Practice Survey (BEACH)	Detailed patient encounters from samples of general practices providing snapshot of both practitioners – age/gender/skills and also characteristics of patient encounters	longitudinal collection for comparison over time	Publicly available or by application	Now using ASGC-RA so regional centres less visible in analysis Self-reported data Participation skewed to VR doctors wishing to participate (low response rates)
Australian Medical Publishing Company database (AMP Co)	Age, gender, job location and job description	Constantly updated	Available at cost	Commercial operation (cost impost) No information on length of stay
Specialist colleges	Age, gender		Very limited availability	Data only on college members

There are a number of pervasive issues and problems associated with the multiplicity of secondary data available evident in Table 3.1 when considering medical workforce in regional centres. In summary, these relate to:

1. Lack of delineation or definition in data sets about what comprises a 'regional' centre. In many surveys, GPs and/or specialists are often only classified urban or rural. If ASGC- RA definitions are used, regional centres are invisible as has been discussed in Chapter 2.

2. Changes in geographic boundaries making comparisons different (includes change between Divisions of General Practice and Medicare Locals) during the study period.

3. Unit record data is often unavailable. Medicare data was not available within the study timeframes. Additionally organisations had to be cognisant of small numbers and higher risks of identifiable participants (an example of this was specialist colleges).

4. Quality of data – Much of the data is self-reported. This becomes difficult when assessing comparative data around issues such as workload or income.

5. Incomplete picture as specialist services are funded both through Medicare (fee-for-service) and also directly through hospital funding (salaried activity). Thus, no single source is able to provide information on the demographics of the workforce, their catchment patients or their work, which may be only in their regional centre in a hub and spoke model or may involve patients from other locations.

It is also important to consider the method or definition related to the most common measure used. The following are key measures of supply in Australia.

Head counts

Head counts were used for measuring supply in Australia in the 1970s, but are limited in their application. The main drawback of head counts is that they do not reflect the number of work hours. This is increasingly problematic as medical practitioners are choosing to work part-time so a count of individuals (both male and female) is not as accurate as it may have been a decade ago (Pegram, Humphreys, & Calcino, 2006).

Full Time Equivalent Practitioners (FTE)

The Australian Institute of Health and Welfare use full-time equivalency (FTE) as a way of reflecting the number of hours or sessions worked by doctors and therefore is a proxy for the supply of medical practitioner services. This information is only available from the Medicare dataset within the Commonwealth Department of Health. FTE measures are calculated by multiplying the estimated number of GPs in a region by the average weekly hours then dividing the total hours by the number of hours determined to be the industry standard (Australian Institute of Health and Welfare, 2013). In the Medical Labour Force report in 2013 this was 40 hours per week (AIHW, 2013, p. 66) In this report, 40 hours per week was assumed closest to the average working hours of

43.2 per week and equivalent to 1 FTE. In 2003, interestingly, this was assumed to be 45 hours a week (Australian Institute of Health and Welfare, 2005). The main issue is that it does not reflect work patterns in different geographic areas where clinicians may work longer or shorter hours than the estimated 40-45 per week and therefore has the potential to overestimate the workforce where GPs have worked longer hours due to the shortage of doctors (McFayden, 2008).

Full Time Workforce Equivalent (FWE)

An alternative method to measuring FTE has been to define full-time general practice according to the value of Medicare billings. An average billing level is generated to create a value called full-time workload equivalence (FWE). This is determined by a division of individual doctor's Medicare billings by a notional fulltime billings amount (Health Workforce Australia, 2012a).This is a measure of medical workforce supply that takes into account the differing working patterns of doctors. There is no cap on a doctor's FWE. That is, a doctor with 50% of the average billing for full-time doctors is counted as 0.5, a doctor billing at the average is counted as 1.0, and a doctor billing at 150% of the average is counted as 1.5 (White, 2004). This has been criticised as there is controversy around what is considered the average billing level and also because it does not take account of service that are not billed to Medicare, like workers compensation. Again, the data required to estimate FWE is held internally in the Commonwealth Department of Health.

Standardised Whole Patient Equivalents (SWPE)

With the advent of formal medical workforce planning, estimates of the population's need for services has also been incorporated. This has been calculated according to the age and sex of the population, the expected morbidity and the size of the population (Australian Medical Workforce Advisory Committee, 2000). The more recent iteration of this has been in the Standardised Whole Patient Equivalent (SWPE) used to calculate incentives for a number of GP activities. Most recently this has been seen in the GP Practices incentive programme (Australian Government Department of Human Services-Medicare, 2013). These are not publicly available.

Other measures of supply

Historically, one of the first noted measurements of supply was the provider to population ratio (PPR). This is a ratio between the number of doctors and an area's population, calculated by dividing the population by the number of medical practitioners within a region. This measure is similar to a head count of practitioners in a geographic area (Karmel, 1973), weighted by the 'needs' of a region. This became less accurate as specialist services became available, as it did not delineate the type of work, thereby being a composite measure of both primary and secondary care. However, even in 1973 there was no universally accepted benchmark as to the 'correct' or acceptable ratio. In addition, this ratio did not reflect the composition or productivity of the medical workforce and therefore has been found to be a poor measure of the availability of medical services (McFayden, 2008).

Also, importantly, it did not take account of the catchment that a specialist might need to draw patients from. There may have been fifteen doctors ascribed to one small area but they may have served a much wider area. This is especially true for specialists whose geographic catchment is frequently a much larger area than their locality of residence. It did provide a measure of the growth of the medical labour force in comparison to population. The number of medical services provided has been used historically as a measure of the demand for medical services. The inherent difficulty with this is the problem of unmet need as no services will be provided if there are no practitioners to perform them.

There are additionally many indirect methods to measure the 'adequacy' of supply. One such method is vacancy rates, both the count and duration of vacancies. This has particular problems where positions are not salaried such as with the GP and specialist workforce relying on MBS. In this case, the vacancy is a potential one rather than a defined job and may be unfilled in a situation of workforce shortage and invisible through scanning vacancy rates. Also, employers may choose to stop advertising in environments where there is a history of poor recruitment.

Bulk billing rates are another potential indicator of workforce shortage. Medical practitioners can directly bill Medicare, accepting the Medicare rebate as full payment

for the service. Under these arrangements no additional charges relating to a bulk-billed service may be made, consequently there is no out of pocket cost to the patient. Generally, when a Medicare service is not bulk billed, it is because the practitioner is charging more than the Medicare rebate (Parliament of Australia-Parliamentary Library, 2003). It is for this reason that high bulk billing rates have suggested areas of available workforce and high competition where doctors are more concerned about asking patients for a co-payment for services and therefore accept the Medicare rebate. In areas of workforce shortage, the bulk billing rate is often lower as services are scarcer (De Abra Lourenco, Kenney, Hass, & Hall, 2015), but this premise is confounded by other factors. Notably, areas of undersupply may also be those with high levels of socioeconomic disadvantage where demand for services is greater but capacity to pay may also be limited. Additionally, differing demand drivers, and perceived inadequate remuneration are all cited as reasons for lower bulk billing rates in areas of perceived good supply (Day et al., 2005).

The key problem both in Australia and internationally is that there is no gold standard or benchmark that can be used to measure medical workforce supply in a consistent and comparable way (Ono et al., 2013). The major existing measures in use have been described. The Australian Institute of Health and Welfare uses FTE GP per 100,000 population to report on primary care workforce growth and trends in most of its publications. White (2002) in his review of GP benchmarks noted a lack of clarity and some degree of uncertainty as to what are appropriate benchmarks to utilise for effective workforce planning. He also suggested that there was need for 'agencies and departments who were collating and reporting medical workforce data to collaborate and standardize definitions and measurement procedures' (White, 2002).

3.2.2 Understanding over and under supply

Over the last twenty years, considerable debate has arisen around the adequacy or otherwise of medical workforce supply. In terms of international comparisons of the supply of doctors, overall Australia sits midway on a country comparison with a current density of three doctors per 1000 population. This is similar to many developed countries, with Chile one of the lowest at two and Greece having the highest

density at six (Health Workforce Australia, 2012a). Density as a measure could be considered similar to provider to population ratio described above.

Projections and discussion on workforce numbers have been a topic of contention in Australia since the 1970s and were particularly topical in 1996 when the Australian Medical Workforce Advisory committee (AMWAC) advised the Commonwealth government on the likely undersupply of medical practitioners. Subsequently, decisions were made that led to a 50% growth in medical student numbers rising to an expected peak in 2014 (see Figure 3.1). In 2005, the Productivity Commission reported concern about a lack of clarity of what defined adequate supply (Productivity Commission 2005, p. 53). In 2012, the Community Affairs Reference committee reporting into the supply of rural health professionals felt the need to highlight the concern again noting a statement from the Audit of Health Workforce (2008):

> Determining where there are workforce shortages also relies upon determinations of what is adequate supply. There is not a body of work currently available for Australia that describes the population health care status and needs in terms of the numbers, proportions and mix of health professionals required to meet those needs. (Australian Government Department of Health 2008, p. 21)

A new entity 'Health Workforce Australia' commenced in 2008 and projected the medical and nursing workforce requirements by 2025 (Health Workforce Australia, 2012a, 2012b). Health Workforce Australia used scenario based planning tools to identify and project supply in both GP and specialist workforces (Crettenden 2014). They continued to note that the issue of supply upon which projections for the workforce were based was a different discussion to that of distribution of the workforce. These publications have led academics and others to question the assumptions made in considering demand, and put a spotlight on the multiplicity of factors important when measuring the adequacy of supply (Birrell, 2011).

AMWAC (1998a) considered a range of other measures such as bulk billing to quantify over or under supply of medical workforce. Given the lack of an agreed benchmark, AMWAC considered the issue in terms of evidence of surplus or oversupply of practitioners. According to the 1998 report, a supply of medical services in an area that was well above the national average was regarded in international benchmark

methodology as evidence of a *workforce surplus* (Australian Medical Workforce Advisory Committee, 1998a). Other potential indicators of oversupply included growth of the medical workforce in excess of population; however, if the starting point of growth is below the baseline then this will be misleading. In addition, pricing of medical services significantly below the average and declining average incomes of medical practitioners were also noted. The main indicators of *workforce shortage* or *undersupply* were the numbers of medical practitioners in an area falling below the national norm, pricing of medical services significantly above the average, under-servicing and unmet need compared with population norms, longer waiting times, and the employment of temporary resident doctors (Australian Medical Workforce Advisory Committee, 1998a). In addition, the substitution of services – both GP services being performed by specialists and the use of other health professionals providing traditionally GP services – was observed in environments of workforce shortage (Brooks, Lapsley, & Butt, 2003; Duckett, 2005; Duckett, Breadon, & Ginnivan, 2013).

Demand factors are not constant in the Australian population and should be considered in measuring supply and its potential adequacy. These include the age profile, the prevalence of various risk factors and medical conditions, the prevailing attitudes and expectations of consumers and the socioeconomic status of the population. The variability of need, for example, is seen in Aboriginal and Torres Strait Islander populations with significantly higher levels of need than in other populations, above the differences explained by lower socioeconomic status measures (Australian Medical Workforce Advisory Committee, 2000). A study of GP workforce in 2000 suggested a +25% weighting in addition to socioeconomic disadvantage to provide for need in Aboriginal and Torres Strait Islander populations (Australian Medical Workforce Advisory Committee, 2000).

While these demand factors relate to both GP and specialist services, there are further factors reported as applicable to specialist services (Australian Medical Workforce Advisory Committee, 1998b). Demand has been seen to increase where there are higher levels of private health insurance and where the capacity of the community to

sustain co-payments for health services is greater (Australian Medical Workforce Advisory Committee, 1998b).

Projections of regional specialist adequacy and assessments of supply are also complicated by the larger populations (or 'catchments') required for specialist work. Defined population catchment areas for specialists have been attempted but appear quite variable, dependent on a number of aspects of population and risk (Australian Medical Workforce Advisory Committee, 1998b). In addition, projections about leakage from a geographic catchment can be related to referral patterns by GPs, transport routes, and quality and availability of public transport (Australian Medical Workforce Advisory Committee, 1998b). Table 3.2 below details a number of factors affecting both the demand and supply of specialist workforce.

Table 3.2: Factors influencing the size of the population required for a viable specialist service

Demand side factors	Supply side
Population age profile	No of appropriately trained and accredited resident GPs
Level of morbidity	No of resident and visiting specialists
Proportion of Aboriginal and Torres Strait Islander people in a population	Solo specialist practice(decreases requirements)
Socio economic status of the population	Proximity to or remoteness from regional hospital facilities
Level of private health insurance coverage	Availability of required infrastructure and support services
Quality of transport systems	Availability of private hospital facilities in addition to public hospital facilities
Prevailing attitudes and expectations of care	
Proximity to and remoteness from urban centres	
Geographic and seasonal factors	

Source: *Sustainable Specialist Services: A Compendium of Requirements* (p.64), by Australian Medical Workforce Advisory Committee, 1998. Sydney.

Furthermore, since 1998 some specialist services are now provided in other than face-to-face modes using telehealth systems. There are small numbers of specialist services, in particular to both rural and regional communities, emanating from metropolitan locations. Thus understanding of the totality of what comprises the 'demand' and the supply of medical services is currently difficult to elucidate.

Australian government policies used to assess undersupply and support the flow of temporary resident doctors are District of Workforce Shortage (DWS) and Area of Need (AON) classifications. DWS is a Commonwealth determination using population data for Statistical Local Areas (SLAs) and the latest Medicare billing statistics with a determination of FTE per population ratio (Department of Health and Ageing, 2010). Each SLA is deemed to have DWS status if it falls below the national average for the provision of medical services. For GPs, DWS status is determined by comparing the FTE GP-to-population ratio for each SLA. If an SLA has a lower FTE-to-population ratio than the national average (i.e. more people for every GP within the area) it is considered to be a DWS. These determinations are updated each quarter. Specialists are similarly assessed to GPs with the use of FTE per population ratios. These are done with larger catchments (Statistical Subdivisions) (SSDs) and with previously noted limitations as the Medicare billing may not capture all specialist hospital based activity. If a location is classified as a DWS, it enables international medical graduates and foreign graduates of accredited medical schools to locate in these areas and access Medicare benefits (Department of Health and Ageing, 2010a). Area of need is another determination used by state and territory governments, though specific methods vary between jurisdictions. Generally, an Area of Need determination is granted when a vacant medical position remains unfilled after recruitment efforts have taken place over a period of time (Department of Health and Ageing, 2010b).

The dynamic nature of the workforce and the propensity for the movement of a small number of clinicians to have a marked effect on supply in regional and rural centres makes the contemporaneous nature of these measures very important. Within the last five years, nearly all regional centres in NSW have been classified as DWS for at least one period. As at January 2014, one inland regional centre was classified as DWS for GPs (Department of Health and Ageing, 2010b).These measures remain relatively

contentious with the inherent problem that by definition, the DWS will *always* apply to 50% of locations. Also, it is a relative measure only – DWS assumes that the average is an adequate level, but it is very possible that the average billing represents a less than adequate level of workforce supply. The method used to assess DWS is undergoing further review by an expert panel in 2014 (Australian Government Department of Health, Rural and Regional Australia 2015).

To summarise, the adequacy of workforce supply relies on measurement of both supply and demand factors. The measures currently in use, at the very least, need aggregation in order to build a composite picture. Table 3.3 on the next page provides some further measures, which could be utilised in part. The limitation is that ASGC-RA classification is the only available classification for many of these measures at present so regional centres remain relatively invisible. They could, however, be calculated more accurately under an alternate classification system such as the Modified Monash model. Whilst the measures differ in both validity and strength of evidence, the ticks in the table (single, double and triple) reflect the author's assessment of comparative differences within the factors only.

It is clear that in order to build a composite picture of potential undersupply or oversupply of medical workforce in regional centre, measures need to be able to reflect the complexity of work, the level and type of substitution of health practitioner and consider measures of access such as waiting time, cost and utilisation. In addition indicators of health need, both long term and short term would have utility if quantified. These variables could become layers of analysis or part of the construction of a tool matching health need and available workforce.

Rural areas have long been recognised as having poorer access to health services. The compilation of these data by ASGC-RA suggest there is evidence of undersupply for a number of parameters, including specifically in ASGC RA2 areas. However, as noted previously, regional centres are a smaller subset of all population centres within ASGC-RA2 classified areas. ASGC-RA2 can include both larger centres such as Hobart and smaller hinterland centres included in this classification. Thus, comprehensive analysis suggests that the veracity of existing data sources is less than optimal.

Table 3:3: Factors important in determining workforce undersupply

Existing measures and sources	Capital Cities	Inner regional	Outer regional	Remote
No of GPs per 100000 in a geographic area under the national average National average 111 (Australian Institute of Health and Welfare, 2014b)	108 -√	117	121	139
No of specialists per 100000 in a geographic area under the national average Av 127.9 (Australian Institute of Health and Welfare, 2014b)	152.8	76.8 √	58.2 √√	33 √√√
Pricing services above average (rate of bulk billing by geographic area 2011) Nat average 82.3% (National Rural Health Alliance, 2012)	83.3	79.6% √	80.5% √	(81-86%)
Overworked practitioners (working hours higher (Australian Institute of Health and Welfare, 2014b)	-	√	√√	√√√
Health outcomes lower than average (Australian Institute of Health and Welfare, 2008)		√	√√	√√√
Substitution of service nurses for GPs (% of GP practices employing practice nurses) Nat average = 63.5%(Australian Medicare Local Alliance, 2012)	55%	83.6%√√	86% √√ (combined with ASGC-RA 4-5)	86% √√ (combined with ASGC-RA 3)
Employment of temporary registered doctors in area of need positions (areas currently DWS declared)	-	√	√√	√√
Perception of having to wait too long to see a GP compared to average Healthy communities (Australian Bureau of Statistics, 2009) Nat av 5% The rate of people deferring seeing a GP due to financial barriers was highest in inner regional areas (10.4% *vs* 8.3% in major cities). (Council Of Australian Government Reform Council, 2012)	3.9%	6.4% √	12.24% √√	12.24% √√
Perception of having to wait too long to see specialist (Australian Bureau of Statistics, 2009) Nat av 4.3%	5.6 %	13%√√	14.5% √√	14.5% √√
Out of pocket cost (Productive Ageing Centre National Seniors Australia, 2012)11.8% nationally face severe financial burden.	11.8%	11%	13.8% √√	8.5%

Measures adapted from Australian Medical Workforce Advisory Committee,Medical Workforce Supply and Demand-a discussion paper 1998 (p36).

3.3 Medical workforce supply – the national picture

As has been described in Section 3.2, there is a high level of complexity in determining appropriate supply of medical workforce. Given the current limitations in available published data, some arbitrary and limited measures are reported below. These are potentially flawed as described in Section 3.2 but provide the most comprehensive picture currently attainable. The first key indicator reported below is from AIHW and relates to total headcounts.

Over the last five years the Australian medical workforce has increased at a more rapid rate than the general population, rising 9% more than the population between 2008 and 2012 (Australian Institute of Health and Welfare, 2014b; Parnell, 2014). The number of clinicians in the workforce has risen 16.4% between 2008 and 2012 (Australian Institute of Health and Welfare, 2014b), whereas the population rose by only 7% in the same period. This increased supply has occurred at the same time as increasing demand, shorter working hours and an ageing population with higher health needs, on top of the increased population. What has been surprising is the growth differential, with the specialist workforce and specialists in training growing the fastest (30.8% in 2008–12) with the growth in primary care practitioners relatively small (8% in 2008–12).

Overall, the trends suggest a rapidly increasing supply of practitioners from both increased local graduates and increased import of IMGs, with the majority planning on speciality practice. Increasing feminisation, in addition to changing generational expectations of work time, is likely to reduce average total weekly work hours (Hawthorne & Birrell 2002). This is suggestive of an increasing pool of specialists but not necessarily an increased supply of clinical work hours. The replacement of a male aged 60 working 60+ hours a week in a regional centre might well take two younger clinicians, with one likely to be female, who prefer to work a total of 30 weekly hours each. Given this overall picture, the following sections consider the supply of the Australian and international medical graduate workforce followed by projections about specialist training supply.

3.3.1 The Australian trained workforce

The number of Australian-trained medical graduates was static between 1990 and 1999 but has been rapidly increasing since 2000 from about 1400 per year to nearly 3000.This is shown in Figure 3.1 below, with an expected peak in graduates by 2014 (Australian Government Department of Health, 2013).

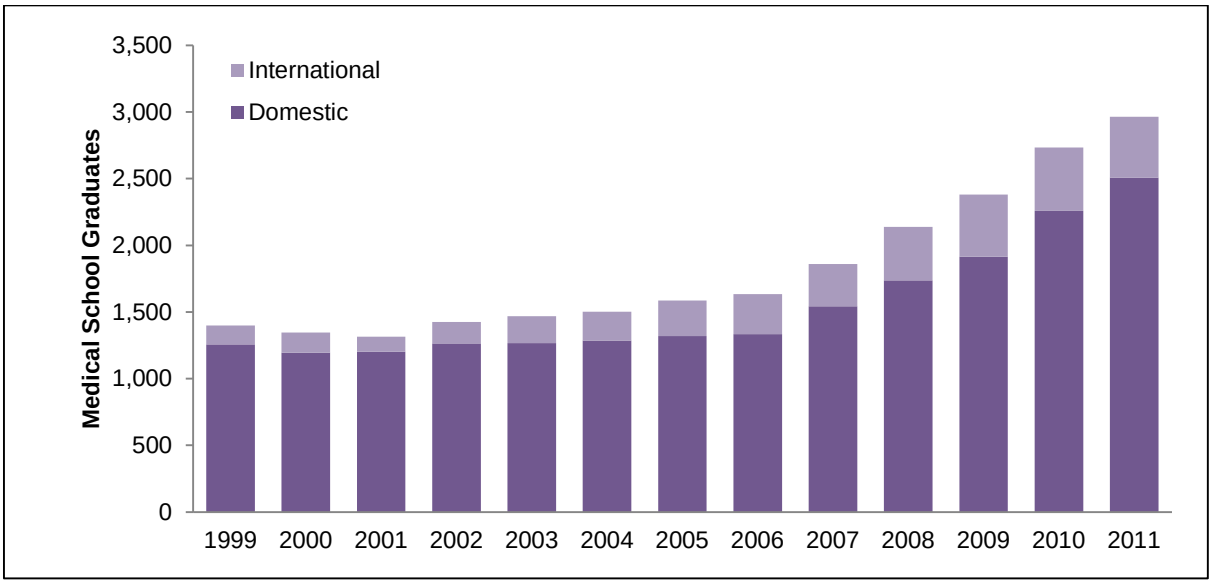

Figure 3.1: Medical School Graduates from Australian Medical Schools 1999–2011

Source: Australian Government Department of Health Medical Training Review Panel 16th report 2013. Reprinted with permission

3.3.2 International medical graduates

International medical graduates are a significant contributor to the Australian medical workforce. The role of IMGs in filling vacancies in rural general practice and some specialist workforces has been a key component of workforce supply, with an acceleration in numbers following legislative changes in 1999 (Rural Health Workforce Australia, 2008).

This legislative change followed the introduction of general practice vocational training requirements in 1996. With subsequent shortfalls of general practitioners in rural areas, IMGs were mandated to work in these areas where they were deemed most needed, for up to ten years of service. Despite increased local training places described in Section 3.3.1, rural areas continue to heavily rely on GP supply from IMGs.

Pathways to accreditation and registration procedures at the Medical Councils for recruitment to districts of workforce shortages (DWS) and areas of need (AoN) have been reviewed more recently via a parliamentary enquiry (Parliament of Australia House of Representatives Standing Committee on Health and Ageing, 2012). At June 2012, there were 2,342 overseas-trained doctors who were working with their practice restricted to District of Workforce Shortage (DWS), in order to access Medicare benefits for the services they provided (Australian Institute of Health and Welfare, 2014b). Although IMGs comprise a higher proportion of the medical workforce in more remote areas of Australia, a significant number of IMGs now work in major cities (Australian Institute of Health and Welfare, 2014b). According to the Department of Health in the Medical Training Review Panel Report (2014a), the majority work in ASGC-RA 1 and 2. More specifically, half of IMG trained general practitioners and three-quarters of IMG specialists worked in major cities where just over two-thirds of the population reside. More than one-third of both IMG GPs and specialists worked in inner regional areas, where one-fifth of the population resides. This can be seen in Figure 3.2 where FWE GPs can be seen as sizable percentages of major city, inner regional, outer regional and remote area workforces. In fact, this figure suggests that the proportion could be even greater if it is calculated by FWEs.

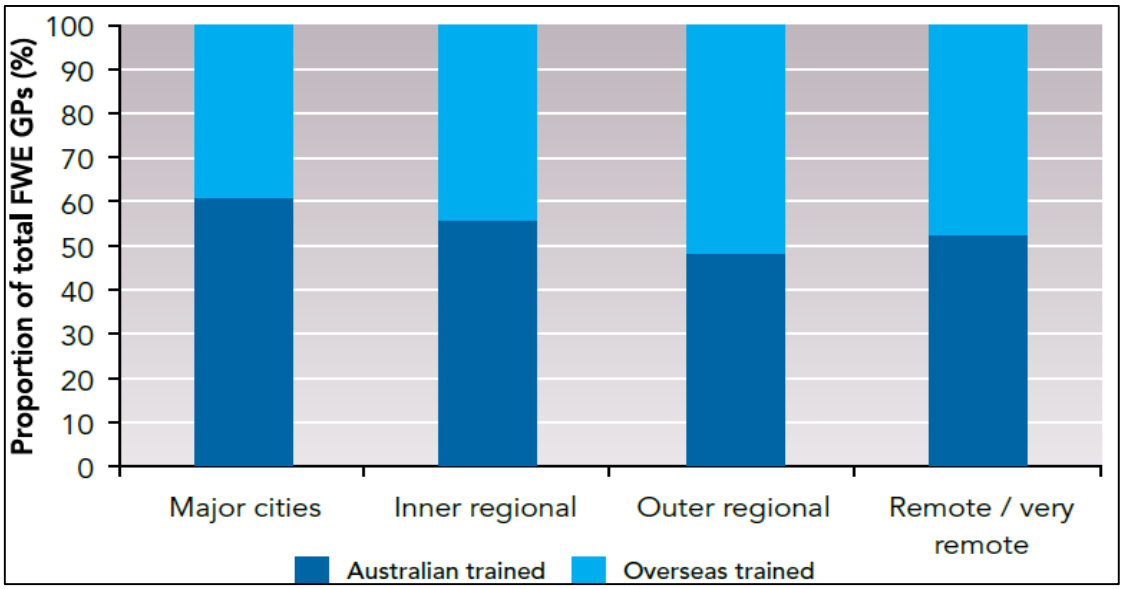

Figure 3.2: Proportion of overseas trained GPs by FWE & Remoteness Area, 2009–10

Source: Reproduced from *Australia's Heath Workforce Series - Doctors in focus,* by Health Workforce Australia, March 2012, with permission.

3.4 The specialist workforce

The number of specialists and those in training have been rising over the last ten years in concert with both increasing population and also the increased number of medical graduates. Also on the increase are vocational trainees (this includes all those enrolled in specialist training programmes including general practice). Consequently, there were 16,740 vocational medical trainees enrolled in vocational training programmes in 2012, representing two and a half times the number reported in 2000 (Australian Government Department of Health, 2013, p. 6).

Concentrating only on those medical practitioners who have applied for entry into professional colleges and therefore completed their vocational training, nearly 41% are applying for general practice and just under 60% are applying for other speciality recognition (Commonwealth Department of Health, 2013). This is an effective decrease in the ratio of GPs compared to specialists in those finalising their postgraduate training.

Further work was undertaken by Health Workforce Australia considering how specialist workforce was tracking compared to population projections. Their projections suggested that some specialities in the future would be in overall surplus or have no perceived shortage, but there are others with a perceived current shortage (Commonwealth Department of Health, 2013). These included psychiatry, general practice, general medicine and oncology. Those currently projected by HWA to be not in deficit included orthopaedic surgery, cardiology and gastroenterology. This can be seen in Table 3.4 below.

Thus, with an increasing national pool of workforce comprising both Australian trained and international medical graduates, the next section considers the national data available considering gender, age and workload trends.

Table 3.4: Results of projection scenario for different medical specialites in 2010-2025, Australia

Medical specialty	Existing workforce position	2009 workforce supply	Net workforce movement 2025
Anaesthesia	Some level of expressed demand exceeding available workforce	3476	130
Dermatology	Some level of expressed demand exceeding available workforce	420	-31
Emergency medicine	Some level of expressed demand exceeding available workforce	1134	-40
General practice	Perceived current shortage	26,389	57
Intensive care	No current perceived shortage	517	35
Obstetrics & gynaecology	Some level of expressed demand exceeding available workforce	1562	-142
Ophthalmology	Some level of expressed demand exceeding available workforce	843	-162
Anatomical Pathology	Some level of expressed demand exceeding available workforce	728	-182
Other (clinical) pathology [1]	Some level of expressed demand exceeding available workforce	400	-34
Cardiology	No current perceived shortage	790	232
Endocrinology	Some level of expressed demand exceeding available workforce	442	29
Gastroenterology and hepatology	No current perceived shortage	683	110
General medicine	Perceived current shortage	818	137
Geriatric medicine	Some level of expressed demand exceeding available workforce	397	13
Medical oncology	Perceived current shortage	363	82
Nephrology	Some level of expressed demand exceeding available workforce	369	-18
Neurology	No current perceived shortage	411	43
Paediatrics and child health	Some level of expressed demand exceeding available workforce	1,296	39

Table 3.4: Results of projection scenario for different medical specialites in 2010-2025, Australia (contd.)

Medical specialty	Existing workforce position	2009 workforce supply	Net workforce movement 2025
Psychiatry	Perceived current shortage	2981	-452
Radiology	Some level of expressed demand exceeding available workforce	1478	-366
Radiation oncology	Perceived current shortage	245	-57
General surgery	Some level of expressed demand exceeding available workforce	1181	519
Orthopaedic surgery	No current perceived shortage	1168	148
Otolaryngology	No current perceived shortage	442	180
Plastic surgery	No current perceived shortage	306	70
Other surgery [2]	No current perceived shortage	866	179

1 Comprised chemical pathology, microbiology, haematology, immunology, oral pathology and genetics.
2 Comprised cardiothoracic surgery, neurosurgery, paediatric surgery, urology and vascular surgery.

Source: Reproduced from *Health Workforce 2025 – Medical Specialties Vol 3,* by Health Workforce Australia, November 2012. Adelaide. with permission.

3.4.1 Medical workforce supply – gender, age and workload

The national workforce picture is of an increasingly feminised workforce with 51.8% of those aged 20–34 years being female (see Figure 3.3 below). By contrast, for those over the age of 75 the workforce remains predominantly male with 86.2 % of the self-reported medical workforce being male. In 2012, 40% of the medical workforce were women (Australian Institute of Health and Welfare, 2014b).

In 2012, 26.8% of clinical specialists were female compared with 46.4% of clinical specialists in training (Australian Institute of Health and Welfare, 2014b). At least half of advanced trainees were female with up to 60% in seven specialties, namely, Obstetrics and Gynecology, Paediatrics, Palliative medicine, Pathology, Public health medicine, Rehabilitation medicine and General Practice. All these specialties were characterised by part-time and flexible training programmes. Surgery, on the other

hand, had 25% female participants, with some surgical specialties having very low numbers and percentages of women (Commonwealth Department of Health, 2013). Orthopedic surgery, for instance, had a predominantly male gender ratio with only 2.8% of specialists being female (Australian Institute of Health and Welfare, 2014b).

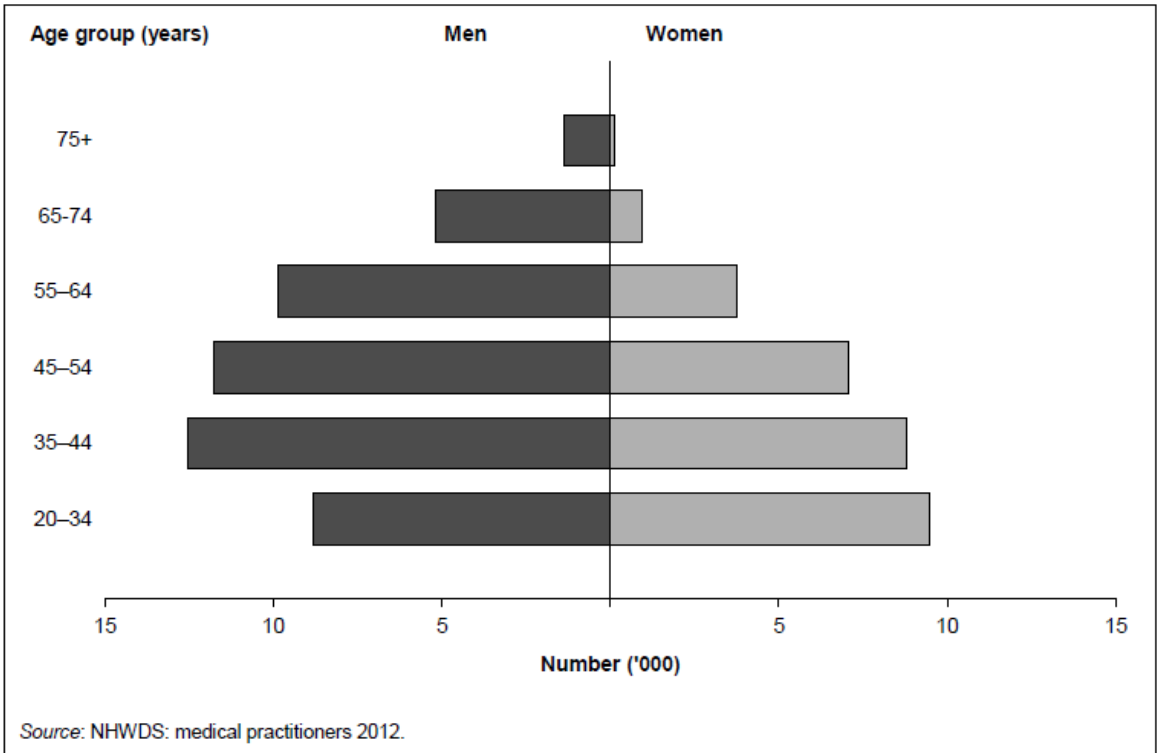

Figure 3.3: Number of employed medical practitioners, by age group and sex, 2012

Source: Reproduced from *Medical Workforce 2012* (p. 10), by Australian Institute of Health and Welfare, 2014. Reprinted with permission.

Work hours have been gradually falling for all specialties over the last ten years. In addition, the impact of the feminisation of the workforce can be seen in the total work hour's reduction. A larger proportion of female practitioners were working part-time (defined as less than 35 hours) at 34.1% compared with only 14.2% of men (Australian Institute of Health and Welfare, 2014b). Average working hours for women were lower than for men across all age groups, but it was most pronounced in the 35–44 and 45–54 age groups (Australian Institute of Health and Welfare, 2014b).

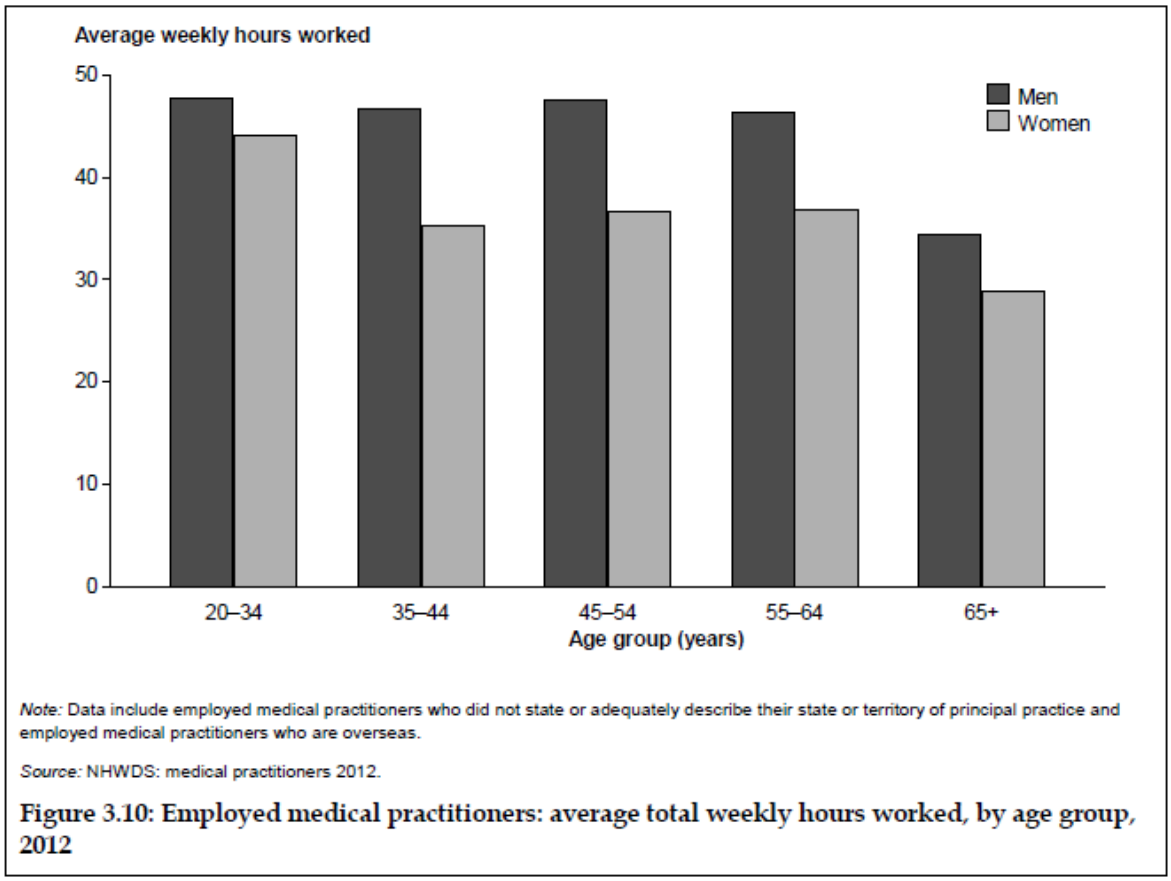

Figure 3.4: Employed medical practitioners: average total weekly hours worked, by age group, 2012

Source: Reproduced from *Medical Workforce 2012* (p. 25), by Australian Institute of Health and Welfare, 2014, with permission.

So, at a national level there is evidence of increasing supply but with reduced hours of work suggesting that the increase in supply may not be as large as might otherwise have been predicted. Given the national evidence of reducing hours per practitioner and a changing gender mix over time, the next section reviews workforce supply in regional centres.

3.5 Medical workforce supply in regional centres – GPs and specialists

In Section 3.3, it was seen that there is evidence nationally of an increasing supply of medical practitioners in excess of population increase and opportunities for international medical graduates to gain registration to practice in Australia. In addition there is evidence nationally of reducing hours of work per practitioner and a

changing gender mix of the national workforce over time. In this study, the focus is on regional centres; that is, doctors who work in densely populated areas but outside of the major metropolitan centres. This section concentrates on the available data on medical workforce supply in these centres.

Regional centres as defined in the RRMA classification, with populations of 25,000–100,000 people remain indistinct within ASGC-RA classification. They are accommodated within the ASGC 2 category called 'inner regional areas', which also encompasses a state capital city, Hobart, and many densely settled areas. However, as previously outlined, data are generally only available for the ASGC-RA classification. Given the lack of distinction of regional centres associated with this classification, it is hard to be categorical about workforce numbers. What can be said is that the geographic distribution of practitioners is uneven.

Figure 3.5 below uses FTE as described in Section 3.2.1, sourced from the Australian Institute of Health Welfare report 'Medical workforce 2012'. It is important to note that the FTE rate for GPs does not appear appreciably different across the different geographic areas. The figure does, however, show a differential FTE rate for specialists, specialists in training and non-clinicians who are more plentiful in major cities (RA1). Definitions of specialists, GPs and specialists in training are referenced from the Australian Institute of Health and Welfare, as described in Chapter 1.

Important in assessing this is the overlap in scopes of practice between specialists and GPs with subspecialty and discrete practice seen in RA1 and 2, with a smaller number of specialists in nonmetropolitan areas and a likely overlap and wider scope of practice by GPs living in these areas. Therefore, whilst the numbers of GPs living in more rural locations may be the same when compared as FTE per 100,000 population, the scope of practice and the geographical location of these practitioners may inflate the numbers but not necessarily mean an accessible local GP service.

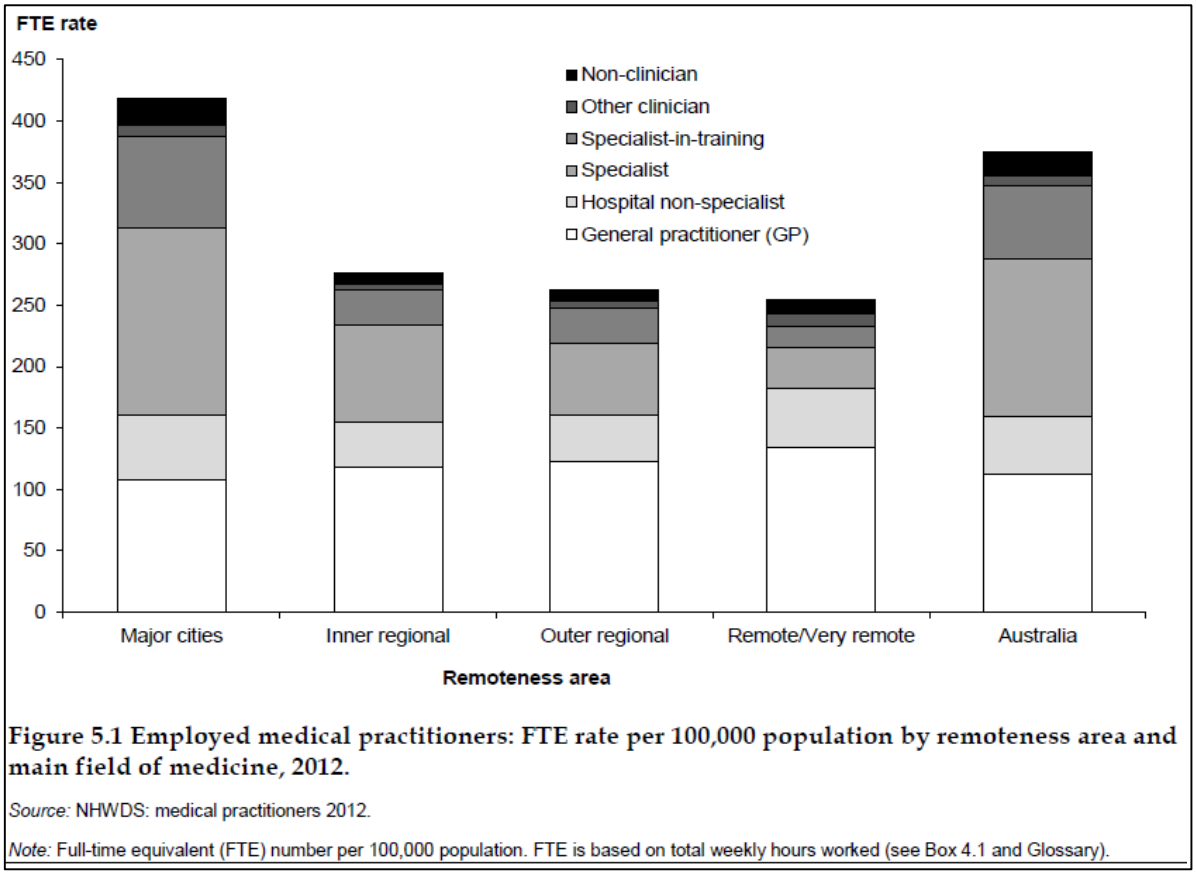

Figure 5.1 Employed medical practitioners: FTE rate per 100,000 population by remoteness area and main field of medicine, 2012.

Source: NHWDS: medical practitioners 2012.

Note: Full-time equivalent (FTE) number per 100,000 population. FTE is based on total weekly hours worked (see Box 4.1 and Glossary).

Figure 3.5: Employed medical practitioners: FTE rate per 100,000 population by remoteness area and main field of medicine, 2012

Source: Reproduced from *Medical Workforce 2012* (p. 32), by Australian Institute of Health and Welfare, 2014, with permission.

In addition to the reducing numbers of specialists and specialists in training from major cities to more rural areas, the numbers of hours worked in clinical settings increases with remoteness. While the length of hours worked by all practitioners has been decreasing, the relative lower density of specialists and GPs out of major cities tend to increase the hours worked. This can be seen in working hours for both men and women in the Figure 3.6 below.

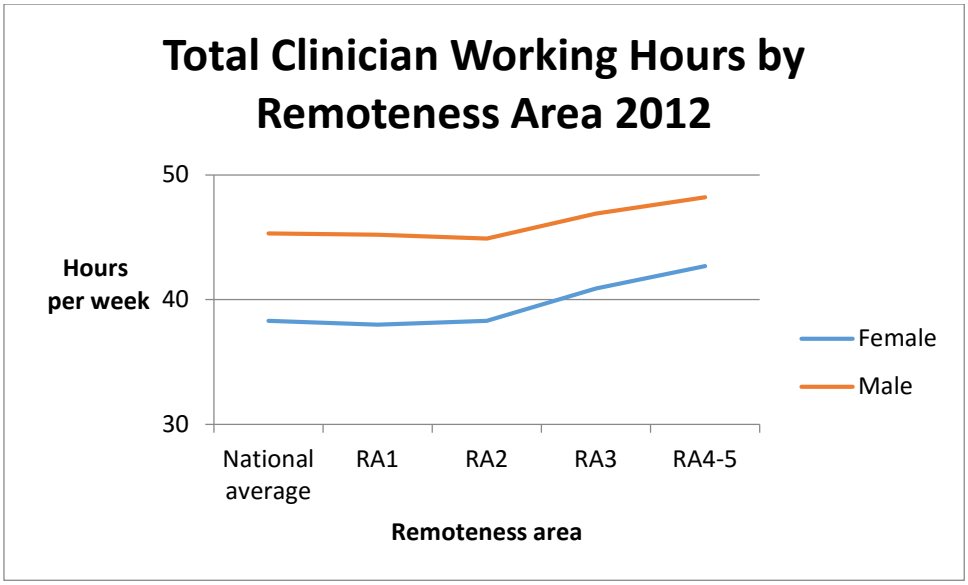

Figure 3.6: Total Clinician Working Hours by Remoteness Area 2012

Source: Graphed from data in *Medical Workforce 2012* (p. 37), by Australian Institute of Health and Welfare, 2014, with permission.

3.5.1 Regional centres – GP workforce supply

It has long been argued that GPs have been unequally distributed (Australian Government Department of Health 2008; Kamalakanthan & Jackson, 2009; David. Wilkinson, 2000). The difficulty remains in finding evidence for regional centre maldistribution or otherwise. The Karmel report in 1973 (Australian Medical Workforce Advisory Committee, 1998a) suggested there were declining numbers of doctors in small country towns as far back as the 1960s, and recommended an expansion of medical education. In the 1970s and 1980s, despite a perceived oversupply of medical practitioners, two trends were becoming apparent (Rural Health Workforce Australia, 2008). One was the relatively greater attraction of medical specialty training as opposed to general practice, and the second was the increasing preference for city versus country practice. Subsequent to legislative changes in 1996, growth in numbers of IMGs have been the major contributor to the rural and regional workforce, with 62% of places on the current rural pathway to general practice training being taken up by IMGs subject to a moratorium (Rural Health Workforce Australia, 2008).

The supply of general practitioners is certainly hard to gauge in regional centres. Considering FTE first, and using ASGC-RA classification from the most recent AIHW survey in 2012, the data surprisingly indicate a slightly greater supply of primary care practitioners/ FTE assuming a 40 hour working week in 2012 in inner regional areas, than in metropolitan areas (Table 3.5). In fact, according to these figures the supply of FTE per 100,000 population increased from major cities all the way to remote areas.

Table 3.5: Primary Care FTE per 100,000 population 2012

Remoteness area	Total national average	RA1 Major cities	RA2 Inner Regional Area	RA3 Outer Regional Area	RA4-5 Remote and very remote area
FTE per 100,000 population	111.8	108.2	117.8	123	134.3

Source: *Medical Workforce 2012* (p. 32), by Australian Institute of Health and Welfare, 2014. Reproduced with permission.

This would suggest that in the inner regional band there is no obvious shortage compared with metropolitan locations. There are a number of shortcomings in these data sets that were heralded earlier in the chapter. FTE does not take account of geographic distribution, numbers of hours worked and the type of work done. In addition, the FTE does not have any capacity to be varied depending on population need.

Other measures and analyses do not confirm the AIHW data (National Rural Health Alliance, 2010b). Divisional data from PHCRIS (Table 3.6) suggests a reduced supply of GPs in rural and regional areas using Full Time Workforce Equivalent (FWE) in divisional areas that encompassed regional centres in 2010–11 (Primary Health Care Research and Information Service, 2012).

Table 3.6: Key Division of GP characteristics 2010–11

Divisional Boundaries (prior to Medicare Locals)	Population/FWE GP ratio 2010
Central Sydney (Sydney)	938
Eastern Sydney(Sydney)	776
South Eastern Sydney (Sydney)	1144
NSW Central Coast (Gosford area)	1017
Hastings/Macleay(Port Macquarie)	849
Mid North Coast (Coffs Harbour)	1049
Northern Rivers (Lismore)	1077
Dubbo Plains (Dubbo)	1112
Riverina (Wagga)	1106
North West Slopes (Tamworth)	1908

Note: Divisional boundaries are not consistent with LGA or SD boundaries.

Source: *Key Division of General Practice characteristics 2010-2011* by Primary Health Care Research & Information Service 2012. Reproduced with permission.

It can be seen from the Table 3.6 that supply of GPs is generally lower in regional areas with a higher number of patients/population per FWE GP in many regional and rural areas compared to many metropolitan areas.

The Productivity Commission report on government services also suggests a gap between rural and urban supply. These figures using Medicare data also point to the rural urban mismatch of population per GP (Birrell, 2011). These data, again, are based on billings and do not denote the number of GPs, only the number of services (FWE).

Table 3.7: Full-time workload equivalent (FWE) GPs billing on Medicare and FWE GPs per 100,000 people

	FWE GPs Australia	FWE GPs per 100,000 people			Population per FWE GP	
		Australia	Urban	Rural	Urban	Rural
2006-07	18,091	86.8	89.4	78.0	1,119	1,282
2011-12	21,119	93.9	95.3	88.0	1,049	1,136

Source: Table derived from *Report on Government Services, 2013* by Productivity Commission, 2013. Reproduced with permission.

Finally calculations based on waiting time to see a GP, another marker of undersupply, suggest longer waiting times for those outside metropolitan areas. In the data presented below from the MABEL Study cohorts (McGrail, Humphreys & Scott, unpublished data (2014), there is a gradient in waiting times to see a preferred GP. The higher waiting times are in both RRMA3 (regional centres) and RRMA4-7. The NSW data shows increased waiting times for RRMA3 and RRMA4-7 compared to RRMA1-2. RRMA3 waiting times at the commencement of the study 2008–2010 were longer than for smaller centres. This can be seen in Table 3.8 and Figure 3.7. They have returned to similar wait times to RRMA4-7. Thus, despite FTE rates and FWE rates suggesting workforce adequacy, this measure is not consistent with that contention. This data suggests that the supply of GPs in regional centres and rural and remote areas is not as high as the supply in metropolitan areas.

Table 3.8: Self-report average time to see preferred GP by RRMA

	RRMA	2008	2009	2010	2011	2012	2013
Aus	1-2	3.7	3.6	3.5	3.3	3.7	3.2
Aus	3 only (regional centres)	6.3	6.5	5.8	5.0	6.2	5.0
Aus	4-7	7.7	7.5	6.3	6.6	6.2	6.2
NSW	1-2	3.6	3.6	3.5	3.5	4.7	3.3
NSW	3 only	11.8	14.6	12.8	8.3	9.5	8.2
NSW	4-7	9.8	9.7	8.5	9.5	8.5	8.3

Source: MABEL (2014).

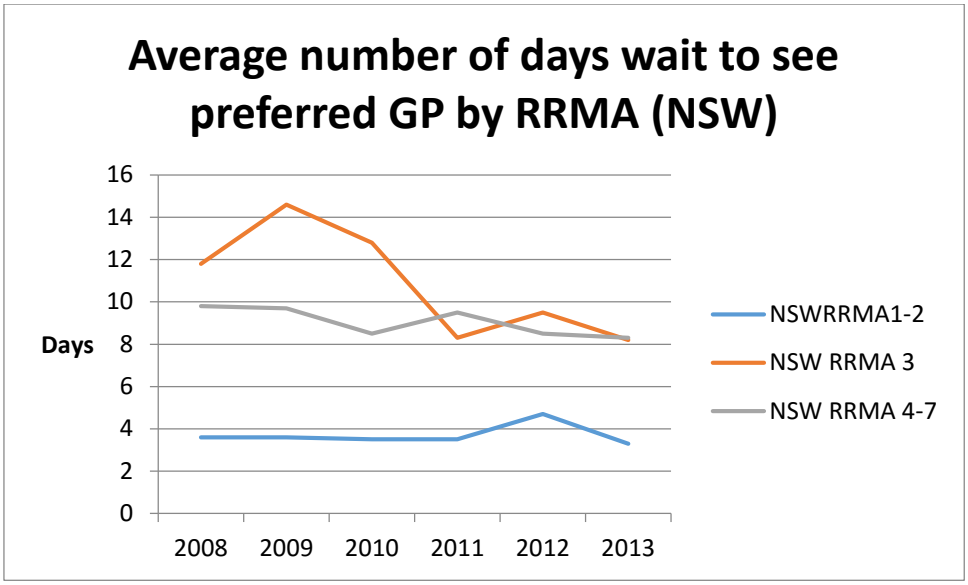

Figure 3. 7: Average number of days wait to see preferred GP by RRMA (NSW)

Source: MABEL (2014)

In summary, the differences between measurements of FWE and FTE are confusing. It may reflect the differing data sets of origin of FWE and FTE. FTE GP rates suggest superior supply per 100,000 with a gradient of improved supply as you go from metropolitan to remote, whereas the FWE numbers suggests a lower number of services being provided in more rural locations with a gradient of higher number of services being provided in metropolitan locations and fewer services in a gradient regional, rural and then remote. Whilst neither of these data sets specifically denote regional centres, they are reflected in ASGC-RA2 data and suggest that there is adequate FTE but not FWE supply. The MABEL data looking at GP waiting times provides a counter picture to adequate supply using the marker of waiting times to see preferred GP. Longer waiting times for GP services in RRMA3 (NSW) can be seen in this data compared to metropolitan and comparable wait times to more rural locations.

Given this lack of clarity, further elucidation of the workforce adequacy in regional centres is warranted and the adequacy of workforce supply is unclear. The next section reviews available evidence on regional centre specialist supply.

3.5.2 Regional centres – specialist workforce supply

Whilst there has been debate about the adequacy of the total medical workforce supply outside major cities, there is little argument about the reduced number of specialists per population outside major cities (Birrell, 2011; Joyce, McNeil, & Stoelwinder, 2004; Joyce, McNeil, & Stoelwinder, 2006). Looking at the distribution it can be seen that specialists and specialists in training are not as well represented in non-major city locations.

Table 3.9: Number of medical practitioners per 100,000 populations, by Remoteness Area, Australia, 2012

ASGC-RA Classification	RA1 Major cities	RA2 Inner Regional	RA3 Outer Regional	RA4-5 Remote/ v remote	National
Specialists	152.8	76.8	58.2	33	127.9
Specialist-in-training	73.8	28.2	29.5	17.5	60.1
Total Clinicians	407	261	236	258	355.6

Source: Adapted from *Medical Workforce 2012*, (p.33-36) by Australian Institute of Health and Welfare, 2014. Reproduced with permission

Specialists are most concentrated in major cities. Whilst there is an obvious large disparity between major cities and other areas, account must be taken of the increased density and requirement of specialist care in tertiary hospitals and medical facilities. It is also of note that in 2011, 10 % of specialist training was occurring outside metropolitan areas (Australian Institute of Health and Welfare, 2013). Historically much of the scope of practice now being provided by specialists was the domain of rural GPs (Harris & Zwar, 2014).

These labour force figures suggest a maldistribution of the specialist workforce. Another way of considering the adequacy of the workforce is Medicare benefits expenditure on specialist services. Whilst funding sources for specialists include income from hospital service provision funded by state governments, Commonwealth funding for specialist services is reflected in MBS billings. The data below extracted from the National Health Performance Authority 'Healthy Communities' reports detail average Medicare benefits expenditure on specialist services on a per person basis over

a number of regional and metropolitan areas. These catchments provide part but not all of the referral area for each of the regional centres in this study and areas are defined by Medicare Local boundaries.

The catchments are denoted as urban or rural for comparison. These raw data suggest lower levels of spending in regional and rural locations compared with those based in major cities. It should be noted that this figure does not include funding of staff specialists and some of the activity within acute hospital settings.

Table 3.10: Average Medicare Benefits expenditure on specialist attendances per person 2012-3 (Age Standardised)

Medicare Local	Average Medicare payment on specialist attendances 2012-3
Eastern Sydney (PeerGroupmetro)	$122.15
Inner West (PeerGroupmetro)	$99.68
Western Sydney (PeerGroupmetro3)	$86.29
Nepean Blue Mountains (PeerGroupregional1)	$84.50
Illawarra-Shoalhaven (PeerGroupregional1)	$76.16
Hunter (outer metro and rural)(PeerGroupregional1)	$64.68
New England (Including Tamworth)(PeerGroupregional2)	$48.88
Western NSW(including Dubbo)(PeerGroupregional2)	$57.34
North Coast (including Port Macquarie and Coffs Harbour) (PeerGroupregional2)	$65.45
Southern NSW(PeerGroupregional2)	$46.17
Far West (PeerGrouprural1)	$45.77
Lower Murray (PeerGrouprural1)	$69.48

Source: National Health Performance Authority (2014). Peer group definition based on remoteness, socioeconomic status and distance to hospitals. Reproduced with permission.

Note: Peer groups directly comparable are shown grouped.

In summary, the FTE ratios of specialists to population in non-metropolitan areas suggest undersupply and in addition, MBS payments to specialists would seem lower in these areas. A further complexity of specialist service provision is the need for catchment populations for specialist services, and the need for access to hospitals. This means that the locality of specialist service provision is also important and harder to discern using national and aggregate data. The following sections consider the available demographic profiles of GPs and specialists in regional centres.

3.6 Medical workforce characteristics in regional centres

3.6.1 GPs

Given the difficulty in measuring the adequacy of otherwise of the regional centre GP workforce, there is a subsequent challenge to understand the demographic characteristics of the GP regional centre workforce. In NSW the most complete data set pertaining to regional centre GPs utiilsing the RRMA definition (ie regional centres with populations between 25,000 and 100,000 people) was collected by NSW Rural Doctors Network (NSWRDN) as part of their rural workforce data collection. This data collection commenced in 2006. It is considered a realtively robust data set with both practice manager and GP self-report being used to validate and cross-reference the information (NSWRDN 2012).

The data set was reviewed as at 30 June 2012. The data comprised regional centres (RRMA3) designated by postcode with populations between 25,000 and 100,000 people at the 2011 census. This comprised Albury, Coffs Harbour, Nowra, Wagga Wagga, Dubbo, Orange, Port Maquarie, Lismore and Tamworth.Those living in regional centres were compared with the more rural cohort comprising those working in smaller towns (RRMA4-7).

Table 3.11: Rural Doctors Network workforce data comparison between RRMA3 and RRMA4-7

Characteristics	RRMA3 (n=460)	RRMA4-7 (n=1033)
Gender Male	61.3%	70%
Average Age	52.5 years	52.6 years
Age >55	42.7%	40%
Full-time	62.1%	65%
International Medical Graduates	36.7%	40.4 %
Mean Length of Stay in years	9.1 years	10.7 years
VMO status	25%	37.8%
Rural Origin (primary school in rural area)	28.8%	22.3%
Rural Spousal Origin (of those that had spouses)	47.9%	50.7%

Source: NSWRDN 2012

Gender and age

In NSW, 460 GPs were identified as residing in regional centres, with 282 (61.3.%) being male whilst 178 (38.7%) were female. The mean age was 52 with 307 (77.5%) being older than 45 years and 89 (22.5%) practitioners being less than 45. A further 1033 GPs were resident in smaller rural areas (RRMA4-7). The age profiles of regional and rural GPs in NSW were very similar, with about 40.6% to 42.7% over the age of 55.

Rural origin

From the 222 Australian-trained graduates resident in regional centres who gave valid responses, 28.8% (64) indicated that they had lived in a rural location during primary school. Rural spousal origin was noted for 92 (47.9%) of practitioners in regional centres with 100 (52.1%) nominating non-rural spousal origin. It was not possible to identify whether those who had rural origin were also represented in the group of GPs with rural spouses. In those living in RRMA4-7 locations, 119 (22.3%) described a rural location for primary school. Of those practitioners who responded to the question, 249 (50.7%) declared their spouse had rural origin.

Country of primary medical degree

Of the 450 practitioners from regional centres who responded, 36.7% nominated an overseas country for their primary medical degree and 285 (63.3%) were Australian-trained. This compares with 657 (59.6%) Australian trained doctors and 444 (40.4%) who were IMGs in NSW RRMA4-7.

Length of stay

Mean length of stay of NSW GPs is similar in regional centres and small rural towns. The mean length of stay for RRMA3 areas (regional centres) was 9.1 years with 25% of practitioners nominating they were settled within the last 2 years.The mean length of stay for those in more rural (RRMA4-7) areas was 10.7 years. Figure 3.8 below suggests similar patterns in all locations with nearly 25% of practitioners having been resident less than 2 years. Also notable was the 18-20% of practitioners in all locations who had been resident for more than 20 years. This picture of recent turnover (new starters) and those with longer lengths of stay was mirrored in national statistics with RHWA data noting 22% of practitioners having been resident in their current location for less than 12 months (Rural Health Workforce Australia, 2013). More recent work by Russell et al (2013) suggest a relationship between population size and retention with shorter length of stay more remotely.

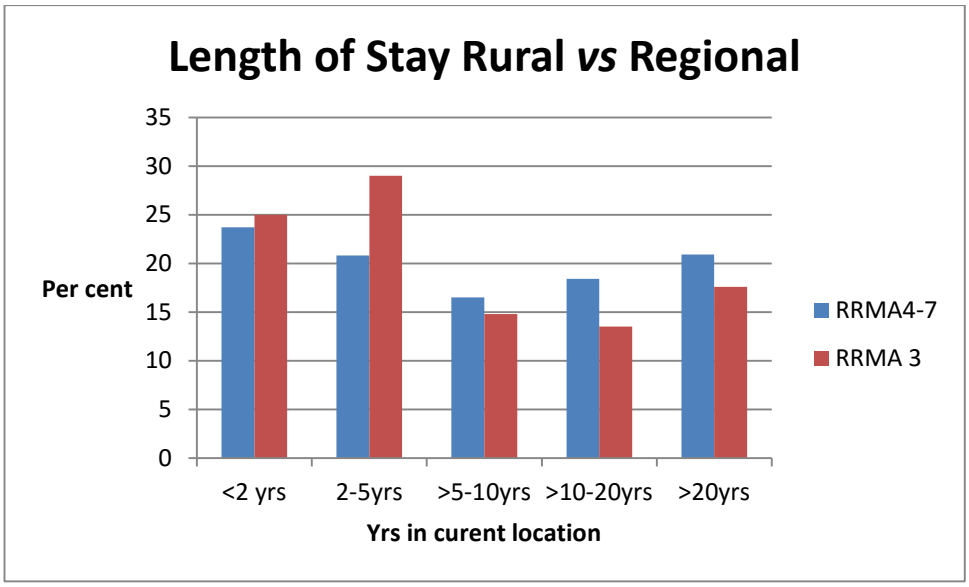

Figure 3.8: Length of stay

Source: NSWRDN (2012).

Hours worked

The NSWRDN data set only included self-reported data by full-time or part-time hours. For GPs working in RRMA3 locations, 62% described their hours of work as full-time compared to 65% of those who worked in smaller centre (RRMA4-7). Reviewing MABEL data collected nationally, metropolitan GPs averaged 38.6 hours a week whereas those working in large regional towns (50-100,000 population) worked 41.2 hours. Medium sized regional town GPs (25,000-49,999 population) worked 44 hours with small rural town GPs (population < 25,000) working upwards of 45 hours at private rooms but often the extra hours were in a public hospital environment, consistent with after-hours responsibility (McGrail, Humphreys, Joyce, Scott, & Kalb, 2012b). Importantly, only 25% of GPs in RRMA3 nominated that they were VMOs, with only 37% of those working more rurally acting as VMOs. This suggests that the scope of practice of many GPs in regional centres did not involve hospital work.

3.6.2 Specialists

Access to demographic data for specialists resident in regional centres was problematic, with most data sets using ASGC-RA classification. This is not as difficult as with GPs considering that the vast majority of rural specialists work in regional centres rather than smaller rural towns, in order to access hospital infrastructure and have sufficient catchment population to practise their specialty.

ASGC-RA data were available through the Australian Institute of Health and Welfare reports of 2011 and 2012. MABEL study data enabled comparison between metropolitan (major city) resident specialists and those primarily resident outside these areas. The MABEL study contains data from approximately 25% (n=4362) of all specialists in Australia, of which 3963 were classified metropolitan and 435 classified RRMA3 (Joyce et al., 2010).

Gender and age

The feminisation of the national workforce has been described previously with differences between gender ratios in different specialties. The graph below uses Australian Institute of Health and Welfare data available using ASGC-RA and contrasts doctors in training with existing specialists based on gender.

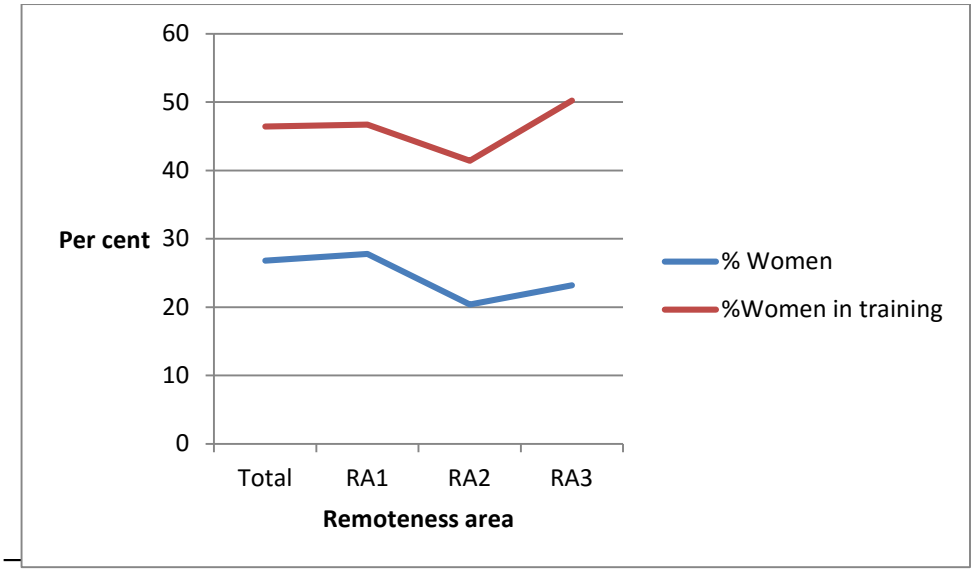

Figure 3.9: Percentage of female specialists and specialists in training by remoteness area

Graphed from: *Medical Workforce 2012* (pp. 30-3), by Australian Institute of Health and Welfare, 2014. with permission.

There were slightly lower percentages of female specialists working in RA2 areas (20.4%) compared to metropolitan areas (27.8%). A small difference is seen when reviewing the gender split of specialists in training where 41.4% of specialists in training in RA2 areas were female, similar to 46.7% of metropolitan specialist trainees.

MABEL data in Table 3.12 also confirms that the specialist regional centre workforce currently is overwhelmingly male, especially in those over the age of 45. It also confirms that there are increasing numbers of younger women coming into the workforce.

Table 3.12: Age and Gender Regional Centres and Metropolitan

	RRMA 3	Metropolitan
Male	81.8%	70.8%
Female	18.2%	29.2%
Age < 45	28.6%	31.8%
Age ≥ 45	71.4%	68.2%
Age < 45years & Male	70.2%	57.8%
Age < 45years & Female	29.8%	42.2%
Age ≥ 45 year & Male	86.4%	77.1%
Age ≥ 45 years & Female	13.6%	22.9%

Source: MABEL (2010).

Thus, increased feminisation of the specialist workforce is occurring consistent with national trends of graduating student gender. However, regional centres are not yet reflecting this upward trend as strongly as metropolitan areas. In regional centres nearly 30% of those under the age of 45 are women (compared to 51.8% of recent graduates) whilst still over 86% of the over 45 age group were male. This distribution does not equate yet with the percentages of women in training, which are much higher, and there is not yet a clear indication of whether regional centre gender trends will fully reflect metropolitan trends.

Specialists were aged an average 50.1 nationally with ASGC- RA1 average age being 49.9 years and ASGC-RA2, 50.8 years (Australian Institute of Health and Welfare, 2014b). As well as being slightly older on average, it is also important to note that 35.2% were over the age of 55 in ASGC-RA2 compared with 32% who were over the age of 55 in ASGC-RA1 (Australian Institute of Health and Welfare, 2014b).

Country of primary medical degree

The number of specialists identifying as having achieved their primary medical degree in countries other than Australia was significantly higher in RRMA3 areas than metropolitan areas (22.5% *vs* 16.7%, p=0.005). Thus, there was a greater number and

percentage of IMGs in non-metropolitan areas. This is consistent with declarations of DWS and 'Area of Need' status in many regional centres.

Rural origin

Of the 409 rural specialists surveyed, 111 (27.1%) described 12–18 years residence in a rural area prior to undertaking medical training. A further 29 (7.2%) reported between 6 and 11 years residence and a further 26 (8.3%) reported rural exposure of between 1–5 years. This means that 40.5% of the specialists currently practising in RRMA3 areas had some rural origin. There was no significant difference when age was considered, with 42.3% of those under 45 reporting rural origin and 39.9% over 45.

Working hours

Overall, working hours nationally have appeared to reduce, with the average national working hours for all employed clinicians dropping from 48.6 hours in 1998 to 42.9 hours per week in 2012. For specialists, those in metropolitan areas averaged 43.8 hours per week compared to inner regional areas, with average work hours for specialists at 44.9 hours per week and specialists in training self-reported at 47.5 hours a week in inner regional areas incorporating regional centres (Australian Institute of Health and Welfare, 2014b).

The information received from the MABEL study about work hours is also self-reported. It does reflect the AIHW data, noting higher work hours for specialists not residing in major cities. As can be seen in the graph below, 30% of participants in RRMA3 areas worked 41–60 hours in direct patient care compared to 18% of those in major city locations. Fewer participants worked part-time hours in regional centres than their major city counterparts did. This is consistent with higher levels of on-call and workforce shortage. The lower numbers of specialists working in non-metropolitan areas, and the fact that the majority work in both the public and private sectors also could suggest higher workloads (Cheng et al., 2013). Increased percentages of women in the specialist workforce in major cities may also explain the higher work hours in regional centres, since women's work hours were noted to be lower (Section 3.4).

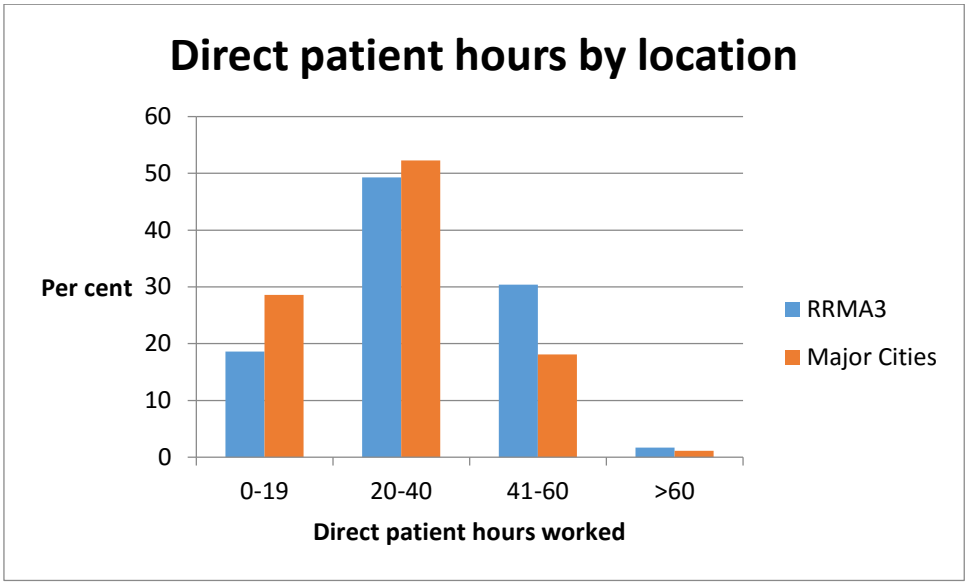

Figure 3.10: Direct hours by location

Source: Source: MABEL (2010).

Having considered the demographics of the regional centre workforce, the focus now turns to what activities medical practitioners in regional centres were engaged in. Central to this question is also whether practice in regional centres is the same as practice in metropolitan locations.

3.7 Medical workforce scope of practice in regional centres

This section reviews scope of practice in addition to the supply of medical practitioners in regional centres. Central to the discussion of supply is not only the numbers of medical practitioners, but also the work that they do.

Generalism and its implications for scope of practice are considerable. Naccarella (2014) notes the importance of systematic enablers that enable or change the roles of health care providers. Given the increasing number of specialists over time, the changing balance with the training of more specialists than GPs and specialisation within the workforce, the impact of these changes on the rural, regional and major city locations requires consideration. This section reviews the evidence of the type of work or 'scope of practice' being done by both GPs and specialists in regional centres.

'Scope of practice' comes from the Greek word meaning goal and is terminology used by national and state/provincial licensing boards responsible for health professions that define the procedures, actions, and processes that are permitted for the licensed individual (Phillips & Haynes, 2001). Each jurisdiction has laws, licensing bodies, and regulations that describe requirements for education and training, and define scope of practice. Whilst registration is national, the legal frameworks under which medical practitioners work such as hospitals are jurisdictionally based. In addition to national licensing of the practitioner, there is the requirement for local credentialing for the provision of certain services. This is based on a jurisdictional standard but may be interpreted and implemented under Local Health Network or district guidelines. Facilities may also be accredited to perform certain functions such as day surgery.

Scope of practice is important in potentially differentiating rural, regional and urban practice. Wider scope of practice may have impacts on the appropriate FTE for GPs in non-metropolitan locations if they are delivering services that in metropolitan areas would be delivered by specialists. This potential interaction between the GP and specialist workforce is thus pivotal to an understanding of workforce supply. It is also important to review the rapid change in scope of practice as the number of specialists has increased proportional to the number of primary care practitioners (Australian Institute of Health and Welfare, 2014b).

3.7.1 GPs and scope of practice

There is a difference in the scope of general practice between rural and metropolitan areas. This is demonstrated by the enhanced role involving emergency care, hospital procedural work and inpatient care that occurs in many rural locations. Where procedural skills such as intra-partum obstetric care and surgical care occurs, the hours worked and the location of the hours worked also differ (Olatunde, Leduc, & Berkowitz, 2007). This extended role is taken up in metropolitan areas usually by specialists and doctors in training working out of acute care facilities.

Evidence from the USA on scope of family practice suggests high levels of participation in nursing home visits and after-hours care in towns with populations of up to 50,000 inhabitants. The provision of this care is seen as a one of the markers for extended

scope of practice (Baker, Schmitz, Epperly, Nukui, & Miller, 2010). The RDAA viable models study considered other markers for scope such as the provision of cytotoxic chemotherapy services that help delimit the nature of practice (Humphreys et al., 2003). Australian evidence also demonstrates higher numbers of hours worked for GPs who live in towns with population < 50,000 (McGrail, et al., 2012b). These higher numbers of hours are all in after-hours work, not related to longer hours working in GP surgeries. Twenty years ago, Britt (1993) compared rural and metropolitan general practice, providing a description of the practitioners, the morbidity managed, treatments provided and the availability of support services. She noted that GPs in regional centres (RRMA3) were doing less procedural, anaesthetic and emergency work than their more rural counterparts working in RRMA4-7 locations. The decline was also evidenced in the fall in the number of GP proceduralists from 24% in 2002 to 12% in 2011 (Health Workforce Australia, 2012b). The greatest impact of this decline has been in smaller rural towns where there are no specialists who can pick up this deficit. This has led to increasing transfers to regional referral centres (Dr P.Finlayson, personal communication 2009; Murray & Wronski, 2006). Workforce and educational initiatives have been successfully employed to reskill the incoming rural GP workforce with rural generalist programmes now established in most states. A deliberative approach to the acquisition of procedural skills in addition to general practice has been operating since 2008 (Australian College of Rural and Remote Medicine ACRRM, 2015). Whilst much of the teaching and support of rural procedural skills posts have occurred in regional centres, there is little capacity or intention for these clinicians to be able to use their skills in regional centres.

This change in service provision has been notable but not absolute, with reductions in obstetrics, anaesthetics and emergency surgical procedures in RRMA4-7 locations. GPs in regional centres were more likely to be undertaking hospital work and procedural work, however, than their metropolitan or major city counterparts. In 2003, a study looking at five sentinel activities concluded that 6–21% of GPs in RRMA3 were providing complex care such as administering cytotoxic medications and performing forensic examinations on victims of sexual assault. This contrasted with rates of 25–87% in RRMA4–7 of these sentinel activities (Humphreys et al., 2003).

GPs in larger rural towns (RRMA3) were seeing more patients and were less likely to work part-time, but there was no obvious difference in the acuity of the patients, making general practice similar to, though busier than, metropolitan practice (Britt et al., 1993). Ten years later the same authors reviewed GP encounters looking at location using the ASGC-RA classification (Knox et al., 2005). The patient population also appeared to have higher rates of chronic disease and was ageing faster than metropolitan areas (Harrison & Britt 2011). Importantly, this study again noted a change in general practice activity with increasing remoteness indicating increased involvement of GPs in all aspects of patient treatment in the absence of, or shortage of, local specialists (Knox et al., 2005).

So, whilst there is evidence of a decline in procedural activity, there is also a decline in after-hours activity as population size of place worked becomes larger. In a 2012 study, the likelihood of being called out in a usual week for a metropolitan GP was lower (OR=1.5) than in a rural community with population < 1500 (OR-5.3) and in a medium to large regional centre with population 25–100,000 (OR 2.1-3.1) (McGrail et al., 2012b). The places they were likely to be called out to also differed. For those residing in a population centre between 25–100,000, they were more likely to be called out to a private hospital compared to metropolitan GPs (OR 3-5) and more likely to be called to residential aged care (OR 1.8-1.9). Their more rural counterparts were much more likely to also work in a public hospital (OR15-19) (McGrail, et al, 2012b).

The responsibility for after-hours as stated in the relevant accreditation standards within general practice no longer rests with individual general practitioners (Royal Australian College of General Practitioners, 2013). This change occurred in 2013 as a result of the formation of Medicare Locals, who were given responsibility for supporting after-hours primary care services. The Medical Local organisations have now been wound up so it is too early to review whether GPs will need to become responsible again for after-hours arrangements. Without formal requirements to provide after-hours, the flexibility accorded to GPs in regional centres may mean they choose not to participate in after-hours care and there may be gaps in services to patients without transport or unable to attend emergency departments. In metropolitan areas size and viability, considerations allow for other models of care

such as medical deputising services and the provision of after-hours services specifically for nursing homes, for instance. In one regional centre, a practice has evolved now providing only in and out of hours care for nursing home patients, a model common in metropolitan areas (Australian Financial Review, 2013).

Hence the nature of practice in regional centres for GPs is probably best seen as on a continuum between the extended scope of practice of rural GPs, with responsibility for in and out of hours care and the provision of acute care services, and the more focused nature of practice in metropolitan areas with little requirement for after-hours care and good access to after-hours services. Regional centre practice appears to be in a process of evolution, with evidence of reducing hospital involvement, and reducing use of procedural skills. This may be (or is likely to be) related to generational change with younger GPs less likely to be VMOs. There is evidence of decreasing VMO status with older GPs comprising the bulk of those operating as VMOs. This is shown in Table 3.13 below. In terms of VMO status as a proxy for a greater scope of practice, the NSWRDN data suggests that 28% of GPs in regional centres were VMOs, whilst those working in more rural centres (RRMA4-7) had a higher rate of VMO status (37.5%). This is consistent with the wider scope of practice including hospital and often out of hours work being provided in some smaller centres. There is an association with positive VMO status and practitioner age. Considering the table below those GPs aged less than 45 years were much less likely to be visiting medical officers at either private or public hospital faciltities. For those who were older than 45, there was a much higher likeihood of VMO status than their younger counterparts ($p<0.001$). This could suggest that the scope of practice being provided by older practitioners was wider than their younger counterparts.This link between VMO status and age thus has implications for the access to hospital and after-hours services in the future.

Table 3.13: VMO status and Age RRMA3

VMO	Age < 45 years	Age ≥ 45	Total (N=396)
No	81 (91.1%)	203 (66.2%)	284 (71.2%)
Yes	8 (8.9%)	104 (33.8%)	112 (28.2%)
Total	89	307	396 (100%)

Source: NSWRDN (2012)

Chi Square P<.001(1df)

3.7.2 Specialists and the scope of practice

Specialist scope of practice is influenced by the effect that both geography and differing service models have in the regional and further rural setting. For example, in a rural and remote area a specialist is more likely to deliver health services across acute, aged care and community settings (much like general practice) and across traditionally separate professional disciplines, whereas in an urban setting, people often visit specialists within each setting and/or discipline (Royal Australian College of Physcians, 2009). The scope of practice of both GPs and specialists therefore often varies from common metropolitan approaches.

Despite a move to organ or disease-specific centres for referral of care in teaching hospitals (ABC News, 2015), subspecialty training and higher status for specialist procedural skill sets being the 'main game' in medical organisations over the last fifteen years, the nature of practice in regional centres has not been at the forefront of discussion until recent times (Nova Public Policy Pty Ltd, 2011). The AMA (2014b) put the spotlight on the shortage and issues of regional specialists in December 2013 with a forum in Wagga Wagga to discuss the training and support needs of resident specialists outside metropolitan areas in NSW. More recently, Australian Medical Council (2015) has noted the potential pitfalls of sub-specialisation in its recent accreditation drafts. Subspecialist training is now a major component of most specialist training programmes with some concern about the fit for regional centres (Health Workforce Australia, 2012b, p.4).

Regional centre practice has been characterised by a wide scope of practice, and often longer and complex after-hours responsibilities. Breadth of professional experience was quoted in a RANZCOG study in 2006 as one of the major benefits of rural practice from the point of view of practising obstetricians (Rural Doctors Association of Australia, 2012b). Greater generalist capacity, however, is associated with longer working hours. In terms of general medicine, where there were few general or dual trained physicians, physicians and trainees experienced high workloads and frequent on-call rosters (Nova Public Policy Pty Ltd, 2011). This was exacerbated by the increased complexity of patients often referred to general physicians (Nova Public Policy Pty Ltd, 2011). The after-hours workload is also regarded as a key factor and potential downside in regional practice according to a survey of regional specialists conducted by the Rural Doctors Association in 2012 (Rural Doctors Association of Australia, 2012b).

A survey of fellows from the Royal Australian and New Zealand College of Obstetricians and Gynaecologists noted differences in the nature of practice between those working in metropolitan locations and those in regional centres. The 1342 respondents represented 65% of the total membership of the college (Royal Australian and New Zealand College of Obstetrics and Gynaecology, 2011). The scope of practice appeared wider in regional centres. In regional centres, 85% of fellows did both obstetrics and gynaecology compared to 58% of their metropolitan colleagues. The use of ultrasound was more widespread also in regional centres. Wider scope of practice was evident in higher participation in office gynaecology, colposcopy and ultrasound and urologic gynaecology in regional centres.

The wider scope of practice has direct patient benefit with more local access for services. Stewart (2006) writing in the Medical Journal of Australia described the importance of striking the balance between quality of care and the relationship with higher volumes of certain procedures and the important consideration of patient convenience. Finding this balance is important due to emerging evidence that in fact regional and rural patients continue to choose not to access care if it is not available locally. This is most notable in choices and quantum of cancer care (Baade, Dasgupta, Aitken, & Turrell, 2011; Baade, Youlden, Coory, Gardiner, & Chambers, 2011; Deloitte

Access Economics, 2011; George, Ngo, & Prawira, 2014; Jong et al., 2004). Regional specialist practice, thus, is characterised by a high patient need, a high likelihood of after-hours work and for many specialities, a broad scope or variety of practice. The differing scope of practice from more metropolitan sites has implications for the maintenance and adequacy of a supply of practitioners with the training and disposition to work in a regional centre environment. This will be further explored in Chapters 7 and 8.

3.8 Conclusion

This chapter has explored the factors that influence the supply, recruitment and retention of medical workforce to non-metropolitan areas. With a particular focus on regional centres, a synthesis of the available workforce data yields a confusing picture in Australia. In fact, the consideration of the sufficiency of workforce supply requires the review of a multiplicity of factors, for which the proxy markers used are not always consistent with each other. Differing data sources and the finite capacity to represent context contribute to what has become a 'messy reality'. Thus, no single headline measure of supply is likely to be adequate to convey the sufficiency or otherwise of supply to these centres.

One dataset suggests that whilst the actual numbers of GPs as measured by FTE do not indicate a supply issue in areas outside major cities, other factors suggest an undersupply. This evidence can be summarised by markers such as longer hours, increased demand, poorer health outcomes and use of IMGs compounded by longer waiting times. Specialists would appear to be in undersupply on all indicators with multiple access and supply markers less favourable than major cities.

Scope of practice is also a key determinant of supply. It has an impact on health service provision and is a particularly important determinant of access for residents in non-metropolitan areas (Murray 2006). Changes in scope for GPs and specialists have impacted on the types and volumes of patients being treated in regional centres. Scopes of practice are continuing to change with increasing subspecialism seen in metropolitan specialist practice, and reducing procedural scope by regional centre GPs.

Given this picture of workforce data, an exploration of the existing literature on recruitment and retention is required in order to further explore and focus on the particular issues, and responses faced by regional centres in attracting and maintaining their medical workforce.

CHAPTER 4
FACTORS IMPACTING ON RECRUITMENT AND RETENTION OF THE MEDICAL WORKFORCE IN REGIONAL CENTRES

4.1 Introduction

Given the importance of regional centres in the settlement hierarchy and in the provision of health care to regional and rural Australians, the second objective of this study concentrated on the need to measure and understand sufficiency in supply for both GPs and specialists in regional centres. In Chapter 3, the national and regional workforce supply situation was considered and the scopes of practices in regional centres were explored. The third objective of this study considers recruitment and retention factors for the medical workforce in regional centres in relation to the extent to which subgroups of practitioners differ in their expectations of, and preferences for, living and working in regional centres. This chapter explores the literature to identify key factors impacting recruitment and retention of medical workforce to regional centres. Key definitional differences are considered within the medical workforce literature, with a focus on the Australian context. The factors relating to rural recruitment are considered with attention to predisposing factors and the impact of education and professional, social and locational influences. Retention is also reviewed with emphasis on the specific issues of age, gender and international medical graduates. The evidence focused on regional specialist issues will also be appraised and conceptual models with relevance to the regional context discussed. This chapter sets

the scene by critically appraising the existing evidence as it relates to Australian regional centres.

The chapter focuses on medical workforce, given the plethora of data pertaining to the rural medical workforce and given the challenge of extensive review of the literature referencing allied health, nursing and non-medical professionals in rural and regional areas. Indeed even comparison and synthesis of the literature pertaining to rural medical workforce is beset by differing definitions of rurality and changing policy settings rendering direct comparison problematic.

In addition changing demographics and societal trends such as the advent of dual career couples have impacted on career decision making for all professional rural workforces. Those trends include the growing importance of female participation in paid workforces and the move to shorter working hours. Implicit is a focus on spousal employment, access to schooling and the quest for work life balance for both genders (Hawthorne & Birrell, 2002; Shrestha & Joyce, 2011). Implicit also is the desire for a 'controllable lifestyle', a societal trend seen in most professional occupations (Lefevre, Roupret, Kerneis, & Karila, 2010). Thus rural and regional workforce recruitment and retention must be viewed through the lens of gender and societal attitudes pervasive across the whole workforce.

Most of the literature reviewed in Section 4.2 and 4.3 is related to rural GPs. The available literature specifically looking at specialists recruited to regional or rural areas is considered in Section 4.4. Finally the synthesis of the available literature is considered with deliberative relevance to the regional centre context in Section 4.5.

4.2 Factors predicting recruitment and retention of medical practitioners to non-metropolitan areas, especially regional centres

Sentinel studies focusing on recruitment and retention of rural GPs (family practitioners) published in the early 2000s (Brooks, Walsh, Mardon, Lewis, & Clawson, 2002; Easterbrook,Godwin,Wilson & Hodgetts et al, 1999; Jones et al., 2004; Laven et al., 2003; McDonald et al., 2002; Rabinowitz, Diamond, Markham, & Paynter, 2001)

affirmed key predictors of recruitment as rural origin, rural spousal origin, and positive rural training experience (Curran & Rourke, 2004; Rabinowitz et al., 2001). More recent work has identified the importance of positive perceptions of rural career and lifestyle (Adams, Dollard, Hollins, & Petkov, 2005; Tolhurst, Adams, & Stewart, 2006). The most recent Australian literature suggests that these effects may be independent but are more likely synergistic (Playford et al., 2014; Walker et al., 2012).

Rural origin

There is irrefutable evidence both in Australia and internationally that rural origin is a key predictor for subsequent rural practice. Internationally this was noted in the early 2000s (Easterbrook et al., 1999; Pathman, Williams, & Konrad, 1996; Rabinowitz, Diamond, Veloski, & Gayle, 2000; Rabinowitz et al., 2001). Australian evidence appeared at the same time (Laven et al., 2003; Laven & Wilkinson, 2003; Somers, Strasser, & Jolly, 2007; Ward, Kamien, & Lopez, 2004). A systematic review by Laven and Wilkinson (2003) reported ten studies noting a strong association. However, there is considerable difficulty in quantifying this influence for regional communities due to both the definition of what constitutes rural origin or background and the difficulty of defining rurality in different countries for the purposes of final practice location. Internationally in the 2000s, there were some non-specific descriptions such as 'being raised in a rural community' (Rabinowitz, Diamond, Hojat, & Hazelwood, 1999). In Australia, rural origin has been variously described to mean some or all of time at primary school or secondary school (Laven et al., 2003) – either five years of continuous time (M. Jones, Humphreys, & Prideaux, 2009), or discontinuous time of eight years (Australian Medical Workforce Advisory Committee (AMWAC), 2005). Similarly, Somers investigated the threshold for the influence of rural background in a cohort of medical students and found it developed after five years rural upbringing and resulted in the highest likelihood of rural intention at eight years (Somers et al., 2007). The AMWAC survey also confirmed a higher level of intent for rural practice (recruitment) by rural background (Australian Medical Workforce Advisory Committee (AMWAC), 2005). They noted 50% of GP trainees with rural origin said they were planning to practice rurally.

More recently, McGrail et al (2011a) reported that a minimum of six years is required to see a statistically significant background rural origin effect. This has provided some of the background for the Federation of Rural Australian Medical Educators (FRAME) survey from rural clinical schools, which used self-reporting for an average of five years outside a capital city. Their analysis found students from rural backgrounds were ten times more likely to prefer to work in rural areas (Walker et al., 2012). Other corroborating evidence comes from the Medical Students Outcome Database (MSOD). This longitudinal study has released data suggesting that two of the three strongest associations with stated rural intention are rural residence greater than five years and a long duration of regional/rural residence overall (M. Jones et al., 2009; Kaur et al., 2014). Therefore, regionally educated students who are classified rural in all of these analyses would appear to have a similarly increased likelihood of intending to take up rural/regional practice on graduation. Interestingly, exploration of the reason for this rural background effect (RBE) using at least one year residency in a rural area as the measure of success found no single social, environmental or economic factor that was significantly correlated (M. Jones, Humphreys, & McGrail, 2012). There was evidence that those from places of very low geographic amenity (hot dry interior) modified the RBE, suggesting that those from attractive rural areas were more likely to be retained. This should be considered in the context of the importance of early residential 'place' which accounts for more than 50% of the variance in residence for younger adults (Whitfield, Zhu, Heath, & Martin, 2005).

In another, earlier approach Rabinowitz (2000) provided corroborative evidence to the likely success of regional origin to aid recruitment by describing the four predictors of providing care to underserved areas. These were being a member of an underserved community; getting a prevocational scholarship; having a strong interest in practising in an underserved area prior to attending medical school, and having grown up in an underserved area. Having all four predictors gave an 86% chance of working in an underserved area.

Data suggesting a synergistic effect of background combined with other factors has been further refined by the Commonwealth funded rural clinical schools (Clark et al., 2013; Playford et al., 2014; Walker et al., 2012). Thus, there is consistent evidence that

rural origin (including origin in regional centres) is a strong predictor of subsequent rural and regional practice.

Rural spousal origin

Most studies of recruitment and retention have not considered rural spousal origin in their analyses, which is unfortunate considering that proximity to family and friends has been identified as a reason for choosing either rural or urban practice location (Australian Medical Workforce Advisory Committee (AMWAC), 2005; Hancock et al., 2009; Szafran, Crutcher, & Chaytors, 2001).

Spousal employment was noted in earlier international literature as a key factor influencing practice location (Jarratt, Leonardson, & Nord, 1989; Kazanjian & Pagliccia, 1996; Szafran et al., 2001). It was Laven's breakthrough study in the early 2000s, which considered rural spousal origin and indicated not only the strong association between rural practitioners' location and origin, but also pointed out the importance of spousal rural origin (Laven et al., 2003). With both spouse and practitioner having rural origin for some or all of their primary school education, the odds of rural practice increased sixfold. More recently Australian evidence has also highlighted spousal factors. A recent qualitative Australian study noted intention to practice rurally was strongly correlated with previous rural origin and rural spousal origin (Stagg et al., 2009). Interestingly most of the rural cohorts were female. The study, though small with 46 participants, also noted that the practitioners in the study who had rural origin but had decided to practice in metropolitan areas all had non-rural origin spouses. In addition, Hancock noted the key importance of spousal and family factors in recruitment to small rural towns (Hancock et al., 2009).

Given the paucity of studies and variation in design it is difficult to quantify the size of the effect of spousal origin. It is also important to note that there is no clear evidence yet of a gender influence on spousal or practitioner origin, although this may indeed be important. With the feminisation of the workforce, the predisposition of spouses or partners of females may well become relevant in addition to the regional centre context.

Rural undergraduate and postgraduate exposure

The literature around the influence of rural exposure has increased markedly over the last twenty years as programmes in the US, Canada and Australia have sought to increase medical student numbers in rural areas. International experience was being shared from the mid-1990s. Interestingly, in Canada in 1999, Easterbrook found no association of rural practice locations following graduation with undergraduate rural exposure, nor Xu in 1997 (Easterbrook et al., 1999; Xu et al., 1997). This issue is clouded with the difficulty of attribution as rural origin students were more likely to take up programmes with significant undergraduate medical exposure (Rabinowitz et al., 2008; Rabinowitz et al., 2001). In addition, length of exposure in the studies varied markedly as noted by Wilson (2009). The follow-up of some studies has now extended to ten years, with Rabinowitz concluding in his systematic review that the six US programmes with well-defined cohorts of students, a focused rural admissions process or an extended rural curriculum, had a substantial impact on recruitment with an average of 55–64% of graduates practising in rural areas compared to 3% for other medical programmes (Rabinowitz et al., 2008). Retention was also longer with rates 79%–87% higher than the median retention time of seven years. This study referred to recruitment of family physicians. The review acknowledged the dearth of evidence pertaining to programme outcomes for specialists (Rabinowitz et al., 2008).

Evidence was also becoming available in Australia at this time. Wilkinson looked at over 2000 students nationally and noted a correlation between rural practice and rural exposure, with a greater effect with longer placements (Wilkinson et al., 2003). The first cohort of James Cook University medical students who commenced a medical course in a large regional city (population 200,000) appeared unaffected by rural undergraduate exposure with a large percentage (66%) asserting an intention to practice rurally in year one and the same cohort reporting 64% intention in their fifth year (Veitch, Underhill, & Hays, 2006). This should be considered, though, in the light of the very high rate of rural intention and origin in the intake – far more than metropolitan universities. More recently, there is evidence of increasing rural intention with an increase from 68% to 76% at JCU (Sen Gupta et al., 2013). It is likely that this

related to a synergistic effect with rural origin and the maintenance of high intention through medical studies.

Around the early 2000s there was increasing literature noting significant qualitative evidence for the success of the 'rural pipeline' (Dalton, Routley, & Peek, 2008; Dunbabin & Levitt, 2003; Dunbabin et al., 2006; Henry, Edwards, & Crotty, 2009; Ranmuthugala et al., 2007). The Urbis evaluation (2008) concluded that, although much of the evidence was anecdotal, the advent of the Rural Clinical School and University Department of Rural Health programs had heralded the development of significant health education infrastructure – where previously there was none – and that this would enable consistent rural medical school exposure. They also noted that attribution would be difficult to identify.

In Australia, the Commonwealth Government's announcement in 2006 of the second round of rural clinical school programme funds ensured that sixteen medical schools would have 25% of their medical students spend 25% of their undergraduate time in rural and regional training locations. Many of the rural clinical school campus locations were in regional centres, ensuring students could develop relationships with clinicians and community relationships and links (Urbis, 2008). Whilst there is conjecture about the exact amount of rural exposure that best predicts rural intention and return, there is a growing body of evidence suggesting the longer the better (Forster, Assareh, Watts, & McLachlan, 2013). In the last few years, there has been an evidence base emerging from tracking studies from medical schools with rural cohorts in Australia (Kondalsamy-Chennakesavan et al., 2015).

The FRAME study noted that of students from rural clinical schools planning to do general practice, 80% wished to do so in a rural area (Walker et al., 2012). Recent evidence from one NSW rural clinical school suggested extended rural placement had a high predictive value of rural internship, with rural origin only explaining 30% of this effect (Clark et al., 2013). As indicated earlier, the difficulty of attribution afflicts many studies, and the main conjecture centres on the value of rural undergraduate experience as a predictor of rural practice for both metropolitan and rural origin students (Arnold, 2015). A study from a Rural Clinical School (RCS) in Western

Australia notes the effect of rural origin and RCS exposure as increasing the likelihood of rural practice (OR=7.5). However, urban students who had a rural clinical school experience (and who were interested in rural practice) were more likely to go rural also with an odds ratio of five (OR=5) (Playford et al., 2014). This has coincided with the maturation of medical teaching infrastructure in many regional centres and the development of teaching posts and supervisory support. Encouragingly, recent evidence from Canada also indicated higher rates of subsequent practice in rural areas following attachments to communities of less than 100,000 people (Hogenbirk et al., 2011). The affirming association was seen for family medicine but also for postgraduate speciality training. This cohort included both women and men.

In terms of postgraduate training experiences, the Australian evidence is patchy. An Australian study of emergency medicine registrars showed that registrars were significantly more likely to work in rural areas on the completion of their training if they had completed at least six months basic training in a rural hospital (Doherty, Hungerford, & Beeney, 1997). Additionally, Charles, Ward and Lopez (2005) noted in a survey of female GP registrars undergoing rural terms of six months that 32% of registrars reported being more likely to work in a rural area, 14% of registrars were influenced against working in a rural area as a result, and 54% said they held onto their preconceived intentions despite the attachment. This suggests that in this study at least 50% of trainees had made up their mind whether they were going rural prior to commencing speciality training.

Effect of age and gender

The impact of age and gender is complicated by changes in medical student demographics over the last twenty years. As discussed in Chapter 3, the demographics of medical students and postgraduate trainees have changed rapidly with increasing numbers over the last twenty years both in Australia and overseas (Commonwealth Department of Health, 2013; Heiligers & Hingstman, 2000). Dunbabbin (2003) noted major changes in the rural GP training cohort from previous cohorts with 56% female, 67% born overseas and 35% having done their undergraduate training overseas. This was a departure from the predominantly male and Australian-trained cohort previously. In addition, twice as many were over 30 than in the previous five years.

This related to the increase in the number of postgraduate places available in medicine that occurred with the expansion of medical places commencing in the 1990s. In the 2010 cohort of the Australian General Practice Training Programme, 65% of GP trainees were female and 60% on the rural pathway were female, while 56% of international medical graduates were female (Australian Government Department of Health 2013). Fluctuation continues with MSOD data for 2012 showing a return to a preponderance of males with 55% male in the latest cohort (Medical Deans Australia and New Zealand, 2012). This reflects the increased numbers of postgraduate medical places available where males predominate.

Thus, the age and gender profile of the medical graduates in Australia has been changing, and as a consequence consistent evidence about age and gender as a predictor of subsequent rural practice is also mixed. Internationally, Rabinowitz et al. (2000) found no association with age or gender; however, there are a number of international studies that have suggested that being female reduces the likelihood of rural practice (Ellsbury, Baldwin, Johnson, Runyan, & Hart, 2002; Levinson & Lurie, 2004; West, Norris, Gore, Baldwin, & Hart, 1996). A study of 9,000 Washington state physicians showed rural family practice physicians were less likely to be women and more likely to be older (Baldwin, Rosenblatt, & Rabinowitz, 1999). A Canadian study noted that non-urban practice was associated with being male, having a non-urban background, and having a father who was either a farmer or health care professional (Szafran et al., 2001). In the Australian context, in the 1990s Strasser (1992) noted being male as a predictor for rural practice. This was noted at a time where there were small numbers of graduating women. By the 2000s when numbers of graduating women were increasing, Tolhurst & Lippert (2001) observed that rural practice was still lower among women. In a study of gender related factors in the recruitment of physicians in north-west USA, women were significantly more likely to have a partner looking for work when considering a practice location (Ellsbury et al., 2002). They were also more likely to consider part-time work, childcare and flexible scheduling. Both men and women in this study nominated community and social factors as most important in recruitment, whilst men rated professional issues such as practice structure and work schedule second and women rated them fourth. Financial issues

were rated by women secondary to collegial support and skills (Ellsbury et al., 2002). Thus, there may be a gender related differentiation in the valuing of social and personal circumstances when considering rural recruitment. These studies were all conducted more than ten years ago.

Consideration of more recent trends shows a statistically significant negative association between female GPs, female specialists and the take up of rural practice (McGrail et al, 2011a). This is not related to rates of rural background. However, one recent rural clinical school article suggested that being female was not negatively correlated with rural practice (Playford et al., 2014). Two things may be gleaned from this evidence. Firstly, there is a long lead-time before patterns emerge and secondly that again multiple factors including the spousal gender have not been analysed to see if changing gender patterns impact on recruitment patterns.

The impact of age as separate to changing expectations of newer generations is also hard to tease out. There is little doubt that younger trainees may exhibit different preferences to their older and generally male counterparts. In a qualitative study of fifteen rural pathway general practice registrars, Laurence, Williamson, Sumner & Fleming (2010) noted work variety with good backup, good and ethical staff, reasonable on-call and good hospital support as important in the professional realm to these prospective rural recruits. Medical students also nominated professional support as pivotal for rural practice (Eley et al., 2007). Sole practitioner locations with no capacity to operate as part of a team were not popular. The students nominated social and community issues of healthy rural lifestyle, family needs, schooling and childcare issues and closeness to family and spouse as important. Also discussed was a 'latte rural' aspect with influence of the physical location for recreation, leisure and positive ambience (Laurence et al., 2010).

As more households become dual career households, couples can face a colocation problem. Dual career couples were more likely to be joint decision makers, with Costa & Kahn (2000) suggesting the consequence of this is a reduction in the pool of professionals prepared to locate away from metropolitan areas. At the undergraduate level, students living with a partner were more likely to select primary care and men

without partners were more likely to do surgical specialities (Heiligers, 2012). This is potentially also influenced by the part-time advantages of some specialities over others with primary care being seen as highly compatible with family life.

Finally and encouragingly, a recent Australian study found younger GPs with a rural background are the most likely age cohort to be practising in a rural area, with older GPs having a lower likelihood of rural origin (OR 1.22) (McGraill et al, 2011a). This may be some of the first evidence of the impact of rural affirmative policies on recruitment and retention of health professionals, and this trend includes regional centres.

4.3 Factors impacting on retention of medical practitioners to non-metropolitan areas especially regional centres

Whilst recruitment and retention are closely related, they comprise different key parts of the supply chain. Recruitment is about the attraction and designation of people to an organisation or locality. A key message from the literature suggests that the better targeted the recruitment; the more likely they are to remain (Cutchin, 1997b; Thistlethwaite, Shaw, & Kidd, 2007). Cutchin describes it thus: 'the decision to locate usually occurs from outside that setting and the decision to remain takes place from within the practice setting and arises from a stream of experience there' (Cutchin, 1997b, p. 1662).

It is important at this point to consider the 'modifiability' of factors relating to recruitment and retention. Many of those relating to recruitment are less immutable, whereas the professional components are potentially more modifiable in relation to retention. This was first noted in the late 1990s and amplified more recently (Humphreys et al., 2009; Kamien, 1998; Pathman et al., 1996).

Retention, then, is a measure of length of stay in a particular location. The assumption that needs to be considered here is that there is a notional 'good length of time' (Humphreys et al., 2001; Humphreys & Rolley, 1998). There is evidence that longer durations of employment are associated with increased experience, local knowledge and skills and continuity of care (Humphreys et al., 2009). Also important is to have an agreed way to measure retention. Humphreys et al. (2001) offered an operational

definition of retention, reflecting the time between engagement to a practice or community and separation or departure from that practice or community. Thus, it can be seen as a measure of length of service (commonly measured as a survival rate or retention rate). Other measures of turnover – separation rates and attrition rates – reflect the degree of movement of individuals coming into or leaving the community (Humphreys et al., 2009). Recent work by Russell (2012b) suggest a combination of the 5 metrics including turnover rates and survival probabilities. Cutchin (1997b) has also described ways in which physician retention can be measured. These include turnover rates and surveys of those who had left rural practice. He used a qualitative approach and noted that much of the content was sociocultural. In his experience, the professional dynamics of being close to a metropolitan centre with competition, a sense of poor community support and a fractured medical environment were key sources of professional and personal dissatisfaction. He explored the importance of place as a key function of retention (Cutchin, 1997b).

Also important is an understanding of what might constitute successful retention. Cutchin (1997b, p.27) has described this as 'the antithesis of the decision to move'. Other definitions of time such as 2–5 years have been used for the payment of retention incentives (Australian Government Department of Health and Ageing, 2010a). Another definition is 'a level of agreement between doctor, employee and community' (Humphreys et al., 2009, p. 10). Pope, Grams, Whiteside & Kazanijian (1998) in a qualitative review of retention in Canadian rural physicians noted three major defining themes, those of community commitment, medical confidence and adequate compensation.

In considering tipping points for leaving, Hays and colleagues (1997) noted that family reasons were the most important factors and that certain 'events' or life stages could act as triggers for the decision-making process. Hays et al. (1997) also talked of a tipping point where the influences to stay were outweighed by the influences to leave. This trigger might be social or family factors like schooling or illness in a relative, or locality specific such as a personality clash with a colleague. McDonald et al. (2002) also conceptualised a balancing scale, not only defining the predictive factors of staying and leaving but also the likely triggers for staying or leaving.

Feeley (2003) used the theory of reasoned action to explore the decision-making of rural physicians in considering retention. He noted perceptions about rural lifestyle, rural practice, and rural networks, (both personal and professional), as well as beliefs proffered from others. This meant intention to stay or leave formed via attitudes and subjective norms. The importance of this study and others are the important differences between intention and action. Other studies note retention rates of 50–75% of those who indicated intention to leave (Kamien, 1998; Pathman, Konrad, & Agnew, 2003).

Pathman et al. (2003) noted an attrition rate of 4% a year, with retention predictions less accurate where physicians were working in practices owned by others and those on-call more than three times a week. His study suggested that job change predictions are less accurate for physicians whose employment is subject to the decisions of others and those at risk of burnout. No more recent evidence for retention rates was available although the role of professional satisfaction as a modifiable factor was both noted by Kamien (1998) and reaffirmed more recently in a survey aimed at specialists (Rural Doctors Association of Australia, 2012b). What was consistent from the studies reviewed was the multiplicity of factors involved in retention decision-making (Buykx et al., 2010; Lehmann, Dieleman, & Martineau, 2008).

Rural origin and exposure in retention

The enduring effect of rural origin in retention is also less clear than might have been expected as personal and professional satisfaction appear more important. Early evidence from American author Pathman et al. (1996) is that despite rural background being a strong predictor of recruitment, it is not as strong in predicting retention. Rabinowitz, also. in his 1999 study, found a strong correlation for rural origin in predicting rural practice; however, in both this and the 2001 study he could find no correlate with retention, instead citing lifestyle issues, remuneration and personal issues as key (Rabinowitz et al., 1999; Rabinowitz et al., 2001). Two studies have also noted the confounding effect of participation in an undergraduate specific rural programme as an important independent variable for retention (Mathews, Rourke, & Park, 2006; Rabinowitz et al., 2001).

Early work by Pathman et al. (1994) found that better physician–community matching, greater satisfaction and greater community integration predicted higher retention for National Health Services Corps (NHSC) physicians. These physicians were training and subsequently working under obligatory programmes. The better the fit between these physicians and their communities, the longer the retention time. These findings were echoed in Cutchin's research (1997a, 1997b; 1994), which proposed that when a doctor is well integrated into their community they are more likely to stay in that community regardless of any negative aspects of the job.

Professional and organisational

Multiple studies highlight the importance of professional and organisational aspects in retention for rural clinicians. Most of these studies were published in a ten-year window between 1996 and 2006 (Alexander, 1998; Backer, McIlvain, Paulman, & Ramaekers, 2006; Humphreys, Jones, et al., 2002; Kamien, 1998; Pope et al., 1998; D. Smith, 2005; Strasser, Hays, Kamien, & Carson, 2000). Whilst work variety, autonomy and comprehensive continuity of care (Kazanjian & Pagliccia, 1996) are greatly valued by many practitioners, it is sometimes balanced by the often high workload (Kamien, 1998), work structures, professional relationships (Strasser et al.,2000), skills utilisation and high workloads (Hays et al., 1997; Hoyal, 1995).

The importance of professional issues in retention has been highlighted in Humphreys and Jones et al. (2002) work in Australia, with professional issues being rated higher than social or family factors in the 2000s. This study noted a convergence of all factors as GPs age, suggesting in the relative importance of each factor reduced over time. No difference was noted in regional centres compared to rural locations. Differences were noted with gender, with female practitioners describing access to community services as important. This is consistent with the studies noting this increased emphasis on community facilities at recruitment (Ellsbury et al., 2002; Spenny & Ellsbury, 2000).

International authors have also reviewed the professional issues that might have impacted on larger towns likely to be similar to the regional centres in this study. Pathman et al. (1996) noted a relationship between professional goals and retention, as well as satisfaction with 'the community' and retention. In terms of larger regional

communities, Cutchin (1997a) noted that larger town size brought issues of communication and collaborative working with other medical professionals. He observed a more distant relationship with hospital facilities when the size of the town increased, and that the doctors may be in competition with each other. This is the situation in regional centres where GPs can choose the level of engagement with the hospital and the politics of working with others in private and public practice are of increased importance rather than it being an assumption. He noted that historic perspectives and the demographic and ideological mix of one's peers remains of great importance particularly if one's financial security is dependent on the interaction (Cutchin, 1997a). This speaks to the necessity of close interaction between doctors in regional centres and the importance of workplace culture. Professional isolation and on-call responsibilities are also well documented as negative influences on retention in the international literature and affirmed in Australian literature from 2000 onwards (Cutchin et al., 1994; McDonald et al., 2002).

Professional satisfaction is a possible indicator of the role of various professional factors in retention. McGrail et al. (2010b) considered professional satisfaction in communities of different population sizes. Professional satisfaction was described as a combination of aspects such as variety of work, working conditions, opportunities to use abilities, amount of responsibility, and access to colleagues. The study suggested that professional satisfaction was very high across all community sizes. Managing unpredictable hours reduced satisfaction in small rural towns, but did not affect regional centres, while difficulties with arranging locums and the stress of running practices were commonly reported as negatives by GPs in all community sizes (McGrail et al., 2010b). The value of locum support to offset the professional demands has been evidenced for rural GPs (Li et al 2014).

Satisfaction with remuneration was slightly higher in smaller rural towns, even though the hours worked there were less predictable. There was no geographic pattern noted for taking time off or for balancing work and personal commitments. This was against the background of high rates of professional satisfaction for all GPs (McGrail et al., 2010b). Further analysis of the MABEL data showed business structure, income source and restrictions on practice best correlated with retention whilst the influence of

gender was mixed. In summary, the evidence for professional satisfaction being important to retention certainly exists but the relative importance and combination of factors that make up the complex issue of satisfaction are less clear.

Remuneration

Remuneration has been identified as an important factor in retention (Alexander & Fraser, 2001; Pathman et al., 1996; Rabinowitz et al., 1999). However, the importance of this issue in comparison with other factors is unclear. It has been suggested that this may be a comparative issue, with the concern about 'adequate remuneration' to take account of the increased costs of living and costs in visiting family and accessing continuing professional development (Humphreys, Jones, et al., 2002). Shanley et al. (2002) also reported that men rate financial prospects highly when considering choice of location. Practice owners, compared to practice non-owners, nominated better remuneration for Medicare consultations, and improved after-hours and on-call arrangements as most important to retention (Jones et al., 2004). This did not differ by the size of the town, with the sample including regional centres (RRMA3). The retention factors for practice owners, however, may not have been representative of the GPs without a financial interest in the running of the practices in these areas.

More recently, Scott and colleagues (2013) used discrete choice experiments from the MABEL study to demonstrate that GPs would require 130% of annual earnings to locate in the least attractive rural area. This starts to quantify the 'discount' in remuneration that might be considered to move workforce to where it might be required. If the town had a population of 5–20,000, it would require at least 37% more as a proportion of annual earnings as an incentive (Scott et al., 2013). Finally research by Hansen et al. (2013) into older GPs suggests that remuneration is not a strong theme in prolonging their working life. Hansen discussed the possibility that this related to a lower cost of living and also suggested that financial-based rural incentives were unlikely to be effective for this group.

Social/Personal factors

Social and personal factors are important in retention. They were first identified in the literature both internationally and in Australia in the 1990s (Hays et al., 1997;

Kazanjian & Pagliccia, 1996). Hays noted the 'balance' between professional and social factors using a tipping point hypothesis in staying or going (Hays et al., 1997; McDonald et al., 2002). Qualitative retention studies (Han & Humphreys, 2005; Hays et al., 1997) pointed to spousal employment, a sense of community inclusion and proximity to family. Poor access to schooling (Alexander, 1998; Szafran et al., 2001) was also a potential negative predictor. These factors both correlate positively with retention and act as triggers to leave if not fulfilled (Hays et al., 1997; McDonald et al., 2002). Again, this earlier evidence both from Australia and internationally has been revisited more recently. The MABEL study (McGrail et al., 2010b) noted high levels of satisfaction about non-professional work factors for GPs in regional centres. These included social and community factors such as easy access to leisure interests, spousal employment opportunities, adequate choice of schooling, social interaction and having local family and friends. Positive responses to these items were highest for those living in centres with populations between 50–99,000, followed closely by metropolitan GPs. There were significant drops in agreement with these items in towns with populations < 50,000 (McGrail et al., 2010b). This suggests a level of congruence between these items and retention in regional centres.

The role of the community and its location

Location and community factors play a role in both recruitment and retention. Many studies highlight the close and satisfying community relationships that are valued by workers in rural areas (Auer & Carsons, 2009; Hancock et al., 2009; Kamien, 1998). McMillan and Chavis (1986) describe four elements of 'sense of community' – those of membership, influence, integration and shared emotional connection. However, there were also participants who talked about being connected wherever they were, suggesting personal attitude may be important (Laurence et al., 2010).

In his study, Cutchin looked at the importance of place (rural community) and the process of retention rather than seeing it as relating to a single 'break' factor. He noted that integration into 'place' took the form of plans, subsequently commitments and then projects (Cutchin, 1997b). He described dimensions of security, freedom and identity as important not as ends in themselves, rather a purpose and outcome of the action of physician experience and integration into place. This study was limited by the

fact that the participants were male and all had significant longevity in their US rural communities. Another Australian study affirmed the 'security dimension'; in particular, noting the system level and personal level influences on practice in small communities that can make practitioners feel very vulnerable (Veitch & Crossland, 2002). These authors see the issue of living and working in small communities as both positive and negative, with strong identity with others as a positive and lack of anonymity as a negative. Privacy in small rural communities, and the difficulties in accessing health care for rural inhabitants, are well-known problems; however, the increased population size of regional communities provide a different context. As Allan, Ball and Alston (2008) observed, there is often little anonymity, though, in accessing health care where that is also the practitioner's work environment. This remains the context for specialist services in regional centres, although not for general practice services. It is also difficult to tease out the role of the community as described above in the category of social and personal factors (social interaction with friends; community inclusion; easy access to leisure interests etc.) with the geographic understanding or perception of 'place', and many studies group them together.

More recently, studies have been published coining the term 'rural identity' (MacDowell, Glasser, Fitts, Nielsen, & Hunsaker, 2010, Schmitz, Baker, Nukui, Epperly et al., 2011). This is a concept better understood in small rural locations where major social and business contacts are within a 'local' field. Social networks, economic development and individual visions are all encompassed within this space. This notion is less obvious in larger population centres where individuals and businesses can be more anonymous. This concept in rural USA was described as important to retention (MacDowell et al., 2010). The friendliness and relationship between hospital professionals and the community reflected to people the likelihood of personal respect, but also the likely achievement of future goals. This capacity to harness and work with the 'community' towards shared goals was seen as very attractive, and often related to social determinants of health goals rather than just access to medical services. Schmitz et al. (2011) in rural Idaho developed a community score that reflected clinicians and health service managers' perceptions of the attractions and challenges of their community. This tool quantified the perceived importance of fifty factors

encompassing professional, social and locational factors. The synthesis has the capacity to be a tool by which to measure relative differences in different rural areas and also to measure change over time within any one place.

Rural amenity is another concept being explored in terms of human geography and retention (Argent et al., 2010) .The concept as viewed from the medical workforce point of view speaks to 'locational amenity'; the attractiveness or otherwise of different locations. In Australia, it usually encompasses some measure of climate, and proximity to the coast or other large bodies of water. In addition, other measures of socioeconomic status, population growth, housing growth, housing price, and local employment opportunities have been utilised (McGrail et al., 2011b).

Gender and retention

As mentioned previously, the evidence around gender and retention is mixed, with long lead times. Tolhurst & Lippert (2001) in their study of more than seventy rural female GPs in the late 1990s noted that a third had spouses who were GPs or specialists. Thus for this group the concern over spousal employment was a complicating factor in retention. One-third had also grown up in rural communities and 45% had rural spouses. Therefore, factors other than gender were likely confounding the role of gender in retention. In 2006, a Canadian study noted no statistical difference in retention relating to gender, although a definite preference by women for group practice over solo practice was evident in this study by women (Mathews et al., 2006).

Another question currently unanswered is the importance of gender in retention where the spouse is male. This speaks to the changing demographics of the medical workforce and the stated importance of spousal employment.

Issues pertaining to International Medical Graduates

International medical graduates (IMGs) constitute a major group within the workforce in regional centres, and there is increasing evidence IMGs who reside and provide services in rural and regional areas have significant professional and personal concerns that militate against retention. Han & Humphreys (2005) in a study of 57 international medical graduates living in rural areas noted professional isolation, heavy workload,

the cost of continuing professional development, work variety and inadequate skill sets as problems faced in staying in a rural area. This is consistent with the evidence of shorter retention rates in non-metropolitan areas (Russell 2013).

IMGs make up a sizeable proportion of the current workforce with the percentage of practitioners who obtained their primary medical degree outside Australia steadily rising. In 2008, 25% of all GP registrars were international medical graduates subject to the moratorium; needing to practice in an area of workforce shortage for five to ten years (Rural Health Workforce Australia, 2008). Of these, some 92% were on the rural pathway. In a sense this workforce must practice rurally or in areas of workforce shortage for a period of time so are compulsorily recruited to these areas. Most recently, 34% of applicants to general practice training in 2012 were international medical graduates (General Practice Education and Training Limited, 2014).

IMGs in the US make up one-quarter of practicing primary care physicians and although there is evidence of IMGs being used as 'gap fillers' in rural areas, this varies greatly across different states in the US (Hagopian, Thompson, Kaltenbach, & Hart, 2004; National Conference of State Legislature, 2011). This is also the case in Canada and Ireland (Hawthorne, 2012). This leads to the reality that many IMGs are faced with having to sit exams, often at the same time as having to manage onerous workloads to comply with registration requirements and gain Australian qualifications. They need to attain Australian qualifications on a pathway, allowing them choice of practice location after a qualifying period. This has been described as 'entrapment' (Kearns, Myers, Adair, Costa, & Coasta, 2006).

IMGs have also cited spousal employment, access to schools and more specifically access to cultural communities of interest as significant considerations (Han & Humphreys, 2005; Kearns et al., 2006; Mayo & Mathews, 2006). Physicians not born in Australia were more concerned than others about returning to metropolitan practice (Simmons et al., 2002). IMGs felt communities often made considerable effort to make them feel welcome; however, they also reported a sense of discrimination or racism by some parts of the community (Han & Humphreys, 2005). McGrail et al. (2012a) noted reduced satisfaction with both professional and non-professional aspects

of rural practice for international medical graduates with restrictions as to where they work compared with their non-obligated international graduate colleagues and rurally based Australian-trained GPs. This echoes earlier evidence from 2004 where relocation to a capital city was preferred in order to gain peer and family support with a reduced workload (Australian Medical Workforce Advisory Committee, 2004). Those indicating a wish to stay on nominated professional satisfaction and enjoyment of rural practice as the reason for this decision (Australian Medical Workforce Advisory Committee, 2004). This has been more recently quantified with evidence from the ongoing MABEL study suggesting that having restrictions on practice reduced length of stay in rural areas but interestingly being an IMG (without restrictions) was not significantly associated with shorter retention. This suggests that some practitioners did make the choice to stay on in rural areas (Russell et al., 2012a).

Obligated service

Given the reality that IMGs provide obligated service to rural areas, it is also important to discuss the role of, and evidence for, obligated service. Also important to consider is the use of bonding or return of service arrangements as a mechanism for rural recruitment and subsequent retention. The systematic review by Wilson found this strategy has been adopted in a number of countries including Australia (N. Wilson et al., 2009). The WHO (2010) has also reviewed the success rates of a variety of obligation strategies in a number of countries when considering effective workforce distributional measures.

Obligatory service strategies have been utilised in the US for many years. In an evaluation of the National Health Services Corps programme by Pathman et al. (1994), a long-term follow up showed that obligated return of service physicians were significantly less likely to remain at the index practice, index community and any non-metropolitan area than non-obligated physicians. In a review of 69 programmes operating in the United States, completion rates for loans and resident support programmes at the end of undergraduate study were high (93%) whereas return of service and bonded scholarship completions were lower (44.7% and 66%) (Pathman, 2006; Pathman et al, 2004). Sempowski (2004) suggested that a return of service commitment was a poor retention tool compared to voluntary recruitment, with

significantly lower rates of retention of those who are bonded. A different style of programme was implemented in Georgia in the United States, where matching of medical students and community members occurred through community fairs. It is, of course, hard to measure retention through these initiatives singly as the students may have had other predispositions for rural practice (McDonald et al., 2002).

A systematic review (Barnighausen & Bloom) published in 2009 noted with all 25 programmes reviewed there were substantial losses to recruitment before the commencement of the service obligation. In addition, whilst obligated practitioners were less likely than their non-obligated colleagues to be retained in the site of first practice, they were more likely than non-obligated colleagues to relocate to another underserved area. Also variable was the level of satisfaction experienced by participants, indicating additional variables (Barnighausen & Bloom, 2009).

In the Australian context, an evaluation of the rural medical officer cadetship programme in NSW, where cadets were expected to complete two years return of service, yielded interesting results (New South Wales Rural Doctors Network, 2010). Whilst rates of likelihood of rural practice were not much different from other final year students, at follow up 65% (13/20) were practising in regional centres, compared to 12% in rural locations. Although these are impressive figures for regional centres, low response rates and short follow up times mean the results are difficult to confidently interpret (McDonald et al., 2002; New South Wales Rural Doctors Network, 2004). The evidence, then, from the international systematic reviews for obligated service is certainly that the closer the obligation to the end of the training pipeline, the lower the dropout rates. In Australia, bonding has been politically unpopular following the implementation of bonded medical places in Australian medical schools with early concerns that up to 38% of bond holders would buy their way out of the bonds (Australian Medical Association, 2006). Bonding programmes are not yet mature, with a ten-year lead-time. Workforce projections suggest that up to 13% of the rural workforce will be bonded when current rural workforce programmes are fully functioning, with the evidence from rural cadets suggesting a potentially high level of advantage to regional centres (Deloitte Access Economics, 2011).

4.4 Recruitment and retention for specialists in non-metropolitan areas

The environment in which specialists work is more restricted than that of GPs. Availability of infrastructure and hospital appointments are the major drivers for choice of location, in addition to catchment size and demand factors. Thus, professional factors such as number and cooperation of colleagues, and consequent workload both in and after-hours probably more closely resemble rural general practice rather than regional centre general practice. Considering rural origin and looking retrospectively at cohorts of existing older practitioners in the early 2000s, a review of Victorian physicians (Simmons et al., 2002) noted that 3.4% of metropolitan born physicians worked in rural areas but they comprised 32.7% of the workforce, whereas 67% of rural physicians were in fact born rurally. Seventeen per cent of practising obstetricians and gynaecologists in regional locations described themselves as having rural origin (Robson, Bland, & Bunting, 2005). Forty-one per cent of rural surgeons also identified as having spent some time in a rural area as children (Bruening & Maddern, 1998). Of rural specialists interviewed in a report on rural specialist workforce in 2002, 37% described themselves as from rural background and it is interesting to note that 56% of their spouses were similarly described (J.Smith et al., 2002).

An AMWAC survey (2005) reviewed practice intentions of specialist trainees. For trainee specialists of rural origin, less than 23% indicated a likelihood of rural practice compared to 7% of their urban colleagues. This analysis was done prior to significant training infrastructure being available in regional centres. A 2009 study of over 400 emergency physicians noted no correlation between being born in a rural area and current work in a rural area (Meek et al., 2009). However, it noted that there were significantly more rural origin emergency medicine specialists whose last job was rural, suggesting that while retention was not increased the likelihood is that rural origin physicians spent at least some time in rural positions.

By 2010, the contribution of MABEL data suggested that inclination towards specialist practice was negatively correlated with rural intention (M.Jones et al., 2009). In terms

of age and gender trends in the specialist workforce, whilst there is good evidence of increasing numbers of women (as seen in Chapter 3), medical specialist women have historically been in the minority (Heiligers & Hingstman, 2000). Australian evidence from the early 2000s suggested that the regional centre specialist workforce tended to be male with rural emergency physicians twice as likely to be male as their urban counterparts (Meek et al., 2009). A previous profile of rural surgeons confirmed this, with the majority of the cohort being male and middle-aged (Bruening & Maddern, 1998). Additionally a study of rural physicians in Victoria noted 52 male physicians with no females (Simmons et al., 2002).

Recent work in Australia around retention has shown that GPs with 6–18 years rural residence, in contrast to specialists with 11–18 years rural residence in any size rural or regional centre, are statistically more likely to be practising in rural or regional areas (McGrail, Humphreys and Joyce, 2011a). This is one of the first studies to look at regional centre specialists and suggests that the long period of exposure as a child is more likely to balance the effect of long training times in metropolitan or non-regional areas. So rural origin and exposure in retention appear initially important with the strength of the effect waning as other factors increase in precedence.

When considering retention for the specialist practitioner, professional issues loom with significance. Harris (1992) suggested that distance from a capital city was the key determinant of recruitment (i.e. the further the fewer). Gadell and Ridoutt (1994) in their comprehensive report in the early 1990s suggested that critical mass was all important and that at least two specialists of each discipline should be located together providing hub and spoke service delivery to not only regional centres but also their surrounding hinterland. Rural surgical trainees described variety of work as the most important professional attribute of rural practice (Health Workforce Australia, 2012b). These factors were affirmed by Arvier (2007), who added the importance of 'workplace culture', incorporating work structures, personal relationships and concepts of team practice and support, which were mentioned not only by students observing the environment in which they would like to work but also by practitioners in terms of retention.

Specialist remuneration is dependent on the mix of public and private sector work, with an average of 33% of specialists working *only* in the public sector (Cheng et al., 2012). Whilst there is no analysis in the literature comparing and contrasting earnings in different locations, there is evidence from recent publications that earnings were 23.9% higher for those who undertook after-hours and 10% lower for those who indicated their patients had complex problems (Cheng et al., 2012). Both these factors are present in regional centre specialist practice. Specialists who practised in geographic locations that provided good employment opportunities for their partners earned comparatively more than those who did otherwise. Regional centres are *not* noted for their partner employment opportunities, perhaps pointing to a remuneration differential in regional centres (Cheng et al., 2012). This information is useful but not categorical in understanding the role of remuneration in retention in regional centres. It appears likely that regional centre specialists may not earn as much as their metropolitan colleagues but this statement may mask considerable variation. In a report on surgical services commissioned by the Royal College of Surgeons in 2003, the author highlighted the concerns trainees have when considering regional training and subsequent practice (Birrell, Hawthorne, & Rapson, 2003). ABS statistics point to a lower rate of utilisation of private health insurance in inner and outer regional areas when compared to metropolitan areas (Australian Bureau of Statistics 2011). This may be expected to impact on demand as well as remuneration. In addition, the smaller critical mass of colleagues and the need for a generalist skill set increase the perception of higher medico-legal risk (Birrell et al., 2003; Health Workforce Australia, 2012b).

Access to ongoing professional education, the need for a generalist skill set and onerous on-call (critical mass) are all described in Australian studies as major barriers to retention (Alexander & Fraser, 2001; Kurzydlo, Casson, & Shumack, 2005; Meek et al., 2009; J.Smith et al., 2002; Wagga Wagga Regional Medical Specialist Recruitment and Retention Committee 2010). These concerns were affirmed recently in two specialist surveys (Australian Medical Association NSW, 2013; Rural Doctors Association of Australia, 2012b).

Despite the larger community size and the access to choice in schools and leisure activities, the impacts of family and spousal issues, specifically spousal employment

options, also figure in the papers available (Meek et al., 2009; Smith et al., 2002). Worthy of note was that the most important perceived barriers to rural practice nominated by Victorian physicians were related to children's schooling (72%), spousal occupation (65.7%), and then the concern about being able to get back 'to metro' (Simmons et al., 2002). These concerns were the same as those nominated by female practitioners residing in smaller rural areas, but interestingly the rural physicians themselves were less concerned about schooling than their metropolitan physician counterparts. Surgeons exercised their choices, with 50% of rural surgeons having sent or sending their children away to boarding school (Bruening & Maddern, 1998) despite living in quite large regional centres.

These articles are not recent and factors may well be influenced in the future by the changing gender and expectations of medical graduates with these concerns likely reflective of an older male cohort well established in regional centres. In particular, the more recent phenomenon of specialists having professional spouses requiring adequate job opportunities is the key demographic change not reflected in the existing analyses. This continues to be reported as an important determinant of retention (Health Workforce Australia, 2012b; Mathews, Seguin, Chowdhury et al., 2012).

4.5 Application of recruitment and retention models to the Australian regional centre context

The paucity of evidence directly applicable to regional centres means that the evidence to guide development of a conceptual model or framework is limited. Thus modelling needed to build on existing rural models, and be customised to consider the differing context.

Much of the literature around rural medical workforce retention acknowledges retention as a balance between positive aspects of life in rural communities and negative ones. The dynamics of living in a small community with a sense of belonging and security (Cutchin 1997) contrast with the potential difficulties of interpersonal conflict in a close-knit working environment and the lack of access to retail services. Significant work was undertaken in Australia in the late 1990s on the perceptions of

rural GPs regarding their reasons for staying rather than leaving (Hays et al., 1997; Hegney et al, 2008; Kamien, 1998). Unknown, however, is whether the key variables they described are also valid in the workforce in larger centres where the sense of 'community' and 'being known' is not as great. In addition, choices in terms of access to community services and schooling are obviously greater than in smaller rural towns. Family and personal factors of spousal and family happiness and love of rural lifestyle would seem to be of ongoing importance. Another unknown is whether the perceptions of the factors important in retention pertain to all doctors in regional centres or whether they differ by specialty, gender, age and IMG status. The job factors, incorporating scope of practice and thus variety of work, and considerations of autonomy, comprehensive continuity of care and procedural hospital work, are all features of professional life that are less prominent now for regional GPs but very prominent for rural specialists.

Location theory originating from economic theorists has been used to predict and explain locational choices of many professionals, including doctors (Newhouse, Williams, Bennett, & Schwartz, 1982). This theory is based on the assumption that a number of factors affect the relative attractiveness of a certain area and that people will make decisions based on the utility of one factor versus another. Using these ideas, the utility value of any location is seen to be some discount off potentially maximised lifetime earnings weighed against other options. Bolduc, Fortin &Fournier (1996) elaborated on the application of this to the medical workforce, describing greater interdependency of factors, and suggesting that decisions to practise in a particular location are not necessarily fixed nor lifelong. The author suggested that the initial decision a doctor makes relates to the choice of speciality, then type of practice and then finally the location of that practice (Bolduc et al., 1996). According to other authors, other factors being traded off include quality of leisure, distance to central cities, average income and workload (Kristiansen & Frde, 1992; Lieber, 1978). A study from Norway, for example, found that younger physicians tended to place greater weight on lifestyle and leisure compared with the prospect of higher income (Grytten, Skau, Sørensen, & Aasland, 2000). This concept of utility and trading off one attribute against another provides the underpinning of discrete choice experiments (DCE)

which are being used in the literature to consider how changing recruitment and retention factors like remuneration might impact individuals (De Bekker-Grob, Ryan, & Gerard, 2012; Scott, Simoens, Bojke, & Sibbald, 2006; Sivey, Scott, Witt, Humphreys, & Joyce, 2010).

This trade off concept may be useful when contemplating regional centre recruitment and retention decision-making. Humphrey's models of rural practice use the dimensions of professional, personal and social factors as important for recruitment (Hays et al., 1997; Humphreys et al., 2001). Hays et al. (1997) described tipping points or balancing between these influences to stay and leave. Hancock adds further dimensions with pathways to integration of familiarity, place integration, community participation and service and self-actualisation (Hancock et al., 2009). This is not dissimilar to Cutchin's dimensions of retention with security, freedom and identity (Cutchin, 1997b). Hancock et al. in a qualitative study of locational choice for practitioners, connected predictive factors for recruitment to an area and thence tracked retention in that area (Hancock et al., 2009). They then developed a model for medical practitioner location describing 'priming' for rural or urban living through early experience and 'familiarity', then creating a new life in the community in a location that might have been similar to their original one. The second component they suggested was an inclination towards community participation and service, suggesting that participation accumulates social capital and promotes resilience. The third pathway of place integration is also described by Cutchin as a stepwise progression of connection to a place and finally self-actualisation, which incorporates views about work variety and workload. Cutchin described this as a family lens through which to review recruitment and retention (Cutchin, 1997a).

The relationships of these models to regional location are problematic on a number of levels. Firstly, for specialists, locational choice is limited by the need for significant infrastructure to exercise their professional skills and a catchment of needy patients. Secondly, the professional isolation and concomitant autonomy of practitioners in smaller communities are not such a feature of regional centre practice for GPs but may be factors for specialists.

Another model of recruitment and retention was suggested by Bilodeau and Leduc (2003). They described an initial attraction for rural practice, with installation and then maintenance as separate experiences where community factors and spousal influence were very significant (Dussault & Franceschini, 2006). It would seem that this better encapsulates regional centres, with initial attractants based on prior regional (and rural) upbringing and spousal rural and regional experience. This can be affirmed by positive rural and regional educational experience. Installation or recruitment then consists of a realisation of attraction and an assessment of the determined area in terms of professional work environment, specialist catchment, possible practice associates, on-call arrangements, environmental amenity, closeness to significant others, schooling and likely 'community fit'. Maintenance of practice or retention would then occur with the in-depth knowledge of the personal and professional aspects of practice grounded in experience.

A distillation of the themes inherent in the available literature combining GP and specialist recruitment and retention and utilising principles from a number of models is depicted below in Figure 4. It uses Humphrey's ideas of modifiability and personal and professional satisfactions as lynchpins. It is modified in that it focuses on a regional context but needs to encompass some differences in professional factors for GPs and specialists. In terms of personal satisfaction, it also considers different factors to those used by Humphreys for rural GPs. In the regional context, social and community factors are very similar for specialists and GPs as they relate to population size. Bilodeau's concept of constant feedback to maintain retention and the balance between and the tipping points of personal and professional satisfaction is also utilised. This synthesis best represents the contextual differences of regional centres, as compared to more rural locations, and provides a framework on which to design and explore data collection from regional centres.

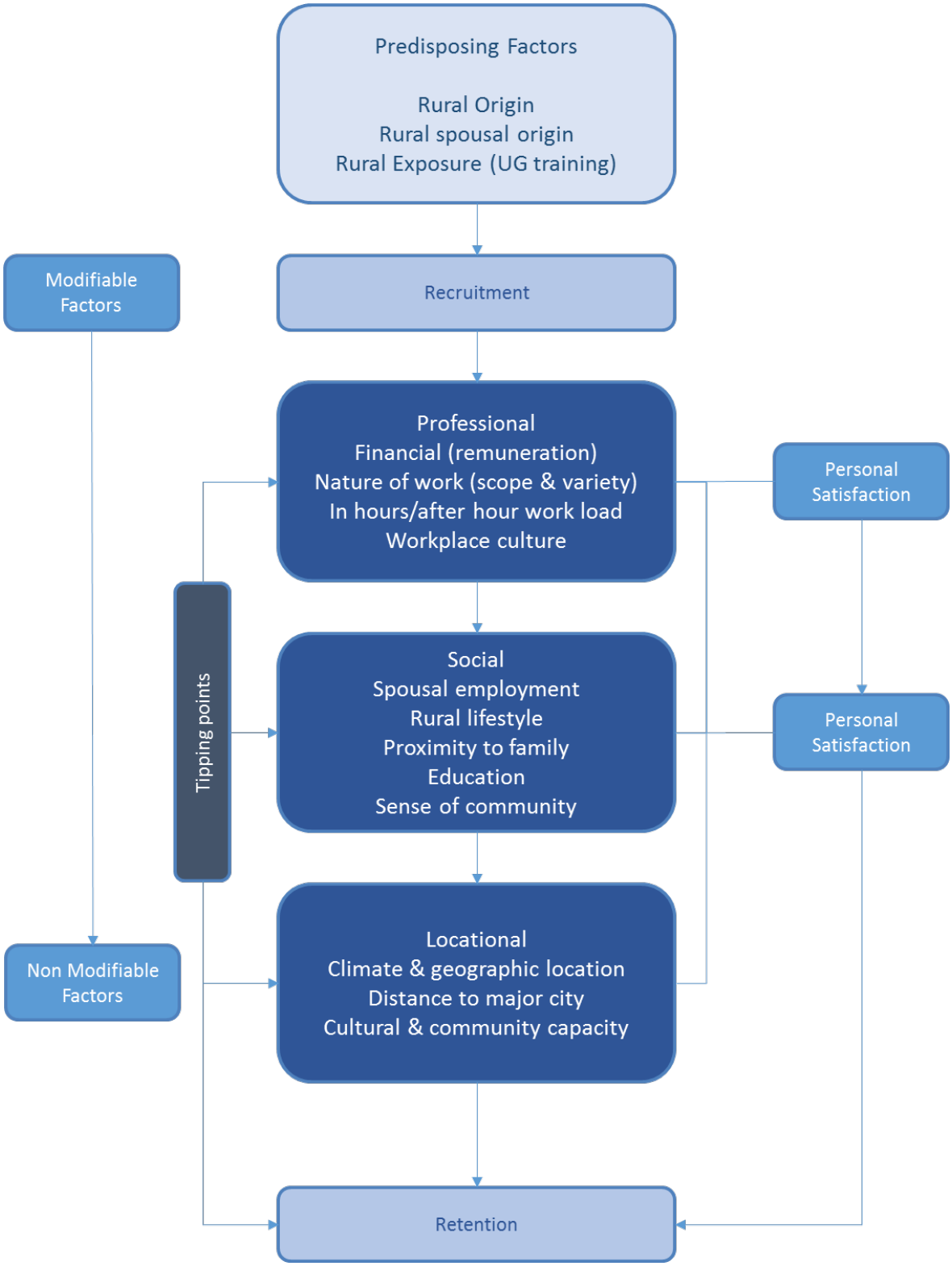

Figure 4.1: Recruitment and retention factors affecting regional centres

(A distillation of the literature)

4.6 Conclusion

While there is little direct evidence considering recruitment to and retention of medical practitioners in regional centres, and sparse literature based on specialist recruitment to non-metropolitan areas, significant research is available considering both recruitment and retention for rural GPs. Recruitment and retention factors in regional centres are likely subsets in part of those facing more rural practitioners.

Thus, the key factors noted for GP rural recruitment, such as rural origin, rural spousal origin and rural exposure through medical education are important to regional centres. It appears that there are significant barriers to return for specialists, which means that the length of rural origin needs to be longer in order for its effect to be statistically significant. Professional work factors and the scope and variety of practice also appear important.

Considering social and locational factors, it is important to note that relative social isolation is not such a feature. Since many of the community and social issues related to size that are problematic in smaller towns are addressed in regional centres, it could be expected that the relative importance of social factors may vary. There was scant literature considering these issues. Indeed, the perceptions of specialists and their spouses of educational and cultural satiety and the importance of place amenity in the decisions to consider a regional location and then continue there are unknown.

One possible consequence of the paucity of data relating to the regional centre context is that policy interventions might be predicated on the basis of evidence from more rural or overseas contexts. These gaps in the literature give focus to the critical issues addressed in this study and underline the need for evidence from the 'coalface'. The following chapter outlines in detail the methodology and research design adopted to explore the factors impacting on recruitment and retention of GPs and specialists in regional centres.

CHAPTER 5
METHODOLOGY AND RESEARCH DESIGN

5.1 Introduction

The central focus of this thesis is to provide an in-depth analysis of issues associated with the provision of medical workforce in regional centres. Rural health policy and workforce initiatives should be based on reliable and comprehensive evidence. Despite recent initiatives aimed at addressing medical workforce shortages in rural areas, there remains an imperative for evidence-informed policy to specifically address the context of regional centres, as hubs of medical care in the delivery of both primary and secondary medical services. Thus, this study seeks to fill critical gaps in the knowledge base relating to ensuring the appropriate supply of medical workforce in regional centres of Australia by achieving the following objectives:

- outlining the role and importance of regional centres in the provision of medical care to non-metropolitan Australians;
- describing the nature of the medical workforce in regional centres;
- identifying the issues associated with recruitment and retention of medical workforce in regional centres of Australia, and
- recommending appropriate evidence-informed policy responses in order to ensure the provision of a sustainable medical workforce in regional centres.

To achieve these objectives, a comprehensive analysis of available secondary source data relating to regional medical workforce was undertaken (presented in Chapters 3 and 4). This chapter will now describe the methodology and research design supporting primary source data collection through in-depth interviews with general practitioners and specialists living in selected regional centres in New South Wales. The purpose of collecting the primary source data is to flesh out the broad, but incomplete, picture of medical workforce supply identified by analysis of the secondary

source data and, crucially, to better understand the key factors influencing recruitment to, and retention of, medical practitioners in regional centres.

This chapter describes, explains and justifies the methodology and research design that underpinned collection of primary source data, and describes the methodological decisions taken. In Section 5.2, the role of the researcher in the study is identified and acknowledged, and in Section 5.3 the methodological approach is described. The research design is explained in Section 5.4, with reference to study locations, survey instruments, data collection and recording, data processing and analysis techniques. Following a review of the participant cohort, the chapter concludes with acknowledgement of methodological assumptions and limitations in Section 5.5.

5.2 My role as the researcher

It is critical to this study that the involvement of the researcher throughout the entirety of the research process is appropriately acknowledged. My position as researcher in this study raises a number of issues relating to the conduct of the research and potential bias. These need identification and acknowledgement as *a priori* knowledge and assumptions may impact on all aspects of the research including the design, data collection and interpretation (Hoddinott & Pill, 1997; Jaye, 2002).

I am a clinically active general practitioner, resident in one of the study locations, with extensive involvement in local, state and national medical workforce policy. This has been both via my role as Clinical Dean, University of Newcastle Department of Rural Health, Tamworth and through membership of and involvement with a number of local and national medical and health organisations. The research topic is of great personal and academic concern. In terms of local involvement, I have chaired the Clinical Advisory and Continuing Professional Development committees of the southern sector of the New England Medicare Local and I am a supervisor of medical students and GP registrars at a community owned not for profit general practice set up in 2004. At a national level, I was Chair of the National Rural Health Alliance for three years and currently represent the Rural Doctors Association of Australia (RDAA) on the Alliance. I am also Chair of Female Doctors Group for the RDAA.

It was important that during the conduct of the research I practised reflexivity and demonstrated an understanding of the potential influence of my multiple roles in the community and their possible impact on the study, in order to reduce any role conflict. That said, this research may not have been possible without the entrée that my position in the local medical network and profile in the community have afforded. The choice of approach and methods, and the selection of study sites were all influenced by my understanding of the issues, my lived experience as a resident GP in a regional centre, and my position as an active member of the medical community. The validity and reliability of the study was managed by both explicitly declaring these roles to participants and by the use of reflective tools, such as journaling and recording of extensive field notes to demonstrate transparent and verifiable decision-making.

There are two underlying premises on which the study is based. Firstly, there is the underpinning paradigm or 'world view' in which this research has been conceived and conducted and secondly, the 'insider's' role and perspective that I bring to the study.

Pragmatism strongly influenced the design and conduct of the study. Pragmatism is not committed to one system of philosophy or single epistemology. A pragmatic perspective draws on employing 'what works', using diverse approaches, giving primacy to the importance of the research problem and question, and valuing both objective and subjective knowledge (Morgan, 2007).

The 'insider's' role was critical in this enquiry. Not only was the entrée to clinically active medical practitioners important, but also the opportunity to understand the policy environment by virtue of representative responsibilities within rural health, proved invaluable. Whilst, as Denscombe (2003, p. 89) argued 'researchers need to supply their readers with some insights into the possible influence of the researchers self on the interpretation of events and cultures', those insights, combined with the synthesis of secondary data, have framed the approach used in this study. Bonner and Tolhurst (2002) have identified three key advantages to being an insider researcher: possessing a greater understanding of the culture, having an established intimacy which promotes both the telling and judging of the truth, and being able to read the flow of conversation easily. Breen (2007) suggests that the role of the researcher is best

conceptualised on a continuum where the advantages of being on the inside and outside can be maximised and assumptions minimised. In undertaking the interviews, and interpreting the data this insider view is also a potential bias to be acknowledged. The decision to undertake the research as an insider was explicit and whilst an 'outsider's' perspective, was equally valid, it may not have been able to leverage 'practice wisdom', cooperation and non-formalised knowledge in the same way.

5.3 Methodological approach

A mixed-methods approach, incorporating both quantitative and qualitative data was adopted for the study as this was consistent with the pragmatic perspective of the research. The inherent value of incorporating a combined quantitative and qualitative approach to complex social issues has been affirmed in social science and health-related fields (Creswell & Clark, 2007; Denzin & Lincoln, 2011). While quantitative research assumes reality is stable, qualitative approaches allow a more subjective investigation where the participants' frame of reference is a guide to understanding (Creswell, 2003). In addition, and in the context of this thesis, the rationale for a mixed-method approach arises from a line of enquiry that needed to integrate the potential for multiple worldviews and experiences, and where a singular approach to data collection was both unsuited and impractical for the range of phenomena that were to be incorporated within this study. As Meissner et al. (2011, p.5) note, mixed methods research:

> is more than simply collecting qualitative data from interviews, or collecting multiple forms of qualitative evidence (e.g. observations and interviews) or multiple types of quantitative evidence (e.g., surveys and diagnostic tests). It involves the intentional collection of both quantitative and qualitative data and the combination of the strengths of each to answer research questions.

To further strengthen the mixed-methods approach in this study, triangulation was incorporated, which is where multiple sources and methods are merged during interpretation and analysis (Creswell & Clark, 2007). Triangulation enables the comparison, validation and merging of quantitative and qualitative data to develop a more complete understanding of a problem (Meissner et al., 2011). This research adopted a convergent/parallel design where the quantitative and qualitative

components of the data collected were concurrent rather than sequential. Quantitative data helped to define the context and key issues framed by the research questions, while qualitative data was used to further investigate participant experiences.

5.4 Research design

The objectives of the study were to identify factors crucial to the recruitment and retention of medical workforce, specifically for regional centres, and to recommend appropriate evidence-informed responses to ensure the provision of a sustainable medical workforce in non-metropolitan Australia. To this end, it was important to ascertain the influences on the decisions of medical practitioners in relation to their regional location, the relative attractiveness of various regional centres, and the extent to which different subgroups of medical practitioners have different expectations of, and preferences for, living and working in regional centres. The research design adopted to investigate these objectives comprised primary source data collected through a questionnaire and semi structured interview, of GPs and specialists in four regional centres.

5.4.1 Study locations

The research underpinning this thesis was conducted in regional centres of NSW. For the purposes of this study, regional centres were defined using the RRMA3 classification that includes centres with a population of between 25,000 and 99,000 (Australian Bureau of Statistics, 2003). Classifications and definitions of regional centres were explored in Chapter 2. The study recruited GPs and specialists living in the RRMA3 centres of Dubbo, Tamworth, Coffs Harbour and Port Macquarie (Figure 5.1).

Figure 5.1: Location of four study centres (shown as red dots)

Source: Google Maps (2013).

The four cities were chosen because they are illustrative of many such regional centres in Australia. It was important to include both coastal and inland locations in the study as earlier research suggested that differences in environmental amenity could be a contributory factor in patterns of recruitment and retention (Argent et al., 2010; McGrail,et al, 2011b). NSW centres were chosen, in part, because this state has the largest numbers of RRMA3 centres and has similar numbers of inland and coastal centres (unlike other states such as Queensland and Victoria). In addition, each of the regional centres chosen was located approximately one day's car travel from a capital city (Sydney or Brisbane), and all centres contained hospital facilities providing emergency care, obstetric, surgical, medical and paediatric care with diagnostic facilities including radiology and pathology.

Other key considerations influenced the selection of regional centres. The chosen centres needed to fit the requirements of the RRMA settlement hierarchy classification (RRMA3) with a view to controlling for the effects that variation in distance from a capital city may have. In addition, the centres needed to include both coastal and inland centres, and needed to provide a hub for medical services utilised by a surrounding rural area. Finally, there was a pragmatic consideration in that each of the

centres chosen was relatively accessible from the researcher's hometown in Tamworth. This made regular visits possible to each of the centres to enable the fieldwork required by the research.

Study centre populations ranged in size from 40,595 people (Dubbo) and 58,292 (Tamworth), for the two inland centres, with higher population densities in the hinterland areas of the two coastal cities of Coffs Harbour (70,990) and Port Macquarie (76,017). The populations and a selection of demographic data can be seen in Table 5.1. All regional centres had more than 150 public hospital beds and all had more than 50 private hospital beds as well. Whilst catchment populations of referral regions are hard to distil, NSW Health describes the 'reach' of its health services based in these centres to be 130,000+ for Dubbo (2008), 176,194 for Tamworth (2008) and approximately 215,000 for Mid North Coast Local Health District covering both Coffs Harbour and Port Macquarie (2013). All centres were approximately 400km from a capital city, with regular daily flights. It is notable (see Table 5.1) in terms of health service provision that the two coastal centres had higher percentages of those aged greater than 65.years in the 2011 census. SEIFA – a measure of socioeconomic advantage and disadvantage - is reported by ABS as a score. The SEIFA scores were below those of capital cities for all four regional centres suggesting higher levels of socioeconomic disadvantage.

Dubbo and Tamworth are large commercial inland centres primarily servicing farming areas, whilst Port Macquarie and Coffs Harbour are large coastal cities with mixed-use hinterlands. The populations in the coastal centres whilst within the RRMA3 population band were larger than their inland counterparts. A more detailed table of the services and demography of the four centres can be seen in Appendix 4.

Table 5.1: Regional centre characteristics

Regional centre	Population (LGA)[1]	Description[2]	% Over 65 years(LGA population)[1]	SEIFA Index[3]	Public Hospital Beds (number)[4]	Private Hospital Beds (number)[5]
Dubbo	40,595	Inland location: approximately 400 km west of Sydney on the Western Plains.	12.7%	977	151	51
Port Macquarie	76,017	Coastal location: 420 km north of Sydney on mid-north coast.	20%	968.9	161	69
Coffs Harbour	70,990	Coastal location: approximately 550 km north of Sydney on mid-north coast; 400 km south of Brisbane.	14.4%	958.4	210	81
Tamworth	58,922	Inland location: approximately 440 km north-west of Sydney	10.9%	959.9	270	77

Sources: 1.ABS, 2012 (2011 census); 2. Council websites; 3. ABS SEIFA characteristics; 4. NSW Health websites; 5 Private hospital websites.

5.4.2 Survey implementation

A combination of a questionnaire followed by an in-depth, semi-structured interview with all participants was used to collect primary data from medical practitioners in each of the four regional centres. This design responded to the third research objective, which sought to identify key issues in the recruitment and retention of specialists and GPs in regional centres. It was important to understand whether these

regional centres differ in attractiveness with respect to recruitment and retention for specialists and GPs; and explore the extent to which subgroups of medical practitioners differ in their expectations of, and preferences for, living and working in regional centres. Importantly, this combination provided opportunity for both quantitative and qualitative primary data collection. It allowed for quantification of key variables such as length of stay, rural origin and rural spousal origin, and the relative importance of a range of factors relating to professional, social and locational issues through the questionnaire. The interview that followed, facilitated the investigation of experiential issues, including elaboration of the social, personal and professional factors as they impacted on participants living and working in a regional centre.

In order to facilitate the participation of doctors who agreed to take part in the study, the survey method was organised in the form of a face-to-face interview, where the questionnaire was completed by the respondent with the researcher present and able to answer any questions, followed immediately by an in-depth, semi-structured interview that was audio-recorded. This use of combined questionnaire and interview permitted the collection of a mix of quantitative and qualitative data from closed, scaled and open-ended questions.

Face-to-face interviews were used in order to encourage the participation of doctors in the study, given the traditionally poor response rates to mail and telephone approaches. An earlier study of GPs undertaken in Tamworth by the researcher had demonstrated the efficacy of a face-to-face approach to data collection for the target groups of respondents (May, 2007). Reputedly over surveyed and over researched, doctors receive significant numbers of invitations to be involved in research, clinical trials and other activities (Barclay, Todd, Finlay, Grande, & Wyatt, 2002; Bucetti, Askew, & Mitchell, 2010; Fisher, 2011). Thus, the difficulty of engaging regionally-based doctors who are both busy and often unmotivated about involvement in the research of others must be understood (Barclay et al., 2002; Cartwright, 1978). Discomfort with unsolicited emails and concern about confidentiality have been cited as reasons for low participation in online surveys (Askew, 2009; Scott et al., 2011). Other reasons given for low responses from clinicians have been the individual nature of much of medical work in solo or isolated professional practice and a sense of self-reliant behaviour

(Borgiel, Dunn, Lamont, & Macdonald, 1989). Not surprisingly, other useful indicators of likely non-participation suggested in the literature include the degree of clinical interest in the subject and the potential lack of motivation about the subject matter (Barclay et al., 2002; James, Ziegenfuss, & Tilburt, 2011).

Given these factors, then, it was important to implement approaches most likely to maximise engagement in these four regional centres. A Cochrane analysis in 2009 noted that incentives, both monetary and non-monetary, and the use of pre-contact and follow-up increased the likelihood of odds of involvement in research (Edwards et al., 2009). Other strategies to increase response rates identified by Bucetti et al. (2010) included clear communication about the study, endorsements by key organisations, acknowledgement of contribution and use of clinician researchers or interviewers known to the GPs.

5.4.3 Questionnaire design

The questionnaire comprised five sections (see Appendix 5). The first part involved demographic and other base-line data, establishing age, gender, work environment, work hours, country of graduation, spouse and rural origin – all known to be important factors in predicting recruitment and influencing the retention of medical practitioners. Sections two and three comprised questions, scales and rankings designed to explore regional centres as places to work and live and factors affecting recruitment. Sections four and five comprised similar questions, scales and ranking reviewing retention factors related to work and to liveability in the current regional centre of residence.

Likert scales were used to review satisfaction, and mean rankings were used to rate the importance of various factors to recruitment and retention. Similar scales have been used in recruitment and retention data collection with rural GPs (Bowling, 2002; Jones et al., 2004). The rationale for each of these sections was based on existing research suggesting the professional or work factors key to recruitment and retention, analysis of professional, social and locational factors as they related to recruitment and retention, and factors related to the 'liveability' of rural communities (Jones et al., 2004). Recruitment and retention were considered as separate issues consistent with

the literature on rural general practitioners (Cutchin, 1997b). The wording of the questions was devised with reference to existing research on rural GPs and was designed to be consistent with the wording of other contemporaneous medical surveys such as MABEL. Table 5.2 summarises the survey concepts, variables and questions included in the medical practitioner questionnaire. Further justification of the recruitment and retention factors utilised in the survey can be seen in Appendix 6.

Table 5.2: Survey concepts, variables and questions

	Concept	**Indicator**	**Question**
(1) Demography	Demographic characteristics	Sex	Gender
		Age	What is your current age?
		Country of basic medical degree	In which country did you complete your basic degree?
		Spouse	Do you have a partner?
		Length of stay	How many years have you lived in your current regional centre?
		Work participation	How many sessions do you work in medicine in a usual week?
			In a usual week what number of sessions is worked in direct patient care?
		Nature of work (after-hours commitment)	Are you a VMO at your hospital?
			Do you work any after-hours on-call?
			In the last week, how many hours were you rostered or listed for afterhours and on-call?
			How many times were you actually called out?
			In your most recent usual month what was your on-call ratio?
(2) Predictive factors for rural practice	Rurality	Rural origin	Did you attend a primary school in Australia outside a capital city? If yes, how many years
			Did you attend a secondary school in Australia outside a capital city? If yes, how many years
		Rural spousal origin	Did your partner spend at least 6 years of schooling in a rural or regional area? If yes, how many years

Table 5.2: Survey concepts, variables and questions (contd.)

	Concept	Indicator	Question
(3) Regional centres as places to work	Professional factors in regional centres	Generic nature of work in regional centre Place-based attractants Place-based satisfaction Population size and location comparator	What is the reason for your first population size preference? What factors do you think make it attractive/unattractive? Please rate how you feel with your current regional centre as place to work Compared to a capital city, current regional centre is attractive or unattractive as place to work? Compared to a small rural town, current regional centre is attractive or unattractive as place to work Compared to inland regional centre, current regional centre is attractive or unattractive as place to work Compared to a coastal regional centre, current regional centre is attractive or unattractive as place to work
(4) Regional centres as places to live	Social factors in regional centres	Generic nature of liveability in regional centre Place-based attractants Place-based satisfaction Pop size and location comparator	What is the reason for your first population size preference? What factors do you think make it attractive/unattractive? Please rate how you feel with regional centre as place to live Compared to a capital city current regional centre is attractive or unattractive as place to live? Compared to a small rural town current regional centre is attractive or unattractive as place to live Compared to inland regional centre current regional centre is attractive or unattractive as place to live Compared to a coastal regional centre current regional centre is attractive or unattractive as place to live

Table 5.2: Survey concepts, variables and questions (contd.)

	Concept	Indicator	Question
(5) Recruitment factors	Known rural factors	Professional, social & locational Weighting of factors	Choose the most appropriate response to each of the following factors related to your decision to come Are there any other factors important in your decision? What was the most important?
(6) Retention factors	Known rural factors	Professional, social & locational Weighting factors	Choose the most appropriate response to each of the following factors related to your decision to come Are there any other factors important in your decision? What was the most important

5.4.4 Interview design

The semi-structured, in-depth interview was designed to capture important qualitative data that explored in detail the experience and preferences of the participant whilst allowing for clarification and expansion of answers in the questionnaire, thus allowing participants to tell their story. In addition, the interview included a number of questions designed to probe the reasons for the respondent's current location and the relative priority of their decisions relating to recruitment and retention. This provided a window into the story of why people had come and stayed and the interplay between a number of factors and provided the 'thickness and richness of the data' (Minichiello, Aroni, & Hays, 2008). As suggested by Patton (2002), good qualitative questions need to be open ended, neutral, sensitive and clear to the respondent. The open-ended questions reflected the key themes from the literature but were non-directive. This structure enabled the researcher to capture the point of view and opinions of the participant without anticipating all the issues to be raised. The potential to test language equivalence and shared meanings across the participant group was also important in attempting to minimise incorrect interpretation (Patton, 2002).

5.4.5 Ethics approval

A low risk ethics application was lodged with Monash University Human Research Ethics Committee (HREC) and approval granted on 25 May 2011 (CF11/207-20011000666). A process of mutual recognition was undertaken with University of Newcastle (the researcher's employer) HREC (Approval: H-2011-0209 on 26 June 2011). Copies of the information sheet, consent form and ethics approval can be found in Appendix 7, 8 and 9.

5.4.6 Reference groups and pilot survey

The final choice of questionnaire items, interview questions and the format of the survey schedule was informed by a panel of experts in the local academic and medical community and from piloting the questionnaire and interview schedule in a similar rural environment from that of the study centres. A draft of the questionnaire was piloted during June 2011 to clarify item wording and survey administration techniques. A group of three doctors in Armidale, NSW was asked to participate in the pilot survey incorporating the questionnaire and interview. Only minor revisions were necessary as a result of this consultation and pretesting process. In addition, these pilot interviews provided an opportunity to review the length of the survey and inform the qualitative data coding process. As suggested by Britten (1995), and in order to ensure consistency within the interviewing process, tape recordings of pilot interviews were also critically appraised by an experienced researcher to ensure appropriate cues were being picked up and the level of probing was suitable without any leading of the respondents.

5.4.7 Data collection and recording

Primary data were collected in each of the four centres sequentially, beginning with Tamworth during July through December 2011, followed by Dubbo commencing August 2011 through to December 2011. Primary data were collected commencing January 2012 in Coffs Harbour and Port Macquarie with the last interviews conducted in June 2012.

Prior to the commencement of the survey, Divisions of General Practice in the study centres were contacted and an information session was provided to GPs describing the

research aim, often preceding a Continuing Professional Development (CPD) event. Pre-survey publicity articles outlining the research and its potential benefit were distributed and published in the newsletters of the Rural Doctors Association NSW branch, NSW Rural Doctors Network and local Divisions of General Practice. Relevant Rural Clinical Schools were also engaged and information sessions organised to provide clinical staff with information about the project and an invitation to participate. Contact was also made with senior clinicians at each of the hospitals and two presentations were delivered to hospital clinicians explaining the research aims.

Mailing lists were obtained from Divisions of General Practice and constituted publicly available directories for both specialists and GPs. These lists were corroborated in discussions with senior clinicians in each centre. All general practitioners and specialists who were registered with the Australian Health Practitioner Regulation Agency (AHPRA) and who were resident in one of the four centres were approached as potential respondents. Resident status was defined as living for at least the last six months in one of the four study locations prior to the commencement of the study. The additional requirement was that the doctor was in current active clinical practice. Excluded were those who nominated a residential location other than one of the study centres as their major residential and/or practice address. This requirement meant that those who were driving or flying into the location to work during daylight hours but not available in person for on-call or after-hours access were not eligible to participate. Also excluded were GP registrars and specialist training registrars, as they were considered to be making decisions related to training rather than being recruited to work in a particular location.

Preceding commencement of fieldwork, eligible doctors were invited, by direct mail, in addition to letters mailed to them via their practice manager, to participate in a face-to-face interview at a location of the participant's choice. Potential participants were given the opportunity to agree to an interview by returning an enclosed consent form or by contacting the interviewer by telephone or email. Doctors who agreed to participate in the research were then contacted by phone and arrangements made for an interview at a mutually convenient time and place. The interviews were conducted face-to-face, and were audio-recorded. The interviews occurred in a location of the

participant's choice, commonly a private consulting room or meeting room in a public or private hospital.

Each of these locations ensured privacy for the participant and allowed for the interviews to be recorded. Before each interview, respondents were given the opportunity to ask questions and reminded that they were free to cease the interview, audio-recording and/or withdraw their consent at any time. The interviews ranged in duration from fifteen to sixty minutes. The average interview time was approximately thirty minutes.

Six practitioners declined to be audiotaped but were happy for notes to be taken. Two doctors, for whom a face-to-face meeting could not be arranged, agreed to a phone interview and faxed the questionnaire at the completion of the interview. In addition, three tapes were of poor quality and were unable to be transcribed directly. In these cases, field notes were utilised as an *aide memoire.* Consistent with qualitative protocols, a reflective journal was kept throughout the twelve month fieldwork period. The journal included the time, date and location of each interview and impressions of each interview as recommended by qualitative practice (Patton 2002). Any particular issues related to communication or the truncation of interviews because the doctor needed to go to surgery, take an urgent phone call or provide patient care were also noted.

A total of 128 doctors participated in the survey from a possible 339 (a total response rate of 37.5%). Overall, 62 specialists and 66 GPs agreed to be interviewed across the four centres (Table 5.3).

Table 5.3: Resident doctor numbers and respondents – regional centre study locations

Regional Centre	Resident GPs[1] (number)	Survey GP respondents (number)	Resident Specialists [1] (number)	Survey Specialist respondents (number)
Tamworth	34	24	44	24
Dubbo	31	17	19	5
Port Macquarie	53	13	63	15
Coffs Harbour	49	12	48	18
Total	167	66	174	62

Source: 1. Division websites (2011).

5.4.8 Data processing and analysis

Analysis of any data set demands the use of the most rigorous analytical methods. This said, however, the choice of methods for this research was determined by considerations relating to the appropriateness of the method to the research questions, and limitations associated with the data collected. Both the questionnaire and interviews resulted in a significant volume of data requiring analysis.

Using a pre-established coding scheme, quantitative data were de-identified and transcribed into SPSSv18. Descriptive statistics, notably means, standard deviations and frequencies, were used to provide a broad understanding of the data and cross tabulation was used to identify relationships between the variables. Likert and ranking scales were analysed to explore attractiveness of locations and importance of various factors in recruitment and retention, and differences in mean rankings calculated and tested for statistical significance. Limitations of the data set, notably the small sample

size and use of five-level scales, meant that it was only appropriate to apply non-parametric tests of statistical significance. Pearson's Chi squared tests were used to measure the association between two categorical variables. Mann-Whitney tests were used to identify associations between recruitment and retention factors and respondent characteristics. Key characteristics were dichotomised as age (<45, ≥ 45), gender (male, female), location (coastal, inland) and country of undergraduate medical degree (International Medical Graduate [IMG] – yes, no). Where necessary in order to meet the assumptions of the test, the five-point Likert scale were collapsed to three levels by combining the two agree levels together and the two disagree levels together. The neither agree/disagree column comprised the third level and missing data was excluded from the analysis. Following social science convention, a 95% confidence level was used in all statistical significance testing.

Interview data were transcribed verbatim and imported into the N-Vivo 10 software programme. This facilitated the subsequent data analysis, a four part process of description, classification, connection and corroboration of key themes from the interview transcripts. While there were known categories and broad themes used as a framework, the process was essentially inductive with emergent themes classified and corroborated. Checking quality and reproducibility was done in in two ways. Firstly, there was an audit trail of the analytic process undertaken recording the steps taken. Secondly, all transcriptions were coded using NVIVO and also coded manually with collation of descriptive and conceptual codes, which were then compared for consensus and completeness.

The coding framework was regularly modified to reflect additional codes from emergent themes, with another researcher reading a selection of transcripts and reviewing the coding template. Validity and reliability was also ensured throughout this process with a number of key strategies. Reliability was managed by corroboration of the initial semi-structured interviews with literature. In addition, verbatim transcription of interviews provided a consistent reviewable set of data for thematic coding and corroboration. The use of quotation and careful sampling to ensure the conclusions were supportable from the data was also utilised (Minichiello et al., 2008).

Coder reliability was achieved by strict adherence to a set of documented procedures described below. All material was coded twice, with a manual coding procedure in addition to the utilisation of coding via NVIVO. This allowed for a checking and confirmatory process to occur. In addition the coding frame was reassessed by another coder with a random sample of transcribed material to check reliability.

Validity was considered to ensure data generation, analysis and presentation were credible, authentic and had critical integrity (Whittemore, Chase, & Mandle, 2001). The techniques employed at the data generation and analytic stage included the cross coding process described above and also the auditable chain of enquiry involving charting and justifying the steps by which the interpretations were made. In addition, design considerations meant the usage of semi-structured interviews contributed to the validity of the research through the enhanced sensitivity and flexibility of the enquiry to explore aspects of interest in more depth (Creswell, 2003).

5.5 Assumptions and limitations

There were a number of assumptions and limitations that need to be considered when reviewing the primary results presented in the next two chapters. Respondents to the survey were clearly those *in situ* practitioners who had made decisions to stay in regional centres. The research did not explore the perspectives of those practitioners who chose to leave their regional centre. This is, therefore, an analysis of recruitment and retention from the perspective of those who felt it attractive enough to stay. Furthermore, as some practitioners had worked in their communities for several decades, there may be some issues with respondent recall relating to reasons for recruitment.

While the four centres were chosen as reflective of many Australian coastal and inland regional centres, it should be noted that each regional centre has a degree of uniqueness that may have an impact on the universality of the research findings. For example, Port Macquarie was the site of a public-private partnership with the public hospital operated by Mayne Health. Although this contract was rescinded in 2004, many of the practitioners were recruited during this period and this may have resulted

in some bias in the sentiments of specialists in Port Macquarie towards a model of private practice. There were a smaller number of resident specialists in Dubbo as some of the specialist workforce providing services to this centre operate as a fly-in/fly-out service from Sydney or drive-in/drive-out from Orange or Mudgee. The number of Staff Specialist positions in the inland centres was also higher than in the coastal locations. Indeed there were smaller populations in both the inland centres with higher population growth rates and higher clinician numbers in both the coastal locations.

The models of general practice represented by the respondents were relatively consistent across the four centres with several group and solo practices. Three of the four centres included large corporately owned practices, while Tamworth had a large not-for-profit practice. All centres had Aboriginal Medical Services.

Although response rates were higher than for the longitudinal MABEL study, with 35.6% of eligible specialists and 39.5% of GPs participating in the research, there were some centre-specific differences in response rates. For example, in Tamworth where the researcher was well known, response rates were very much higher than in the other centres, with 70.5% of GPs and 54.5% of specialists participating in the research. In Dubbo, the response rate for GPs was 54.8% (17 out of 31 GPs) and for specialists 26% (5 out of 19) participating. There was a lower response rate in the two coastal centres. At Coffs Harbour, 24.5% (12 out of 49) GPs and 37.5% (18 out of 48) specialists participated, while in Port Macquarie almost 25% of all eligible GPs (13 out of 53) and 23.8% of specialists (15 out of 63) participated. This likely related to the lower profile of the researcher in coastal locations combined with the Divisions of General Practice in both coastal locations undergoing a period of instability. This meant that the engagement of GPs with the Division of GPs' infrastructure was not as strong. The challenge of engaging practitioners who often work in professional isolation and sometimes part-time remains an ongoing issue for researchers. In this study, the use of practice managers, personal invitations and publicity through professional colleges and trusted local organisations was certainly important for increasing participation.

The use of Likert scales assumed that relativities between rankings applied to different factors were consistent, which is likely an oversimplification. Another concern is that participants may have responded to different variables in different ways rating factors highly because they were good (i.e. location) and not good but important (i.e. workplace culture). The value of the interview quotes and amassed qualitative data assisted in assessing the tenor of the responses.

With any study that relies on voluntary participation, it is possible that those who responded may principally be those who are more motivated individuals who are established in their regional centre and therefore comfortable to give their opinion; however, it is not possible to measure the degree of non-response bias. In addition, participation in the survey required a relatively large time commitment on the part of the respondent doctor. Time constraints and lack of interest in the subject matter may have contributed to response rates.

5.6 Conclusion

The collection of primary data from clinicians working in regional centres required a comprehensive and informed understanding of the constraints and context of these practitioners. The rationale for the design and execution of the primary data collection was based on the importance of hearing the preferences and voices of GPs and specialists who could speak to their experience in coming to and deciding to stay in their regional centre. The lengthy preparation involving publicity, and contact with key individuals preceding data collection, and commitment to face-to-face contact in the implementation of the survey resulted in strong participation by doctors in the four regional centres. The following chapters report the results obtained from the primary data and discuss their implications and relationship to existing literature. Chapters 6 and 7 outline the factors important in the recruitment and retention decisions of general practitioners and specialists respectively. Chapter 8 seeks to address a gap in evidence pertaining to factors involved in recruitment and retention of medical workforce in regional centres, and proposes, on the basis of results, a new framework to consider recruitment and retention. This framework can be utilised in

the quest for policy alignment between various stakeholders and in maximising evidence-informed responses to the support of this key workforce.

CHAPTER 6
UNDERSTANDING WORKFORCE DECISION-MAKING FOR GENERAL PRACTITONERS – RECRUITMENT AND RETENTION

6.1 Introduction

The provision of effective and adequate health care in Australia to regional and rural populations requires the recruitment and retention of appropriately trained GPs and medical specialists. Whilst the available literature discusses rural GPs and often encompasses those that work in regional centres, little is known specifically about GPs working in Australian regional centres. This chapter presents a comprehensive report of the key factors important in the initial recruitment decisions of a group of GPs to make the move to a regional centre. It also examines in detail the issues associated with their decision to stay in a regional location and their expectations and perceptions of practice and living in regional centres. Findings from closed response questions in the survey are presented and discussed and, where appropriate, corroborated and elaborated by qualitative material gleaned from the semi-structured interview questions. Results are then analysed in association with existing evidence to ensure a comprehensive discussion of both recruitment and then retention factors for GPs specifically resident in regional centres.

The chapter begins by reporting the characteristics of the survey cohort involving GPs in regional centres. The survey, undertaken in the study area from July 2011 to June 2012, resulted in a total of 66 responses from GPs. The demographic status of the respondents in the four regional centres is examined in Section 6.1. The results of the survey related to recruitment are reported in Section 6.2 with a discussion of the implications of GP recruitment in regional centres in Section 6.3. In Section 6.4, the results relating to retention are presented with discussion of the implications of the

findings and synthesis with existing literature on retention in Section 6.5. Finally, in Section 6.6 the mean rankings for age, gender, international medical graduate and location (coastal and inland) factors are reported and discussed to consider the implications for recruitment and retention of GPs in regional centres.

6.2 Characteristics of regional general practitioners

The structure of the survey was outlined in Chapter 5 (see Table 5.2). This section provides an overview of the GP respondents in terms of demographic and work practice characteristics, considering age, rural background and work factors such as VMO status, on-call responsibilities and sessions worked. Overall, 66 GPs participated in the survey from the population of 167 GPs, a response rate of 39.5%. Of these 66, 62% (n=41) came from inland centres with the remainder equally distributed between the two coastal study locations. The study locations were Dubbo and Tamworth, which are both inland, and Coffs harbour and Port Macquarie on the coast.

The GP medical workforce is documented to be aging (Schofield, Page, Lyle, & Walker, 2006). The mean age of GP respondents included in the survey was 50 years (n=53), compared to NSWRDN RRMA3 data with an mean age of 52 and an average age of GPs Australia-wide of 49.3 years (Australian Institute of Health and Welfare, 2013). The age of respondents ranged from 27 to 70 years. The average age of GPs in inner regional areas across Australia in 2012 was 49 years (Australian Institute of Health and Welfare, 2014b). Less than one-third of GPs included in the survey were aged less than 45 years. Consistent with the increasing feminisation of the medical workforce, exactly half of the survey cohort was female and, perhaps not unexpectedly, the average age of women GPs was younger than their male counterparts (47.6 years compared with 52.3 years respectively) (Table 6.1).

Table 6.1: GPs by age and sex

Sex	Percentage aged less than 45 years	Percentage aged 45 and over	Percentage Total
Female	61.9	44.4	50.0
Male	38.1	55.6	50.0
Total	100.0	100.0	100.0
n =	21	45	66

Table 6.2 reports place of undergraduate medical training. International Medical Graduates are a major component of non-metropolitan workforce supply (Section 3.3.2). The majority of survey respondents had received their primary medical training in Australia, with just over one-quarter (n=17) having acquired their primary medical degree overseas. The NSW RDN data set showed rates of 36% IMG in RRMA3 and over 40% in RRMA4-7 (smaller rural centres). The average age of those trained overseas was slightly older than their Australian colleagues at 50.5 years compared with 47.6 years respectively. The gender distribution for both groups was similar. Not all those who identified as IMGs had conditional registration, with a number of GPs having completed their moratorium requirements and thus having unrestricted choice of location.

Table 6.2: Country of primary medical training by gender

	Male %	Female %
GPs who undertook primary medical training overseas (IMG) (n=17)	24.2	26.3
Australian primary medical training (n=49)	75.8	72.7
Total (66)		
n =	33	33

Rural origin has been noted in Australia and overseas as a key predictor of subsequent rural practice (McGrail,Humphreys & Joyce 2011a). Of the 49 GPs who acquired their primary medical degree in Australia, similar proportions had attended a rural primary school, high school and/or both primary and high school (Table 6.3). This affirmed a rural origin of 22–27% depending on the definition used. Partner rural origin was noted for 47% of the 42 eligible Australian-trained graduates. The likelihood of rural exposure in childhood and adolescence appeared to be partially age related, with younger GPs in the study more likely to have attended a rural primary school than their older colleagues, with 53.8% or 7/13 < 45 years compared with 16.7% (6/36) aged 45 years and over. The majority (62%) had either spousal or own rural origin, with the remaining 38% noting themselves and their spouse being both of metropolitan or capital city origin.

Table 6.3: Rural origin, schooling and partner rural origin

	Primary school %	Secondary school %	≥ 12 years rural %	Partner rural origin %
Rural	27	24	22	47
Metropolitan	73	76	78	53
Total	100	100		
n =	49	49	49	42

Twenty-five per cent of respondents were working < 8 sessions a week. Table 6.4 shows that 75% could be considered to be working 8 sessions or more, which is considered a full-time load. This compares with statistics from the MABEL (2012) study, which suggested longer hours in regional centres (41.2 hours per week), versus metropolitan locations (38.6 hours per week).

Table 6.4: Hours of work (self-report)

Sessions worked	Number (Percent)
< 8 sessions	15 (25)
8 and > 8 sessions	44 (75)
Total	59 (100)

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Survey respondents had a mean length of stay of 14.5 years. The range was wide, from 0–36 years. As can be seen in Figure 6.1, over 30% of this cohort had been resident for more than 20 years. This length of stay is higher than reported by the NSWRDN survey, where for RA2 areas the mean length of stay was 9.1 years.

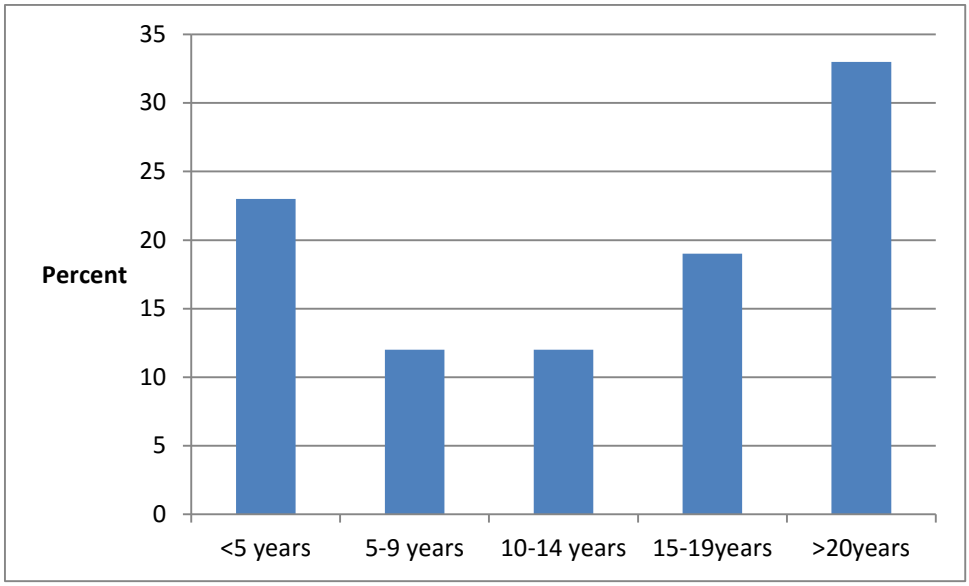

Figure 6.1: Length of Stay for GPs (n=60)

GPs in regional centres work in discrete general practices. Unlike their rural colleagues, they are not co-located with hospital facilities. Thus, the propensity to provide after-hours or Visiting Medical Officer (VMO) services to public and private hospitals provides one measure of scope of practice, as this is activity completed at other locations than their normal consulting space. Table 6.5 tabulates VMO status by age and coastal or inland location.

Table 6.5: Visiting Medical Officer Status

	No / Per cent	Inland	Coastal	< 45	≥ 45
Yes	29 (44)	22 (54)	7 (28)	6 (28)	23 (51)
No	37 (56)	19 (46)	18 (72)	15 (72)	22 (49)
Total n=	66	41	25 *P=0.042	21	45 P=0.086

*Pearson's chi-square test result statistically significant

Of the 66 GP participants, Table 6.5 shows 44% of GPs were still Visiting Medical Officers in the public or private system (small private hospitals are functioning in each of the regional centres). Two GPs were still providing procedural services in regional centres (one GP working in anaesthetics, one in intra-partum obstetric services). Only 28% of GPs aged < 45 years were VMOs. This result was statistically significant (p=0.086). Coastal GPs were less likely to be VMOs, with only 28% of those at the coast being VMOs compared to 54% of those inland. This result was statistically significant (p=0.042).

Table 6.6: On-call responsibilities

	No / Per cent	Inland	Coastal	< 45 (%)	≥ 45 (%)
On-call	49 (74)	33 (80)	16 (64)	12 (57)	37 (82)
No on-call	17 (26)	8 (20)	9 (36)	9 (43)	8 (18)
Total n=	66	41	25 P=0.137	21	45 *P=0.03

*Pearson's chi-square result statistically significant

Table 6.6 reports on-call responsibilities for respondent regional centre GPs. Three-quarters of GPs in this study were rostered to provide on-call services. This may have meant home visits, and/or nursing home visits. There are two trends of note in the data. Firstly, there was a larger group of doctors in this survey involved in on-call services who resided in inland centres compared to the coast. In addition, there was a higher number and percentage of older practitioners providing on-call services (82%) than younger GPs (57%). This finding has statistical significance (p=0.03). In at least one coastal regional centre nearly all nursing home visits both in and out of hours were

provided by one group of GPs who focused on the nursing home sector entirely. This model is seen increasingly capital cities, with GPs specialising in aged care (Australian Financial Review, 2013).

6.3 General practitioners and recruitment

This section reports the reponses from GP particpants to questions and rankings about recruitment. Participants were asked about regional centres as places to work and then as places to live, separating professional, social and location factors.

6.3.1 Professional factors in recruitment

Participants were asked to rank professional and financial factors of importance to them at the time of recruitment. Participants were supplied with a list of key factors derived from the literature and then asked to comment within the semi-structured interview about factors important to them in their decision to commence work in their current regional centre. Table 6.7 shows the mean factor scores of responses to a five-category Likert scale question relating to key professional factors. These were variety of work, projected workload, anticipated after-hours workload, likely level of remuneration and access to financial incentives (Question 29) in the questionnaire (Appendix 5). Scores above 3 indicated that the statement was of more than average importance across all respondents' decision to move to a regional location in the first instance, and the converse is true for scores below 3.

Table 6.7: Professional factors influencing recruitment

Professional Factor	Rank 5 %	Rank 4 %	Rank 3 %	Rank 2 %	Rank 1 %	Total (n =)*	Mean rank
Variety of work	31.8	19.7	19.7	6.1	22.7	100 (66)	3.3
Projected workload	12.1	13.6	25.8	13.6	34.8	100 (66)	2.5
Anticipated after hours workload	10.6	12.1	22.8	12.1	41.9	100 (66)	2.4
Level of remuneration	7.6	9.1	13.6	7.6	62.1	100 (66)	1.9
Financial incentives	3.1	3.1	7.6	1.6	84.5	100 (66)	1.4

Note: Rank 5 highest importance; Rank 1 least importance.

Variety of work

Rankings of professional factors suggest work variety was a key reason for GPs to consider regional centre environments. Interestingly, despite its rating with the highest importance for GPs in recruitment, it was only just above the mean which was at the level of 3, reflected by 52% who ranked it important and 32% considered it of high importance to their recruitment. For some GPs, this was couched in terms of the variety of work they would prefer not to be embarking upon, as opposed to the scope of practice they were keen to consider, as seen in the quotation below.

> *Well, I'm biased that I didn't want to work in the back of beyond... for instance, because I had to be on-call and do all that hard stuff after hours. I didn't want to do obstetrics. I can imagine, though, I could have at a scratch considered a small coastal town- I did look at it but I didn't really like it. GP48.*

Projected workload including anticipated after-hours workload

The anticipated afterhour's workload was a factor that also differentiated regional and rural practice from the perspective of participating GPs. The participants noted the attractiveness of the lower after-hours workload with 18/66 (27%) commenting specifically about the different workloads. The rating of 2.5, whilst second in importance of the five professional factors, was important to only 26% in their recruitment. Two participants indicated their preference not to provide any after-hours, an expectation more commonly seen in metropolitan areas. Respondents noted

the impact of after-hours on their work life balance and in particular their time with family.

> *It was the job and it just sounded well, not having to do all the on-calls and then having the family. I think that was the two things that swayed me. GP50.*

> *That thing of really rural versus regional, that call ... which I love doing call but I guess it's more put me off doing obstetrics. There's time's where I would have done obstetrics but I haven't because I've had young kids that keep me up enough as it is in the night. GP27.*

Projected workload was also rated similarly to anticipated afterhour's workload, with a mean ranking of 2.4, and was important to 23%. There was little comment, perhaps because of its prospective nature, so that participants may not have recalled their expectations or perhaps because it was not considered an important factor in the decision to locate. Certainly, for those relocating from more rural locations the expectation to be able to control their workload was articulated.

Level of remuneration and financial incentives

These factors were considered of low importance by 62% and 85% of participants, rating 1.9 and 1.4 respectively. These low ratings suggest these factors were considered of reduced importance compared to the other listed factors. One participant who relocated from a rural town noted a 50% pay drop, comprising the reduced after-hours and hospital components of the job in a smaller rural location now foregone.

Job opportunity or serendipity

Another important observation was that work opportunities were a major locating factor, with 20/66 (30.3%) participants describing a job opportunity as the key location factor that enabled them to move to a regional centre. These respondents recognised the need for access to a job (either an existing or potential opportunity).

> *Why did I come to Regional Centre X? I came because there was a job. GP39.*

6.3.2 Personal and social factors in recruitment

Four social factors were listed for participants to rate in order of importance at recruitment. These are seen in Table 6.8 below. No particular factors suggested to

participants in relation to social factors rated above average in terms of explaining their initial decision to relocate to a regional centre. For example, employment opportunities for partners was rated at 2.8 with cultural and community factors also rating 2.8, sporting and shopping facilities at 2.3 and proximity of family 2.6.

Table 6.8: Social factors for recruitment

Social	Rank 5 %	Rank 4 %	Rank 3 %	Rank 2 %	Rank 1 %	Total (n=*)	Mean rank
Cultural and community factors	13.6	19.7	28.8	12.1	25.8	100 (66)	2.8
Employment opportunities for partner	28.8	10.2	10.2	8.5	42.4	100 (59)	2.8
Proximity to family	21.2	12.1	15.2	6.1	45.4	100 (66)	2.6
Sporting and shopping	6.1	15.2	24.2	15.2	39.4	100 (66)	2.3

Note: Rank 5 highest importance; Rank 1 least importance.

Employment opportunities for partners had a similar ranking to cultural and community facilities, with a mean score of 2.8. Not all of the GP particpants had partners hence the lower number of responses (59/66). Of interest was that 39% of particpants rated employment opportunties for partners as highly important or important, with 51% seeing this factor as less or least important. Indeed, 42% of respondents rated this factor as least important. This suggests a high degree of polarisation in the results for this factor. The relationship to age and gender will be further reviewed in Table 6.10.

Cultural and community factors were seen to include educational facilities with three participants naming them as very important to recruitment. This factor was not noted in the existing literature at recruitment but was described as associated to retention for rural GPs. This suggests that the decision to move to a regional centre may have come slightly later in the life journey than previously experienced but could also represent

older students who would have done at least ten years training (postgraduate entry then post vocational training) before considering a work location. Cultural and community factors were considered a key factor of differentiation for those moving from small rural locations, at interview, and yet appeared to have lower ratings. This suggests that they may have been considering large metropolitan centres as an alternative location. The inclusion of sporting and shopping facilities as a key factor was also designed to elicit the importance of the regional centre facilities, and opportunities for practitioners and their families. Interestingly 54% of participants rated these as less or least important.

The importance of proximity to family has long been considered as a reason why practitioners will not leave metropolitan areas and was a listed key factor. In this study, almost half of all respondents considered proximity to family as relatively unimportant in their decision to originally locate in their chosen regional centre. Conversely, for 9/66 (13.6%) proximity to family was a highly important factor in recruitment. In addition two participants described the lack of proximity to family as a major negative in their decision to come to a regional centre, in the end overridden by other professional factors.

> *Why did I come? My parents lived in the area. I had family in the area. That was the sole reason, yeah. GP32.*

Two other issues were noted as key to decision-making in locating to regional centres for the GP participants. The first was the perceived greater affordability of real estate and lower cost of living noted in regional centres. The capacity to buy real estate without large financial overheads and the need for two incomes was described as an attractant by three participants.

The second was the importance to participants of working in an underserved community. For a small number of participants (7.5%) altruism emerged as a strong motivating force in their location decision. This was described in terms of the greater population need combined with poorer access for rural patients and the characteristic stoicism and resilience described in rural patients (Rickards, 2011). This was articulated

by GPs working in inland regional centres that were areas of workforce shortage and for a GP working in an AMS (Aboriginal Medical Service).

6.3.3 Location factors in recruitment

Location factors were listed for participants to rank in terms of their importance to recruitment. The three listed factors were environmental attributes, access to a capital city and climate. Table 6.9 shows the mean rankings.

Table 6.9: Location factors for recruitment

Location	Rank 5 %	Rank 4 %	Rank 3 %	Rank 2 %	Rank 1 %	Total (n=*)	Mean rank
Environmental attributes	19.7	21.2	13.6	16.7	28.8	100 (66)	2.9
Access to capital city	12.7	24.2	12.1	16.7	34.8	100 (66)	2.6
Climate	13.6	18.2	18.2	18.2	31.8	100 (66)	2.6

Note: Rank 5 highest importance; Rank 1 least importance.

Location factors at the time of recruitment rated just below the mean rank of three. However, the only factor rated with higher importance was the professional factor, work variety. Environmental attributes rated 2.9, with access to capital city and climate rating 2.6. The patterns of responses for all three of these factors was similar, with over 30% of participants rating these factors as least important for recruitment. Table 6.10 has further information about coastal and inland responses as comments suggested that liveability was a key location factor for some participants with quotes such as:

> *I guess I knew the area. I like regional towns. I figured the coast, it's got ideal climate. It's a nice sized place. I mean, I couldn't think of a nicer place to live. GP48.*

6.3.4 Recruitment differences

Differences in mean rankings have been tabulated in Table 6.10. This table looks at work location (coastal or inland), country of primary medical degree (Australia and

overseas), gender and age (< 45 or ≥ 45). Where differences were seen, they were tested for statistical significance using the non-parametric Mann-Whitney test.

Looking firstly at professional factors, there was little difference in the mean rankings for variety of work, anticipated after-hours, projected workload and financial incentives. It might have been expected that female GPs would have higher rankings for workloads in and out of hours. This was not borne out in the rankings. In fact, males had higher rankings, although these were not statistically significant.

In terms of the importance of remuneration, IMGs had a higher mean ranking (2.5) whereas Australian graduates had lower ratings with a ranking of 1.7. This result was not statistically significant. Neither of these values equated with work variety in terms of importance for GP participants.

Table 6.10: Differences in mean rankings at recruitment according to location, gender, country or training and age

		Work location		Gender		Primary medical degree country		Age group	
Professional Factors	Mean rank GPs	Coastal N=25	Inland N=41	Female N=33	Male N=33	Aus Degree N=49	OS Degree N=17	Age <45 N=21	Age ≥45 N=45
Variety of work	3.3	3.4	3.3	3.3	3.4	3.5	2.8	3.2	3.4
Anticipated after hours	2.5	2.8	2.4	2.2	2.8	2.5	2.6	2.5	2.5
Projected workload	2.4	2.5	2.3	2.1	2.7	2.3	2.6	2.1	2.5
Level of remuneration	1.9	1.8	2.0	1.7	2.2	1.7	2.5	1.8	2.0
Financial incentives	1.4	1.1	1.6	1.4	1.3	1.1	2.1	1.6	1.3
Personal and social factors									
Cultural & community factors	2.8	2.8	2.8	2.7	3.0	2.8	2.8	2.7	2.9
Employment opportunities for partner	2.7	2.7	2.8	3.9	1.7 p<0.001	2.9	2.4	2.9	2.7
Proximity to family	2.6	2.6	2.6	2.4	2.8	2.9	1.6 p=0.003	2.9	2.4
Sporting and shopping facilities	2.3	2.4	2.3	2.3	2.4	2.3	2.5	2.2	2.3
Locational factors									
Environmental attributes	2.9	4.0	2.1 p<.001	3.0	2.7	3.1	2.2 p=.03	2.8	2.9
Climate	2.6	3.8	1.9 p<.001	2.8	2.4	2.7	2.5	2.6	2.6
Access to capital city	2.6	2.9	2.4	2.8	2.4	2.5	2.9	2.6	2.6

Social factors were also reviewed via the variables of location, age, country of graduation and gender. The mean rankings were quite even across the variables measured, with the exception of employment opportunities for partners, which showed quite different mean rankings between genders. This difference was statistically significant. Females rated employment opportunities for partners as important with a rank of 3.9. Males, on the other hand, had a low mean ranking of 1.7 ($p<0.001$) suggesting a lower level of importance to these males.

This was echoed by respondents:

> *No, because we moved for the same reasons before. We moved to Mt Isa for a job. We moved to Cairns for a job. We moved back to Brisbane for a job. It was always his job, yeah. GP19.*

> *I did not have choice in coming to work in a regional centre. My husband is a specialist and he got a job in X. GP27.*

Reviewing proximity to family, IMGs rated this lower than their Australian counterparts. This result was also statistically significant ($p=.003$). This might have been expected given that it could be expected that most IMGS would have family living overseas. Interestingly, there was not much difference in mean rankings on gender and a small difference on age, with younger practitioners rating proximity to family slightly higher than their older counterparts (2.9 *vs* 2.4). Little difference was noted in rankings across location, gender, age and country of graduation for shopping and sporting facilities.

In terms of location factors, participants living in coastal locations had much higher mean rankings for climate and environmental attributes than their inland counterparts. Coastal respondents rated environmental attributes much more importantly than inland participants, with rankings of 4.0 (coastal) *vs* 2.1 (inland) ($p<.001$). In fact, the rating of 4 for environmental attributes for those who had chosen the coast as a location was the highest ranking factor for recruitment, eclipsing professional factors for those participants. In addition, climate was also highly rated as an important recruitment factor for coastal participants, with a ranking of 3.8 whereas inland participants rated it at 1.9. This was also statistically significant with $p<.001$.

These rankings from coastal participants for climate and environmental attributes were higher than any other factors including professional factors and suggest that they are key for these participants. Interview data affirmed this premise.

> *Yeah, I guess, in a way, my husband, we've probably always thought about living regional. My husband is a big surfer as well and does a lot of surf lifesaving, triathlons and things. So we would have to be coastal, which was a big reason we chose here to come. GP25.*

IMGs also rated environmental attributes as less important than their Australian counterparts. The ratings differed with a mean ranking of 3.1 (Australian trained) and 2.2 (internationally trained) and was statistically significant (p=.03). For international medical graduates choices of location may have been limited, if their location choices were to DWS or Area of Need locations.

6.4 Discussion of key recruitment issues

These results suggest that for this group of GPs, work variety was the high ranking factor in their decision to locate in a regional centre. Interestingly, whilst most respondents described the variety of practice as key to recruitment, a number of them had moved from rural practice with great variety into regional practice, citing social and locational factors in addition to workload as the reason for the move. This suggested that those working in a rural environment may have valued the variety of work (and potentially autonomy) they had in more rural locations and were looking to trade this off in a regional centre and perhaps not lose it all together. In fact, one regional centre had eight participants who had relocated from rural locations.

Given that regional general practice was seen by participants as attractive for its work variety, the fact that the scope of practice has changed significantly in the last twenty years is important to note. In fact, the identity of the family physician as a generalist and proceduralist has changed markedly over this time (Beaulieu, Rioux, Rocher, Samson, & Boucher, 2008). The metropolitan environment for GPs has most reflected this change with little public hospital involvement for GPs. In regional centres, the current operations of most general practices now having little ongoing public hospital involvement also. There have been changes in the after-hours responsibilities of

individual general practices with alterations to RACGP guidelines and accreditation requirements. This has reduced the need for individual practices to be involved in after-hours care (Royal Australian College of General Practitioners, 2013). This change of scope has been slower coming in areas where there are fewer specialists and fewer local acute care facilities where patients may obtain acute care in and out of hours. Where specialist access is poorer and less available, scope of practice for GPs is wider. This can be seen in the regional centres in this study, where specialist access in some disciplines was difficult and GPs felt they had a role in providing care to the top of their scope (Baker et al., 2010).

So, perhaps the changes and reductions in after-hours care that are notable in metropolitan areas are simply a little slower to emerge in regional centres and are likely to impact these centres in the near future if specialist capacity increases. Responsibility for after-hours arrangements (previously a responsibility of the now defunded Medicare Locals) is currently unclear. At a practice level, in the four regional centres studied there were a variety of arrangements. In Coffs Harbour, a GP-run weekend clinic was operating. In Dubbo, an after-hours hospital clinic was being utilised and a practice looking after nursing home patients only was operational in Port Macquarie. In all four regional centres studied, there were individual practice arrangements for after-hours by many practices. In three of the four locations there were general practices working extended hours, particularly evenings and daytime hours on weekends. Therefore, many GPs have negligible after-hour workloads, although this may not have been the case when they were recruited. This study suggests there are still fairly high levels of participation in after-hours services at present, but there is a likely reduction as older practitioners retire. With the changing nature of practice in regional centres, there has been a decline and now almost absence of procedural practice in all four centres. This is a noticeable change from twenty years previously, when most obstetrics and anaesthetics were provided by local GPs. Whilst there are still numbers of GPs who admit to either private or public facilities, there was a higher rate of VMO hospital appointments for GPs in inland regional centres and a lower incidence of VMO appointments in younger GPs compared to their older colleagues.

Importantly for recruitment, the lower acuity of on-call and reduced after-hours workload was a drawcard for the practitioners who had relocated from a rural location. The narrowing of scope of practice to a more manageable level was seen as both attractive and more sustainable. This finding suggests that one possible source of regional GPs with a wide scope of practice may be rural locations when social and professional factors tip to the negative and GPs consider a move.

Rural origin remains an important consideration for GPs being recruited to regional centres. Of the participants of this study who were Australian trained, 27% described having spent all their primary school years in a non-metropolitan location. In addition, 47% had a partner who they described as having rural origin also. In total 62% of the study cohort had either rural origin or partner rural origin. This compares with the 38% who had metropolitan origin only. The most encouraging aspect of this result is that 54% of the regional centre GPs, aged < 45 had completed primary school rurally compared to only 16.7% of those ≥ 45. Whilst these are small numbers, this information, in addition to the 62% who had rural origin or partner rural origin is at the higher end of existing data. This does suggest an increasing percentage of the cohort is rural origin and may point to early success with some of the rural origin affirmative policies that have been supported at undergraduate level (Australian Government Department of Health, 2011). Data presented in Chapter 3 from NSWRDN shows high rates of rural origin in both RRMA3 and RRMA4-7 locations. The evidence from both data sources affirms the contention that regional and rural origin are part of the same continuum, with rural origin being predictive for regional centre location. It adds credence to the practical definition of 'rural origin' as 'non-metropolitan', encompassing regional centres, rural and remote locations. Given the levels of rural origin in regional centre GPs, the use of 'non- metropolitan' definitions in selecting rural background students may be useful.

These results also highlight the complexity of factors at play in recruitment, of which rural origin, whilst the best-known predictor, is only part of the story. Over half the participants nominated a rural or non-metropolitan connection or experience that gave them the confidence and/or opportunity to consider practice outside a metropolitan setting. This was commonly coexistent with rural or spousal rural origin.

This rural connection took two forms: a social connection such as associations with family or friends, and secondly rural connection related to clinical experience as an undergraduate or postgraduate entry student or junior doctor. Thus, by supporting higher numbers of students and postgraduate positions in regional centres, rural undergraduate training could be considered to be supporting and developing rural connections (Clark et al., 2013; Walker et al., 2012).

Another important observation is that work opportunities were a major locating factor with 20 (30.3%) participants describing a job opportunity as a key location factor that enabled them to move to a regional centre. This factor was additional to those listed and was also noted by those with obligatory recruitment via DWS or their move being related to a spouse who was similarly obligated.

The importance of social factors in decision-making can also be seen in these results. Spousal employment was particularly important for female GPs and can be seen in the stark differences in mean rankings between genders. Whilst the feminisation of the workforce is predicted to drive the hours worked by GPs down over time, the impact of spousal employment and joint decision-making when considering location is becoming increasingly important (Costa & Kahn, 2000). This is consistent with patterns being seen in Canada, where two income households and an increase in non-medical male spouses has been observed (Mathews et al., 2012). Thus, the approach of specifically reviewing partner employment options at the time of recruitment has been considered by a number of regional councils in NSW and has been reported by those recruited as very useful (Sweet, 2009).

The importance of proximity to family is unclear from this study. The results suggest a degree of dichotomisation of responses and thus a factor of variable influence. In considering the influence of proximity to family for GPs at recruitment, it could be expected that family was important to at least a small proportion of participants. Interestingly, the rankings were not as high as for some professional factors. However, the influence of rural connection is notable in the qualitative data, not so much with direct family relationships but with associations with extended family, or exposure to

holidays with family members when growing up sensitising participants to the possibility of regional and rural lifestyles.

So whilst access to a job with variety of work may have been the sentinel or deciding factor, rural connection and rural experience was mentioned by nearly all participants as a sensitiser. This may explain some of the metropolitan-origin practitioners who decided to consider rural or regional practice centre and importantly through a family or work exposure, knew something of the context of regional centre work and living prior to the decision.

Finally, location (either from participants' prior experience or by virtue of the areas known physical attractiveness or climate) was identified as a key factor. This is consistent with the location specific preferences seen in the mean rankings and the importance of proximity to family to a small number of practitioners. In fact, for coastal participants environmental attributes and climate were the most important factors, trumping work variety and professional factors. This suggests a strong focus by these participants on location with the attachment to the coast and the attendant life style much coveted.

6.5 General practitioners and retention

Respondents were asked to consider factors most important to their retention in their current regional centre. Participants considered these factors four ways, in terms of their current knowledge and experience. The first was an opportunity for participants to rank their preferred work locations based on population size, using RRMA categories. The second exercise involved comparative ranking of regional centres as places to work and live compared with metropolitan locations. The third measure was a satisfaction rating in terms of work and liveability relating to their current regional centre. The fourth was a mean ranking of professional, social and location factors considered important in retention. Participants in the study were asked to rank, in order of importance, a list of key factors attributed to the decision to stay in a regional centre.

6.5.1 Professional factors in retention

Looking at the first measure – that of preferred population size – 72% of participants preferred a location with a population size of 25–100,000 people as a place to work. That is, in terms of Australia's settlement hierarchy, this means a strong preference for work locations outside capital cities and major metropolitan areas. However, 28% preferred other population sizes, with other factors affecting the retention decisions. Importantly, there were a number of GPs working in a regional centre classified as DWS. This enabled them to work with a restricted provider number whereas they were *unable to work* in their location of choice, which was a capital city.

The next comparison involved comparison between a capital city work environ and the participant's current regional centre. Seventy five per cent described their current regional centre work environment as more attractive than a capital city, with 11 (17%) considering it neither unattractive nor attractive. Five participants (8%) who described their current location as unattractive were all IMGs obligated to work in rural and regional Australia on restricted registration. The other comparator for GPs was the attractiveness of regional centre work over small rural towns with significant local hospital and after-hours responsibility. In this study, 81.5% of participants preferred their regional centre to a small inland rural town and 83% of participants preferred their regional centre to a small coastal town as a place to work. Little difference was observed between coastal and inland centres when considered as work locations only.

The third measure of professional and financial factors in retention asked respondents to rate their level of work satisfaction with their current regional centre location. Figure 6.2 shows a high level of satisfaction with their current regional location as a place to work, with 82% considering their current regional location as satisfying or very satisfying as a place to work. The balance of participants was undecided about their level of satisfaction.

Table 6.11 shows the mean factor scores of responses to a five-category Likert scale question relating to key professional factors identified in the literature as important to retention. These were variety of work, workplace culture, after-hours workload, access to CPD, access to career path, level of remuneration, capital incentives, access to other

diagnostic facilities and in-hours' workload (Question 21 in the questionnaire Appendix 5).

The highest-ranking workplace factors for retention were work variety (as with recruitment) and workplace culture. Workplace culture was highly rated by all participants with a rank of 3.8. Work variety was also highly rated (3.6) within-hour's workload (3.1) and after-hour's workload (2.7). The last two factors had higher average rankings than noted at recruitment.

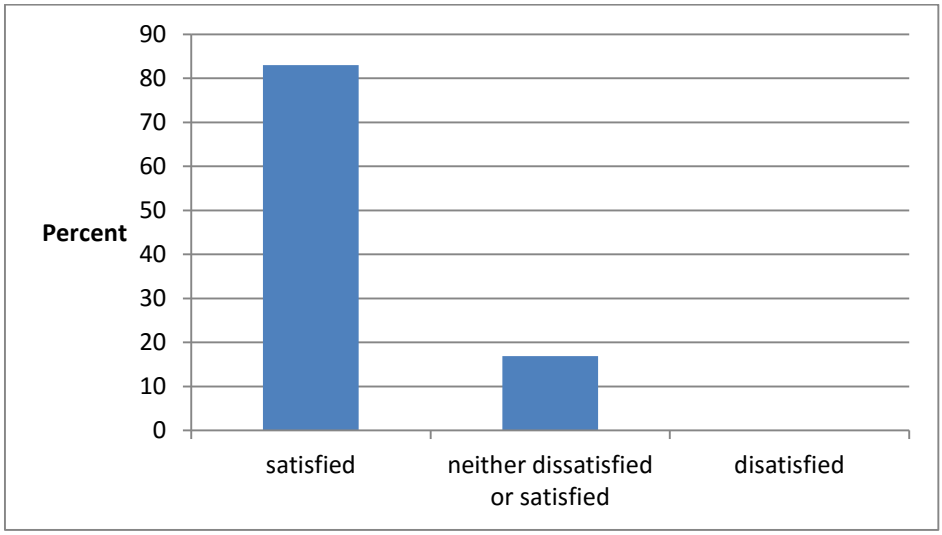

Figure 6.2: Satisfaction with current regional centre as a place to work (n=66)

Workplace culture

Workplace culture was the most highly ranked factor in retention. This factor was also highlighted by 16 respondents (24.6%) as worthy of comment as a key factor in retention. For example:

> *So I think you need that workplace culture to be able to perform your job properly. GP14.*

> *Yeah, right from day one, I thought, well, I'm going to spend most of my waking hours of my life at work. So I wanted to have an environment that was conducive to that. GP29.*

Table 6.11: Professional factors and retention

Professional Factor	Rank 5 %	Rank 4 %	Rank 3 %	Rank 2 %	Rank 1 %	Total (n=*)	Mean rank
Workplace culture	37.9	30.3	18.2	3.0	10.6	100(66)	3.8
Workplace variety	42.4	22.7	10.6	7.6	16.7	100(66)	3.6
Workload in hours	16.9	30.8	23.1	6.1	23.1	100(65)	3.1
After hours workload	12.3	18.5	23.1	15.4	30.7	100(65)	2.7
Level of remuneration	10.6	12.2	23.6	9.2	44.4	100(65)	2.4
Access to Diagnostics	3.1	15.6	25.0	14.1	42.2	100(64)	2.2
Access to career path	7.7	10.5	6.1	9.1	66.6	100(66)	1.8
Capital Funding	9.1	7.7	7.7	3.0	72.6	100(66)	1.7
Access to CPD	0	10.7	13.8	3.1	72.4	100(65)	1.6

Note: Rank 5 highest importance; Rank 1 least importance.

The interviews identified two themes related to workplace culture that respondent GPs cited as important to their professional satisfaction. The first was collegiality. GPs valued the close collegial relationship they felt with their peers and with specialists in their regional centre. Being known and valued by colleagues and having personal knowledge and trust of others was seen as very beneficial to patients in enhancing capacity to integrate care. For example, participants expressed views such as:

> *There is a degree of respect amongst your colleagues and respect from your patients. And once you've been here for a while people know you and they know whether you're good or not. And you also know, with your colleagues around, who's good or not. And so you make your own connections, and I think you can do that more in a town than you can in a big city, because people come and go and you don't know who the hell they are. GP66.*

The second theme related to clinical autonomy and to a lesser extent individual flexibility or personal autonomy. GPs identified the importance of choice. This was described by 18 GPs (27%) in terms of choice of work hours and work responsibility. In regional centres a range of practice, options were on offer, such as practice ownership and a variety of employee models. In addition, there was the potential for niche practices and a variety of medical education alternatives at local rural clinical schools.

> *I like to work here because you've got really flexible hours at our practice. You can still have a social life. Our on-calls are not that hectic. I just like the practice, the people I work with. GP66.*

> *I enjoy the flexibility as I can work the hours I want and I don't feel under pressure, which I would feel if I lived in [a smaller town]. I don't want any responsibility as I have other responsibilities at home. GP49.*

Six GPs commented that their workplaces did not ensure flexibility or personal autonomy. Five GPs who identified as IMGs said they had no option but to work in a regional centres due to restricted registration (DWS) and an Australian-trained GP felt that he had little positive impact on his workplace culture. None of the GPs who discussed negative workplace culture were practice owners.

> *No. Oh, well, coming into a medical centre you basically have to fall into line. GP20.*

Variety of work and workload in-hours and after-hours

In terms of factors influencing retention, variety of work rated highly at 3.6 compared with recruitment where it rated 2.7. After-hours care and visiting rights to local hospitals (mainly private) are still part of the care continuum provided in regional practice and impact on the work variety seen in regional practice (see Section 6.2-VMO status and On-call). There is no doubt that variety of work varied from practitioner to practitioner and from location to location. The GPs in this study described variety of work as if on a continuum between urban practice and rural practice. Comment such as:

> *The work is a balance between minimal responsibility in Sydney and maximal responsibility in a place like [a small rural town}. It is a good balance and I like being in a place with good specialist back up but a capacity to provide good continuous care. GP16.*

This concept of 'balance' between responsibility whilst still having variety and a pivotal role in patient care was obviously important for some. Twenty nine-per cent (19/66) of participants in this study moved to regional centres from smaller rural towns and nominated the comparative advantage of regional centre work compared to more rural towns. Practitioners were keen to describe the different level of responsibility taken in small rural towns.

> *And I like that it's just standard sort of general practice and it's not doing everything. Like, I wouldn't want to work in a small town where you've got to do the emergency care and the antenatal care and the general practice as well as everything. I like the fact that the town is big enough that it's segmented. GP27.*

In addition, an added attraction for several respondents was that after-hours workload was considered less onerous than in rural towns. For example.

> *I don't like being emergency, on-call, I suppose. That would be my real hesitation. I wouldn't like to be on-call for emergency department or after-hours for the whole town. I'm not into that. GP15.*

> *It was to save my life. It was for the type of medicine. I wanted to stay in the country because I believe that country doctors are different to Sydney.Yeah. GP24.*

> *[My regional centre] gives me some more opportunity to manage more complicated conditions such as diabetes. It also affords me the opportunity to choose my workload not possible in small towns where the responsibility extends in a de facto way to the whole population. Here I can choose the after-hours level and the work level. GP8.*

Interestingly, GPs considered the nature of their regional practice as more expansive than their metropolitan counterparts. Twenty-nine per cent of participants interviewed in this study suggested that this increased scope of practice was an important factor in retention. The major reason advanced for this was the reduced access to specialists leading to an increased 'sanctioned' involvement in patient care.

> *Because there is a degree of limited access to specialist care, you tend to do an extra one or two-steps that you wouldn't in the city. GP42.*

> *There's good specialist support, of which the balance is, which is also very attractive, there's not many of them. So that means I can have a huge amount of clinical variety and pass on any patients I don't really want to look after. GP4.*

> *I love the variety. I love the opportunity for comprehensive care. And you can hear I'm doing a lot of things, but it's because I want to offer comprehensive care. So if my patient wants palliative care, I can offer it, whether it is in private homes, in the nursing home or in the private hospital. They will get my care right to the end of their time. GP22.*

Interestingly, access to diagnostic and other services rated 2.2 (Table 6.11) with 42% of participants rating this as least important (see also Table 6.15) GPs who did nominate access to services as problematic discussed access to specialists as most difficult, followed by specialist allied health services.

Access to a career path and CPD

Finally, there were opportunities for niche roles that were delivered as specialist services in metropolitan areas. Special skills such as palliative care and sexual and women's health services were often delivered by GPs in regional centres. Niche areas were available in surgical assisting, mental health services and providing medical education, amongst others. Indeed, the lower rating of access to career path with a mean ranking of 1.8 suggests either those GPs had career paths in existence in regional centres or they were happy with their current career path delivering general practitioner services. In fact, two-thirds of GPs in this study felt that access to a career path was least important on the 5-point Likert scale. Respondents offered opinions such as:

> *I like that I can do other stuff in a country town, be a surgical-assisting, the lap banding, that sort of stuff. GP5.*

Another factor with low ratings was 'Access to continuing professional development' (CPD). It ranked the lowest of professional factors listed, with a mean ranking of 1.6. No GP described difficulty accessing CPD, with 47% of participants ranking it as least important. In fact, GPs regarded the access to CPD as a positive about the professional environment in regional centres:

> *Oh, I can access so many things in my regional centre that it's not an issue. GP3.*

Remuneration and capital incentives

In the mean ranking of retention factors, remuneration rated 2.4 (Table 6.11) and capital incentives 1.7. Remuneration in retention was somewhat higher than at recruitment (1.9). Capital incentives were rated lowly at 1.7, not greatly different to the rating of financial incentives in recruitment, which had a mean ranking of 1.4. Regional retention incentives for GPs were only available in the last quarter of the study period, which may have influenced the responses. Also, infrastructure grants were available to general practices during the study period. One GP received a rural infrastructure grant of $500,000. Three others applied for these grants but were not funded.

6.5.2 Social and locational factors in retention

> *Originally the preference for a regional centre was around education for our kids as we did not want to have to send them away. Now it's more for diversity and culture being able to go to the pictures and get decent coffee. These are reasons that relate to all regional centres. GP2.*

These comments from a respondent capture their view of the social and personal attractions of life in a regional centre. These factors in retention were explored in three ways. The first was an overall measure of satisfaction with the GP's current regional centre as place to live. The second measure was a comparative ranking of regional centres as places to live compared to metropolitan and smaller rural locations. The third measure was a mean ranking of listed social factors.

Satisfaction with regional centre living was high at 81% (Figure 6.3) for participant GPs, suggesting that most were satisfied with their current regional centre as a place to live. Those who were dissatisfied were all restricted in their practice location (i.e. not able to practice in capital city) due to conditional medical registration.

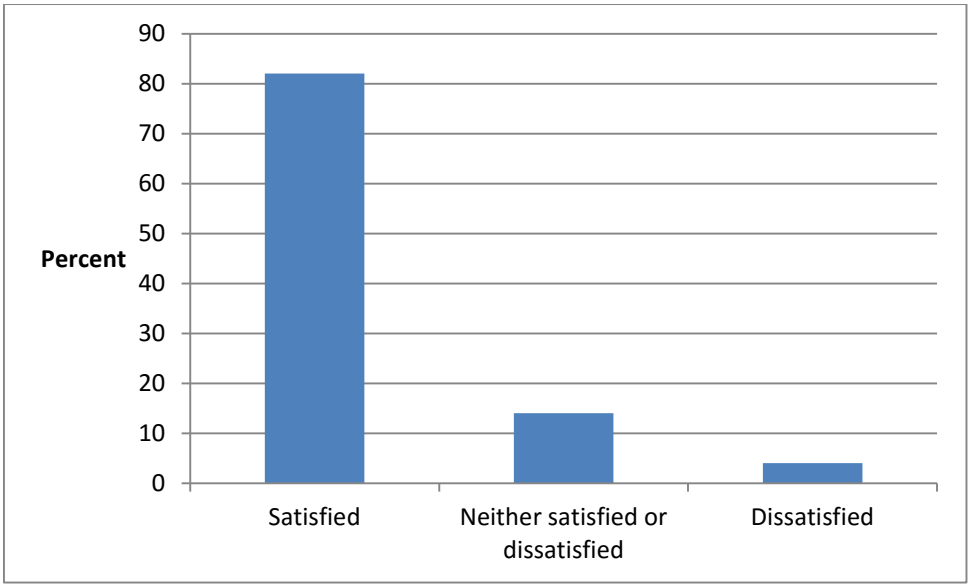

Figure 6.3: Satisfaction with current regional centre as a place to live (n=66)

In addition, 80% of GPs nominated their regional centre as more attractive than a capital city as a place to live. However, of the 65 GPs who responded to this question, 14% of participants identified their current regional centre as unattractive. As mentioned previously, these GPs were obligated to regional centres under the moratorium and were living in inland regional centres. One commented:

> *It needs more tourist attractions; it's a very bland and flat place. There are no good schools and not even enough good restaurants. GP57.*

When a comparison was made with smaller towns as places to live, 90% of GP participants found their current regional centre more attractive as a location to live than a small inland town and a lesser percentage (70%) thought their current regional centre location was more attractive than a small coastal town (see Table 6.12).

> *I know I need at least 30,000 people to provide the right mix of shops and services so I know I do not want to live in a small town. After that I am not too worried. I want to make sure education for kids is OK and I want to ensure a sense of anonymity. GP43.*

Table 6.12: Attractiveness of current regional centre *vs* smaller town as place to live

	Attractive	Neither attractive or unattractive	Unattractive
Small inland town (n=65)	58 (90%)	5 (7%)	2 (3%)
Small coastal town (n=65)	50 (78%)	5 (7%)	10 (15%)

Finally, listed social factors were ranked by participants in terms of their importance to retention (Table 6.13). An interesting feature of the rankings for social factors is that they were consistently rated higher (that is more important) than the social factors in recruitment.

Table 6.13: Social factors in retention GPs

Social Factors	Rank 5 %	Rank 4 %	Rank 3 %	Rank 2 %	Rank 1 %	Total (n=*)	Mean Rank
Sense of community	31.8	31.8	10.6	10.6	15.2	100(66)	3.5
Cultural facilities	14.5	32.2	21.0	11.3	21.0	100(62)	3.1
Sporting and shopping	9.1	30.3	28.8	15.2	16.6	100(66)	3
Employment opportunities for spouses	22.4	17.2	10.4	6.9	43.1	100(58)	2.7
Educational facilities for children	23.1	15.4	9.2	3.1	49.2	100(65)	2.6

Note: Rank 5 highest importance; Rank 1 least importance.

Sense of community

Of the social factors listed, the highest ranked was a 'sense of community'. This ranked at 3.5 for retention behind only work variety and workplace culture. Over 60% of respondents rated this factor highly important or important. The primary theme in the

responses was about the importance of being known and knowing people. This reflected their enjoyment, and that of their families, of belonging or being part of a community.

> *Yeah, I mean, people are generally friendlier and, I mean, some people mightn't like it but I don't mind going down the road and seeing half a dozen different patients that will say g'day to you, sort of thing. I'm familiar with the situation the patients are living in, which helps my work, and I feel connected to the community, I guess. GP29.*

> *Certainly, I mean, for everyone but particularly for women, friends and social network and community is extremely important. I think men need jobs and a supportive wife. Women need friends, community, that connectedness..... I think that's more important than the job. GP1.*

This was, however, not a universal experience, with three participants keen to note the downside of lack of anonymity. In addition, another two participants were keen to note that it was not a function of the community but the individual themselves:

> *I mean, I've got very involved because I've been president of the P&C and president of ... still am president of the school council and all that stuff. But I don't know that that keeps me here. You know, and coach soccer and coach this and coach that but I'd do that wherever I was anyway. GP38.*

> *It's the personal touch, yeah. It's the being involved in everything. You know, you want your local school to be better, fine, you go and join and do something about it. GP22.*

Cultural, community, sporting and shopping facilities

Cultural and community, sporting and shopping facilities were more highly rated in their importance to retention than at recruitment. Cultural and community facilities had a mean ranking of 3.1 (recruitment=2.8) and sporting and shopping had a ranking of 3 (recruitment=2.3). Indeed, 28 participants shared positive experiences of cultural and community facilities, sporting and shopping facilities and family related local amenities. These encapsulated the advantages of the 'rural lifestyle' with easy transport, reasonable opportunities and often space and possibly more time.

> *The facilities, that you can have a big Bunnings. It's true. You've got your nice supermarket. You can get everything you need. GP50.*

It has cinemas. It has a theatre. It has music stuff, if we want to go to it and we do go to it from time to time. It has more than enough places to eat. And it has the shops that we need. I mean, I'm not trying to buy rare artworks. I'm not trying to buy exquisite antique furniture. It's got what I need. GP61.

For some respondents, however, there were some negative aspects to their regional centres in term of facilities. For example:

The cultural and community opportunities are not so good here so we must go to Sydney to take part in family and other important things. Now my son is there also we must go quite often. GP54.

Employment opportunities for partners

Employment opportunities for partners rated 2.7 with 43% of participants rating it as least important. This was similar to the rating of 2.6 at recruitment. The decision to stay suggests some equilibrium had been reached in order to provide both professional and personal (family) satisfaction. The variables of gender and age are further explored in Table 6.15.

Educational facilities for children had a mean ranking of 2.6. Nearly 50% of GPs described educational opportunities as least important. Thematic analysis suggested divergence in the experience and importance of educational facilities. Seven GPs specifically commented that they were happy about the primary and secondary school education options available.

There are good schools, no complaints. GP38.

However eight GPs noted the lack of university opportunities in their regional centre and the need for their children to move away to pursue further education and job opportunities.

Lack of a university would be certainly one aspect. GP4.

6.5.3 Location factors in retention

All location factors became more important to participants as they considered retention. Mean rankings for the three factors in Table 6.14 were 3.3, 3.3 and 3.0. Access to a capital city and environmental attributes were rated highest, followed by

climate. These high rankings suggest a level of importance behind only workplace variety and culture and sense of community at the time of retention.

Table 6.14: Location factors in retention

Locational Factors	Rank 5 %	Rank 4 %	Rank 3 %	Rank 2 %	Rank 1 %	Total (n=*)	Mean rank
Access to capital city	30.3	21.2	18.2	10.6	19.7	100(66)	3.3
Environmental attributes	30.3	24.3	12.1	12.1	21.2	100(66)	3.3
Climate	13.6	28.9	22.7	13.6	21.2	100(66)	3.0

Note: Rank 5 highest importance; Rank 1 least importance.

All listed factors noted in location became more important in discussion of retention compared to recruitment. Access to capital city became more important as a factor in retention with the mean ranking increasing from 2.6 to 3.3 compared with recruitment. Similarly, environmental attributes with a mean ranking of 2.9 for recruitment was rated more important at 3.3 for retention. Climate which was ranked at 2.9 for recruitment was little different being ranked at 3.0 for retention.

> *Just the beauty of it, just being ... just beautiful having the beach right there and no crowds and, yeah, just lovely outdoors. It's a great place to live. Yeah, and for outdoors and for kids to grow up. It's just perfect. GP2.*

6.5.4 Retention differences

As with the Table 6.10 on recruitment, respondents were further divided by age, gender, country of initial graduation and age to review differences in retention rankings. Mean rankings were then calculated and are presented for comparison. Where differences were seen they were tested for statistical significance using the Mann-Whitney test.

Table 6.15: Differences in retention rankings

		Work location		Gender		Primary medical degree country		Age group	
Professional Factors	Mean rank GPs	Coastal N=25	Inland N=41	Female N=33	Male N=33	Aus Degree N=49	OS Degree N=17	Age <45 N=21	Age ≥45 N=45
Workplace culture	3.8	4.0	3.7	3.8	3.8	4.0	3.4	3.6	3.9
Variety of work	3.6	4.3	3.4	4.0	3.3	3.9	3.0	3.8	3.6
Workload in hours	3.1	3.2	3.1	3.0	3.3	3.2	2.9	3.2	3.1
After hours inclusive of on-call	2.7	2.6	2.7	2.3	3.0	2.7	2.6	2.4	2.8
Level of remuneration	2.4	2.1	2.5	2.2	2.5	2.2	2.9	2.4	2.3
Access to other diagnostics	2.2	1.6	2.6	2.3	2.1	2.2	2.5	2.2	2.2
Access to career path	1.8	1.7	1.9	2.0	1.7	1.9	1.6	1.7	1.9
Capital funding	1.8	1.6	1.9	1.8	1.8	1.6	2.1	1.7	1.8
Access to CPD	1.6	1.4	1.8	1.7	1.6	1.6	1.9	1.3	1.8
Social Factors									
Sense of community	3.5	3.5	3.6	3.8	3.3	3.8	2.9 p=0.03	3.7	3.5
Cultural & community factors	3.1	3.2	3.0	3.3	2.8	3.1	2.9	3.0	3.1
Sporting & shopping factors	3.0	2.8	3.1	3.1	2.9	3.0	2.8	2.9	3.1
Employment opportunities for partner	2.7	2.1	3.0	3.6	1.0 p<0.001	2.8	2.2	3.0	2.5

Table 6.15: Differences in retention rankings (contd.)

		Work location		Gender		Primary medical degree country		Age group	
	Mean rank GPs	Coastal N=25	Inland N=41	Female N=33	Male N=33	Aus Degree N=49	OS Degree N=17	Age <45 N=21	Age ≥45 N=45
Educational facilities	2.6	2.6	2.6	2.9	2.3	2.5	2.8	3.6	2.0 p=0.003
Locational Factors									
Access to capital city	3.3	3.9	3.0 p=0.04	3.5	3.2	3.4	3.1	2.9	3.5
Environmental attributes	3.3	4.4	2.6 p<0.001	3.3	3.3	3.7	2.2 p<0.001	3.1	3.4
Climate	3.0	3.7	2.6 p<0.002	3.1	2.9	3.1	2.6	2.9	3.0

Considering professional factors first, workplace culture and work variety had universally high rankings. There were no statistically significant differences between the subgroups in relation to professional factors. Remuneration was rated more highly by internationally trained graduates (2.9) compared to Australian-trained graduates (2.2). Remuneration and capital incentives showed few other differences between the subgroups.

Males had a higher rating for after-hour's workload, ranking it at 3 compared to 2.3 for females. This was somewhat surprising but not statistically significant. Access to other medical facilities was more highly ranked than by those on the coast or those living inland. Whilst this result was not statistically significant, it was a difference in ranking of 1.6 (coastal) and 2.6 (inland).

Looking at social factors, 'sense of community' was the most highly rated personal factor. It was rated more highly by Australian-trained graduates compared to their international counterparts. IMGs rated sense of community with a mean ranking of 2.9 whereas Australian-trained graduates regarded it as more important with a ranking of

3.8 (p=0.03). The higher rating by Australian-trained graduates equated with location and work variety and workplace culture in terms of importance.

When gender was considered, females ranked employment opportunities for a partner higher than males with a mean ranking of 3.6 for females and a lower rating of 1.8 for males. This is a similar pattern to the pattern seen at GP recruitment. This result reached statistical significance (p<0.001).

> *Spousal employment is now a major driver. This is complemented by a good quality of life and professional opportunities living in a regional centre. The other advantage is now that as a senior practitioner there are other opportunities and ways to contribute. GP2.*

Also looking at spousal employment, IMGs rated employment opportunities for partners more highly than their Australian counterparts, with a difference in rating between 2.8 for IMGs to 2.0 for Australian-trained graduates. Unsurprisingly, older practitioners (those 45 years and over) ranked the importance of educational facilities for children as less important than their younger colleagues (see Figure 6.4).The mean ranking for those who were under the age of 45 was 3.6 suggesting high importance for those GPs. This result was also statistically significant (p=0.003).

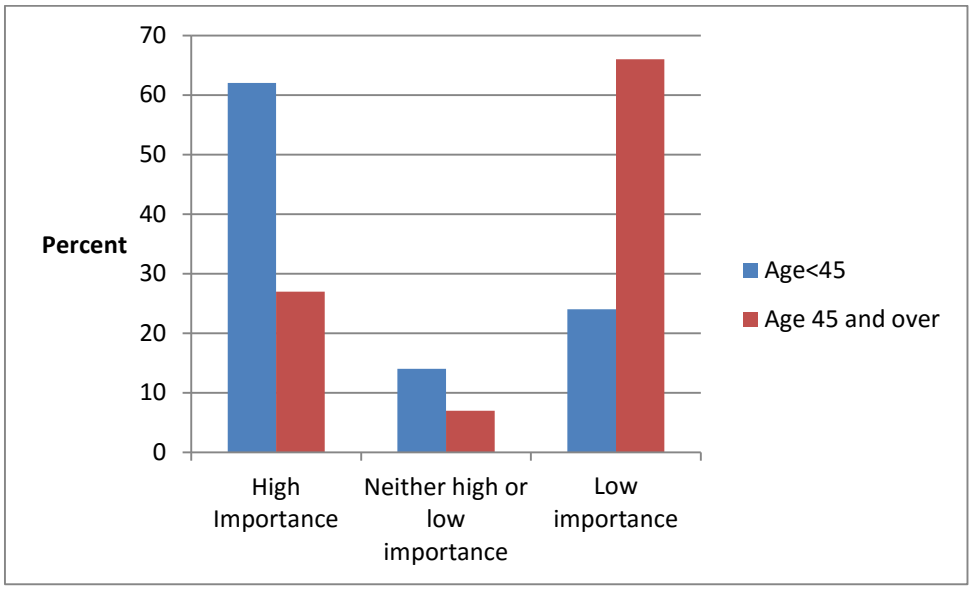

Figure 6.4: Educational facilities for children (importance by age)

Location appears important in terms of retention as well as recruitment. Possible differences in retention factors based on location were explored in a number of ways. Firstly, looking at attractiveness of locations as places to live, 76% of coastal residents preferred their current coastal location as a place to live compared to an inland location. As noted in Table 6.16, of those who lived inland, only 27% preferred their inland location whereas two-thirds were undecided about whether their current inland location or other inland locations were attractive as a place to live.

Table 6.16: Attractiveness of current location *vs* inland centre

	Attractive	Neither attractive nor unattractive	Unattractive
Current location inland (n=41)	11 (27%)	27 (66%)	3 (7%)
Current location coastal (n=24)	19 (76%)	5 (24%)	0

When respondents were asked whether a coastal regional centre was more attractive as a place to live than their current location, the results were complex (Table 6.17). In terms of locations to live, inland residents had a much higher degree of ambivalence about the attractiveness of their location as a place to live. For those working inland 29% were not attracted to their current centre and would have preferred to be at the coast, with 32% neutral and only 39% confident about the greater attractiveness of their current location. By contrast, 61% of those currently resident in a coastal regional centre considered it the most attractive place to be, with 40% looking at the more generic attractiveness of coastal centres. No coastal residents found their living environment unattractive.

Table 6.17: Attractiveness of current location *vs* coastal regional centre

	Attractive	Neither attractive nor unattractive	Unattractive
Current location inland (n=41)	16 (39%)	13 (32%)	12 (29%)
Current location coastal (n=24)	14 (61%)	9 (39%)	0

Finally, important differences can be seen in inland and coastal participants with regard to the importance of all three locational factors in retention (Table 6.15). Coastal participants had higher ratings for all three locational factors, and for coastal participants environmental attributes were as important as workplace culture and variety. Access to a capital city varied between 3.9 in coastal areas and 3 in inland areas (p=.04). Environmental attributes rated higher than any other factor for coastal participants at 4.4 compared to 2.6 for those inland (p≤0.001). The mean rankings of climate varied from 3.7 at the coast to 2.6 inland (p=.02). This result was also statistically significant. Inland participants were silent on the environmental attributes that kept them inland and often negative about climate.

> *Just the beauty of it, just being … just beautiful having the beach right there and no crowds and, yeah, just lovely outdoors. It's a great place to live. Yeah, and for outdoors and for kids to grow up. It's just perfect. GP27.*

6.6 Discussion of key issues in retention

Retention factors were articulated by many participants as a balancing act. In fact, the seesaw or tipping balance analogy, which has been used by other authors to describe retention, was affirmed (Hays et al., 2008; McDonald et al., 2002). In fact, many GP participants were able to speculate on their 'tipping points', considering the sentinel factors they would consider if they were to change their location rather than continue in their current regional centre.

The most highly rated factor across the 66 participants was workplace culture followed by work variety – both professional factors. However, for coastal participants

environmental attributes and access to a capital city were even more important than professional factors in terms of their decision-making about retention. Another difference from the recruitment scenario was the higher rating and likely importance of social and locational factors in their thinking about retention.

For those GPs who had been resident in regional centres for ten years or more, changes in the scope of their practice had been sizeable, with procedural and hospital access no longer a feature. Interestingly, overall GP professional satisfaction was high (82%) with high ratings for work variety and workplace culture. Evidence on VMO status noted from the NSWRDN data in Chapter 3, and affirmed by the participants in this study, shows reducing participation in VMO activities in regional centres. Work variety has been an important characteristic of regional centre and rural GP practice previously, but this new evidence from VMO and on-call participation would suggest that this role providing comprehensive continuity of care into the hospital and the residential aged care setting may indeed be waning. The tendency towards subspecialisation in GP practice can be seen in this study, with GPs relishing niche areas like skin cancer surgery and women's health in regional centres. This also means that GPs in regional centres have high levels of choice and autonomy, both in the number of hours that they choose to practice and also in the style and content of practice. This flexibility is not available in smaller locations. Flexibility and clinical autonomy were both highlighted by regional GPs as central elements to professional satisfaction. This study's high ratings for professional satisfaction accords with the high levels of professional satisfaction seen in regional centres in existing literature (McGrail et al., 2010b).

Workplace culture was also highly rated by GPs in terms of retention. They described the collegiality they felt with their GP colleagues and with regional specialists in their location. In the main, they described control over their workplace culture with autonomy and flexibility being both important and attainable. GPs are in essence more mobile than their specialist colleagues, and able to move either more rurally or to a major city. Their specialist counterparts have a much longer lead time to change practice location, and also the need to interact with hospital management.

Kamien (1998) describes a triad of components for professional satisfaction for rural GPs: workplace variety, clinical autonomy and the third ingredient, which was the importance of feeling like doing a worthwhile job. Kamien's triad was certainly reflected in the GPs' responses on professional satisfaction.

Financial remuneration and incentives have been considered an important policy lever in recruitment and retention for rural GPs. Data from rural cohorts have substantiated that its importance compared to other factors is not clear (Humphreys, Jones, et al., 2002; Jones et al., 2004). There has also been the question about whether varying earnings can compensate for the relative advantage or disadvantage and size of rural locations (Joyce et al., 2010). In this study the relatively unimportant rating of remuneration is food for thought, although it was more important to IMGs. Interestingly, the MABEL study suggested that those who completed their medical degree overseas earn 7.1% more than their Australian counterparts (Cheng et al., 2012).

Whilst remuneration is self-reported data and it is not possible to independently verify earnings of GPs, the low rating suggests that income is not the same driver to recruitment and retention as in more rural locations, and may support the higher ranking of other factors in regional centres. Again, evidence from the MABEL studies suggests that GP incomes are 11.6% higher with a work location in outer regional or remote areas, although the respondents in this study described higher differentials, suggesting up to a reduction of 50% of earnings when no hospital work was involved, in smaller communities.

Confounding this was the mixed billing arrangements and the likely variation of earnings between individual GPs. whilst there were totally bulk-billing practices in all four centres, there were also many practices with mixed billings, often with different arrangements for pensioners, healthcare card holders and those with chronic disease. In addition, the number of socially disadvantaged patients varied in different locations and practices. There is a consistent trend demonstrating higher rates of poverty and social disadvantage in non-metropolitan areas (National Rural Health Alliance & Austalian Council of Social Services, 2013; Australian Bureau of Statistics, 2011).

Financial incentives have included the MBS Strengthening Medicare initiative that commenced in 2006 in RRMA3-7 (Medicare Australia, 2004), which allows for a small government co-payment for bulk-billed services. In addition, rural retention incentives were extended to practitioners resident in RA2-5 in 2011. GPs were unfamiliar with their eligibility for this rural retention incentive at the time of the study and there was no evidence that this payment was impacting on practitioner's perceptions of retention. This is consistent with results from Scott et al. (2013) showing that 65% of Australian GPs would not move from their current location even if offered more money and that income had to be 37% greater to influence GP workforce mobility to an inland location between 5–20,000, and 68% more to a rural town with a population < 5000. Recent work from Kecmanovic & Hall (2015) reported that whilst more rural than urban GPs reported claiming incentive payments, there was little impact on GP earnings of incentive-based income.

Finally, the issue of capital infrastructure support was also vexed, with a very low rating of importance in the study. One GP successfully applied for a rural infrastructure grant of $500,000. Three others had applied unsuccessfully. GP super clinic contracts were let at the time of the study in both Port Macquarie and Coffs Harbour, with private contractors winning both tenders. Additional increased GP capacity was being developed by existing practitioners, three of whom were unable to win any capital support, and yet the absence of government support had not changed their building plans. GPs who were not practice owners were certainly not interested in infrastructure support. This is consistent with evidence from older studies of rural locations suggesting practice owners had higher ratings for remuneration than non-practice owners (J. Jones et al., 2004).

Access to a career path was not considered important by participants. This may have been because of the opportunities for niche roles that would have been specialist services in metropolitan areas existed in regional centres. Alternatively, GPs were not looking for a career path separate to the one they had in delivering general practitioner services. Niche areas were certainly available in all regional centres. These options also allowed GPs to practice with high levels of work variety. The advent of Rural Clinical Schools in all four locations provided opportunity for teaching and research. GPs from

all four locations were involved in teaching students and GP registrars. Access to CPD was not considered important in retention and points out a difference between rural and regional centre practice. The numbers of GPs who practise in regional centres mean that the Divisions of General Practice and now Medicare Locals/Primary Health Networks have been committed over the last fifteen years to providing local educational opportunities for GPs. No GP would have to leave a regional centre to access general practice education accredited for registration requirements. This would not be achievable in smaller centres.

For GPs, professional factors were rated by study participants as more important than social or locational attributes. This suggests that access to a job and thence ongoing professional satisfaction are both key to recruitment and subsequent retention in regional centres. This does not understate the importance of social and locational attributes, it merely underlines the importance of professional factors, which are often modifiable in the retention equation.

Personal and social factors had higher ratings in retention compared to recruitment. This could point to an alteration in emphasis on the balance of factors important when 'maintenance' in a community is being considered. Evidence and observation about the importance of 'belonging and being installed in the community' has been identified in rural communities (Cutchin, 1997b; Hancock et al., 2009). The sense of belonging or 'sense of community' in regional centres is less well understood. In this study, the mean ranking of 'sense of community' was relatively high, commensurate with highly rated professional factors.

Those who had lived in rural towns previously liked the greater size of regional centres. In rural Canada, significant levels of interpersonal stress were noted by practitioners working in rural towns emanating from community attachments with blurred boundaries (Gillespie & Redivo, 2012). In a larger community, such as a regional centre, there is potentially more anonymity and yet opportunities for community engagement and participation.

GPs rated sense of community as important third only to work variety and workplace culture. This important sense of belonging as articulated by McMillan and Chavis

(1986) was expressed by participants with the emphasis on the sense of belonging and capacity to influence their own local environment. McMillan and Chavis describe four elements of 'sense of community' – those of membership, influence, integration and shared emotional connection (McMillan & Chavis, 1986). These facets of 'community' were certainly heard in this study. There was articulation of the importance of feeling part of something and wanting this belonging for one's self and also for family. A number of participants contrasted metropolitan centres with regional centres and rural locations suggesting that the anonymity and lack of personalisation of large population centres was a drawback. However, there were also participants who talked about being connected wherever they were, suggesting it wasn't about community size, but more about personal attitude (Laurence et al., 2010). The facets of community for those residing in regional centres appeared to be a balance between involvement and profile within the 'community' and 'anonymity' on other occasions.

Spousal employment as a retention factor showed similar trends to those seen in recruitment. Women rated this factor higher than men .Women in fact rated it 3.8 – one of the highest ratings, with men rating it much lower with 1.6. These rankings suggest differences in the work-life balance factors between genders. This will be reviewed later in Section 6.7.2.

The availability of sporting, community and educational facilities remained of concern to many respondents. Whilst educational facilities were more highly rated by younger participants, the balance between providing adequate facilities for most recreational needs, with the inability to support the elite, was well understood by many GP respondents. Some GPs had chosen to send their children away to school, with others being happy with the educational opportunities available locally. Schooling was not described by any GP as a tipping point; however, the movement of family or the needs of aging parents were definitely seen as key drivers to leave:

> *We are staying because of the good schools and being close to family. I am not unhappy in my work now that I have got it a bit sorted. It took 3 moves to find the right spot. GP2.*

Location was a strong factor in retention. Overall rankings for the three attributes of climate, access to capital cities and environmental attributes were higher at retention than recruitment. The results also show key differences in priorities between coastal and inland participant GPs, with coastal GPs preferring their location strongly over other coastal (and inland) locations as places to live.

Coastal GPs rated climate and environmental attributes higher than any other factor for recruitment. They were notably higher than any professional factor including work variety. Thus, recruitment and subsequent retention to a coastal location may be an unmodifiable key recruitment and retention factor. Many coastal participants described a long held expectation that they would locate to and be retained in a coastal location. Not only was the ranking of environmental attributes greater than any other factors, but there was also evidence of a strong attachment to the specific place they were living.

The implication of this is that whilst work factors are important, as is a positive work environment, there is a group of Australian-trained graduates who will not consider non-coastal options. The same high ratings were seen from coastal dwellers for climate and access to capital cities. Access to capital cities was highly rated by coastal participants and those > 45 years. Climate was also highly valued by coastal participants. The significant difference seen on these three aspects of location suggest an inherent extra agenda for recruitment and retention (Kijas, 2002; Salt, 2001). The coast, with its physical beauty, temperate climate (in NSW) and good access to capital cities (with up to ten flights a day from the two coastal regional centres studied) is certainly the locational choice of an increasing number of Australians, with coastal population growth on the south-east coast of Australia prominent in the ABS projections (Australian Bureau of Statistics, 2012). Unclear from these results is whether the length of stay in regional centres is longer in coastal locations. This would be a reasonable expectation given the 'rusted on' nature of participant's responses, suggesting that the coastal lifestyle was highly satisfying.

The importance of location factors and the concept of discounting against income and professional factors is consistent with Bolduc et al.'s (1996) theory of utility. In

addition, Grytten et al. (2000) also highlighted the importance of leisure and lifestyle for younger practitioners. The extent to which this decision-making could impact on inland workforce numbers and the potential for it be more important than professional factors like remuneration is important to consider. Recent work with discrete choice experiments looked at rural towns with fewer facilities and longer work hours than is required in most regional centres. In towns of 5–20,000, remuneration of an extra 37% was required to compensate (Scott et al., 2013). Perhaps of greater concern is that 65% of respondents had no interest in changing location no matter what the financial inducement. Location therefore appeared to affect responses on mean rankings for environmental attributes, access to a capital city and climate with a strong sense of place or attachment to coastal locations in evidence.

6.7 Considerations of international medical graduates, age and gender

6.7.1 International medical graduates

IMGs made up 26% of the cohort of GPs, with a slightly higher average age but similar gender mix to the Australian-trained graduates in the study. GPs who were IMGs could be considered in one of three categories:

1. Those who had chosen general practice (rural pathway) and had fulfilled college requirements and had unrestricted registration.

2. Those who were practising in a district of workforce shortage (DWS) but were unable to practise in any other location. These GPs were, in fact, currently obligated to work in a regional centre and had restricted registration.

3. Those who were partners (often of specialists) who elected to undertake pathways 1 or 2 but were choosing to live in a particular regional centre due to social reasons, namely spousal employment.

Interestingly, overall in this study, there is little variation between the rankings of IMGs and Australian-trained graduates. This may reflect the small numbers of obligated practitioners and the majority who now had choice in their location. Given

there are three subgroups of IMGs, with three potentially different perspectives, it is important not to overstate the following non-statistically significant findings. In terms of professional factors at recruitment, variety of work and anticipated hours were less important to IMGs than to Australian-trained graduates. Financial incentives and remuneration were more important to IMGs, but all ratings were lower than 3. This is consistent with the fact that GPs in this group did not always have free choice over practice location. In terms of retention, all professional factors rated higher, similar to Australian-trained graduates. Workplace culture and variety of work both seemed less important to IMGs, with level of remuneration rating higher. Other professional factors such as access to a career path and CPD were similar.

If IMGs are going to forgo proximity to family and established cultural and community facilities, then it would be expected that professional factors like remuneration would be rated higher, as indeed they were. For those who did not have a choice about where they practised (if they were to obtain registration), the level of professional satisfaction was indeed lower, consistent with the lack of choice around both the type of work and also the location. This equates with evidence from Russell et al. (2012a) where those IMG rural GPs who commenced practice with restrictions on their registration had a 52% shorter retention than those with no restrictions on their registration. This was echoed by a group of GPs in one regional centre in this study who felt that the regional centre did not meet their family and social needs and chose to practice in a fly-in fly-out capacity. These GPs resented the fact that they were unable to practice in metropolitan areas, as they saw it 'on the basis of their passport'. It is very unlikely that these practitioners would have considered rural or regional employment if they had the capacity to work in metropolitan areas. Retention of these GPs in regional centres will be unlikely, given their negative experiences and perceived losses in coming to a regional area. Similar sentiments are seen with the IMG GPs ranking 'sense of community' as of lesser importance than Australian-trained medical graduates, and is consistent with the reality where those who provide obligated service would not normally have high levels of community connection with others at recruitment. A similarly mixed picture is seen in the existing literature, with lower levels of both professional and non-professional satisfaction noted and experiences of racism and

isolation by some practitioners and warm community welcomes by others (Han & Humphreys, 2005; McGrail,et al, 2012a). The larger population size of regional centres and the greater anonymity may make them places that are more congenial for IMGs who are part of cultural minorities.

Finally, and consistent with restrictions on choice, IMGs were less interested in the environmental attributes of regional centres but not dissimilar in their rankings in access to a capital city and climate. This is consistent with professional factors, essentially access to a job being a primary driver with the necessary adjustment required to personal and locational preferences. The potential implications for the retention of obligated personnel is worth reviewing here. The recent Mason view of Rural Health Workforce suggests that not all those who have taken up the opportunities to be paid during their training or become bonded (and not be paid) are likely to complete their return of service obligations. In fact, projections vary on the likelihood of this outcome (Deloitte Access Economics, 2011; Mason, 2013). Recruitment for this group will be primarily be driven by obligation. Having been recruited, it would seem that the sense of community generated, the access to spousal employment opportunities and the strength of coastal affinity and the balance between professional and social factors will be the salient influences in determining the conversion rates of those obligated to commence work in an area into those who choose to be retained.

6.7.2 Age and gender

Another crucial lens through which to review these results is that of age and life stage, which may have an impact on recruitment and retention preferences. The average age of GPs in this study was 50, with males being older (53) than females (47), consistent with the national picture (Australian Institute of Health and Welfare, 2014b). Given the GP workforce is currently characterised by men > 50 working mostly full-time hours and a younger cohort of women working fewer hours, it is likely their recruitment and retention preferences would be different (Schofield et al., 2006). There was a notable age differential in those involved in after-hours and VMO roles in regional centres. Younger practitioners did not appear to have the same out of surgery

involvement characterised by on-call and hospital affiliation as their older counterparts, with only 28% of those < 45 currently being VMOs. Eighty-two per cent of those ≥ 45 described on-call roles compared to 57% of those < 45 years. It is important to consider how this reduction in on-call and reduced hospital involvement may lead to possibly less continuity of care. Older practitioners in this study were more likely to have long lengths of stay, with one-third of all practitioners having been resident in their regional centres for more than twenty years. Their preferences in social and locational factors show less interest in proximity to family at recruitment and less interest in educational facilities in retention. The wide age range and likely generational workforce change in the participants in this study point to a similar change in the composition and hours as can be seen nationally in the GP workforce, with increasing numbers of younger females and potentially, changing hours and professional and personal expectations.

Women comprised around 51.8% of those < 35 in the national workforce and around 45% of domestic medical students in 2011 (Australian Government Department of Health 2013). As has been described previously, the gender balance in the GP workforce has continued to change. The flexible GP training programme coupled with the capacity for part-time work has meant that there are large percentages of female GPs entering the workforce. In this study, 62% of those < 45 were women compared with 44 % ≥ 45 years. The workforce data in Chapter 3 also points to an increasing level of participation of females in the rural and regional medical workforce.

Respondents in this study had similar rankings on professional factors regardless of gender. Specifically, little difference was seen in terms of variety of work, workplace culture and level of remuneration. However, one surprising finding was the higher rating of males on after-hour's workload in both recruitment and retention. This result was more notable at the time of retention. The reverse might have been expected, with women who have childcare responsibilities rating after-hour's workload as more important. If the explanation was related to the younger practitioners rating it more highly (both male and female), it would have been seen in the age rankings. This was not so.

There is increasing evidence that early career physicians place greater emphasis on work-life balance than previously (Ellsbury et al., 2002; Mathews et al., 2012). The increasing number of university-qualified citizens is also fuelling the dual career couple as the new generational social norm (Costa & Kahn, 2000). Forty-two per cent of female GPs compared with 29% of male GPs are married to other doctors, and the majority retain childcare responsibilities that limit their workforce participation (Schofield et al., 2006). This was also evident in this study with many dual medical career doctor couples.

Mean rankings looking at spousal employment opportunities for recruitment and retention for GPs were similar with ratings around 3, suggesting that it was not as important as work variety and culture but higher than most other factors. Of particular interest was a much higher rating when gender was taken into account. Female GPs rated it as more important than their male counterparts. This is not unexpected. The combination of this quest for better work-life balance and the need for dual career options is problematic when faced with the more limited opportunities on offer in regional centres. This study notes female practitioners rating spousal employment higher than males and points to the likelihood of females prioritising decisions about recruitment and retention taking into account partner employment options at a greater rate. This is consistent with a study of American rural female physicians who rated spousal employment opportunities and flexible scheduling as the two major recruitment factors (Ellsbury et al., 2002). With increasing feminisation of both the GP and the specialist workforce there is need to consider supporting the whole family, especially given the limited range and type of jobs available limited compared to metropolitan areas. The importance of spousal employment and the individual balance for practitioners between their responsibilities to others and their own work-life balance cannot be overstated (Mathews et al., 2012). Many of the female GP participants in this study were clear that spousal employment and happiness was absolutely pivotal in terms of their decision to stay in their regional centre.

> *Look, I guess my retention factors have a lot to do with factors outside my employment because of my family commitment, really, and my husband's. So that if*

he had decided he wanted to go somewhere else, we would have gone. And probably, if I really hated it, hated it here, we would have gone. GP39.

Given the more limited work opportunities for spouses in regional centres in areas other than medicine, and the changing balance between couples and work, there are obviously more constraints on employment of non-medical spouses that could be targeted by a community-based taskforce. Also notable is the focus by women on the importance of social connection and how the sustained nature of community relationships is actually important to them in retention. This is consistent with the existing evidence on work-life balance, suggesting that women working fewer hours who had time for leisure and community activity described greater satisfaction and a better work-life balance (Shrestha and Joyce, 2011). Swedish evidence suggested that whilst men and women had similar aspirations for work-life balance, women were much more likely to work part-time hours (Diderichsen et al, 2013). There was also the suggestion that increasing flexibility focusing on individual balancing between work and home domains is likely to be a more helpful approach to recruitment rather than the more generic approach taken in the past (Heiligers and Hingstman, 2000; Shrestha and Joyce, 2011).

In this study, the tipping points for GPs leaving regional centres revolved around the shortcomings of regional centre living rather than working. These are constantly reappraised and balanced up (Hancock et al., 2009). This differs from more rural locations where the tipping points often revolve around workload, after-hours and professional isolation, in addition to the lack of opportunities for spouses and family (Kamien, 1998; McDonald et al., 2002). As has been reviewed, issues of spousal employment opportunities, educational facilities and cultural opportunities with access to children and aging parents often provided the final factor. Few discussed leaving due to career path progression or for professional reasons.

With the increasing number of women in the workforce, it is likely the importance of family factors will continue to impact on decision-making about the length of stay. Where previously these decisions were the premise of the historically male practitioner, there is evidence of increased participatory decision-making, with dual

careers to be considered and greater sensitivity to non-professional factors. This will be further evaluated in Chapter 7, where specialist gender issues are further discussed.

6.8 Conclusion

GPs interviewed have given us a rich information source on which to reflect. Indeed, the contextual lens of living and working in a regional centre points to key professional, social and locational factors in both recruitment and retention. Most importantly, those who lived in coastal locations rated the locational aspects of environmental attributes and climate as the most important factors in both recruitment and retention. This causes us to conclude that there is a differing set of priorities for those who choose to locate to the coast rather than inland. Other key findings include the importance for GPs of work variety and scope of practice and the relative lack of importance of remuneration.

Generally, Australian-trained general practitioners in regional centres have more choices than their specialist counterparts with respect to possible work locations across the settlement continum. Potential work locations range from small rural towns, regional centres, as well as within metropolitan areas. Hence they have opportunities for greater mobility than specialists, with opportunities ranging from rural general practice with an enhanced scope of practice, to regional and metropolitan practice where there is a greater supply of specialists and thus a somewhat reduced scope of practice. IMG GPs whose qualifications are not recognised in Australia, however, do not have the same freedom in terms of their practice location. As outlined in Chapter 3, this group is mandated to work for at least five years in areas of need or workforce shortage and perhaps should be considered as having overlapping but slightly different views of recruitment and retention factors in regional centre. Similarly, age and importantly gender have had differential impact on, in particular, social and some professional factors.

Consistent with the third objective to identify issues important to medical workforce in regional centres, detailed understanding of the these factors as they relate to GPs described in this chapter requires similar exploration as they relate to regional centre

specialists. In Chapter 7, the available data from specialists for the same four regional centres is reported and the professional, social and locational factors they describe and rate are presented and then discussed. The commonality of the context of regional centres is reviewed in light of the unique set of professional factors that specialists must manage. In Chapter 8, the results of this study are used to develop a recruitment and retention framework with the corroboration of evidence from the two key workforces providing the basis for a discussion of evidence-informed policy responses that relate specifically to regional centres.

CHAPTER 7
UNDERSTANDING WORFORCE DECISION-MAKING FOR REGIONAL SPECIALISTS – RECRUITMENT AND RETENTION

7.1 Introduction

Delivering effective and adequate health care to regional and rural populations requires the recruitment and retention of appropriately trained medical specialists in addition to general practitioners. The increasing centralisation of services, including health care, in regional centres, as well as the popularity (by default or design) of the 'hub and spoke' model of medical care provision, underlines the importance of a heightened understanding of the decision making of both specialists and GPs about working in regional centres. Although there exists significant literature examining the predictors of recruitment of medical workforce to small rural centres (as outlined in Chapter 4), little is known of these in the context of specialists working in Australian regional centres. This chapter presents a comprehensive description of the key factors important in the decisions of a group of specialists to make the move to a regional centre and examines in detail their reasons for staying. As detailed in Chapter 5, data relating to professional and financial factors as well as personal and social considerations in recruitment were obtained from a survey of specialists conducted in the four regional centres of Dubbo, Tamworth, Port Macquarie and Coffs Harbour from July 2011 to June 2012. The survey and interview examined in detail the issues associated with their decision to stay in a regional location and their expectations and perceptions of practice and living in regional centres. Findings from the survey are presented and analysed where appropriate in conjunction with the rich interview data. Results are then discussed in terms of recruitment then in terms of retention to build a picture of the specific issues pertaining to specialist practice in these centres.

The chapter begins by reporting the characteristics of the cohort of specialists involved in the survey. The survey received a total of 62 responses from specialists resident in

the four study locations. The demographic profile of the respondents are outlined in Section 7.2, while sections 7.3 and 7.4 respectively present the results of the survey relating to recruitment with a discussion of the implications of these findings for regional centres. Factors associated with the retention of specialists in regional centres are then considered in Sections 7.4 and 7.6. Section 7.7 details the findings from, and implications of, the potential influence of age, gender, international medical graduate status and location (coastal and inland) on recruitment and retention of specialists in regional centres.

7.2 Characteristics of regional specialists

Sixty-two specialists out of a possible 174 (a response rate of 35.6%) participated from the four study centres (see Chapter 5, Table 5.3) with 33 from coastal locations and 29 from inland centres. Twenty-three per cent (n=14) of the specialist respondents were female (Table 7.1). This compares to the MABEL data from regional centres described in Chapter 3, which showed 18.2% of the RRMA3 specialist population were female compared to 29.2% female in metropolitan areas. The national picture shows 38.1% of those aged under 45 years are women, whilst only 14.6% of the ≥ 45 age group is female (Australian Institute of Health and Welfare, 2014b).

The average age of participants in this study was 49.8 years, with two-thirds of the respondents over the age of 45. International Medical Graduate participants had an average age of 50.5 years. The average age for ASGC (RA2) was 50.7 years with an average age of 49.9 in ASGC (RA1) (Australian Institute of Health and Welfare, 2014b).

Table 7.1: Specialists by age and sex

	< 45 years	≥ 45 years	Total n=
Female	38.1%	14.6%	23% (n=14)
Male	61.9%	85.4%	77% (n=48)
Total	100%	100%	100%
n =	21	41	62

Forty-five of the specialist participants were Australian trained with 17 having done their primary medical qualification overseas. Five per cent had restrictions on their practice. Almost 18% of all specialist practitioners attained their medical degree overseas (Australian Institute of Health and Welfare, 2014b). The gender breakdown was similar in both groups.

Table 7.2: Country of primary medical degree by gender

	Male	Female
Specialists who undertook primary medical training overseas (IMG (n=45)	80%	20%
Specialists who undertook Primary Medical training in Australia(n=17)	71%	29%
Total	100%	
N=62	48	14

Rural origin has been noted in Australia and overseas as a key predictor of subsequent rural practice for GPs and recently specialists (McGrail, Humphreys & Joyce, 2011a). Table 7.3 reports on whether specialist participants and their spouses had rural or metropolitan origin. One-third (15/45) of Australian-trained participants reported that they had spent their primary school years in a non-metropolitan centre. Whilst 24% spent their primary and secondary schooling outside metropolitan areas, more than 40% of the 42 who were partnered reported that their spouses had substantial (> 6 years) schooling in a non-metropolitan location. There was no difference in spousal or rural origin at inland or coastal locations. Similar results can be seen from the MABEL data reported in Chapter 3, with more than 40% of specialists describing some rural origin and 27% describing 12 years or greater rural schooling.

Table 7.3: Rural origin schooling and partner origin

	Primary school	Secondary school	> 12 yrs rural schooling	Partner rural origin
Rural	33%	24%	24%	41%
Metro	67%	76%	76%	59%
Total	100%	100%	100%	
N=	45	45	45	42

It should be noted that the majority of participants (67%) were of metropolitan origin. Worthy of consideration was that 8/17 (47%) of those under the age of 45 were of rural origin. When considering partner rural origin and practitioner origin combinations, the largest group were those who had non-rural origin and had partnered with non-rural spouses (50%). Rural spousal and rural origin couples comprised 21% of the Australian born participants. Of those who had metropolitan origin, 19% had a rural spouse and 10% of those who were rural origin had partnered with a metropolitan origin spouse.

Length of stay for respondent specialists in their current regional centre is shown in Figure 7.1. Consistent with the increase in the number of specialists in regional centres, the majority of specialists (59.7%) had been resident for less than ten years, although 17.7% (n=11) had resided in their city for more than twenty years. The mean length of stay in their current regional centre was twelve years, with a median stay of ten years. One specialist had been resident in his regional centre for 34 years. This is consistent with data sourced from the MABEL study detailing the characteristics of non-metropolitan specialists, which suggests a mean length of stay of 11.8 years (McGrail et al. 2014 unpublished data).

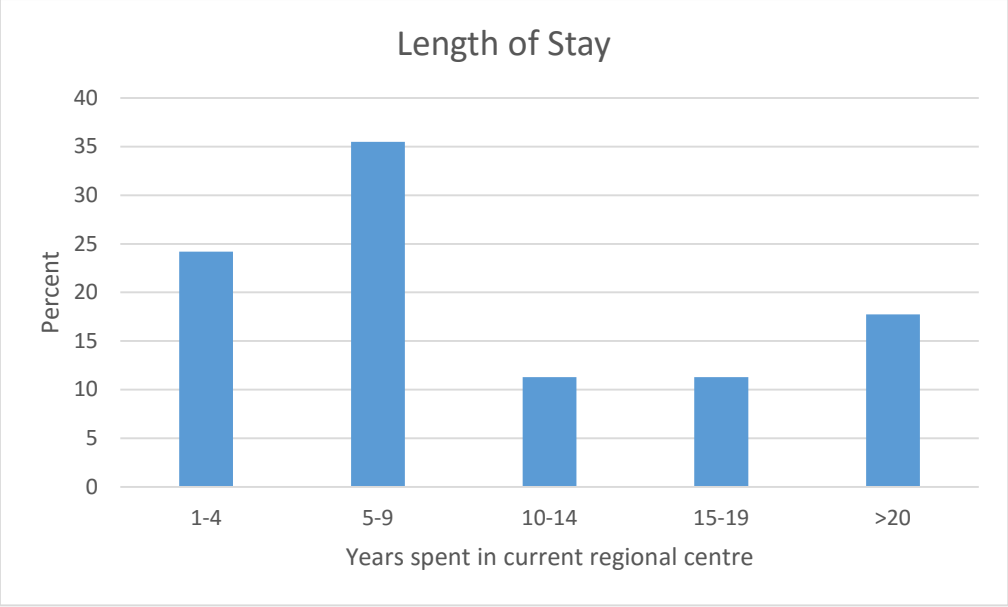

Figure 7.1: Specialist length of stay

Workload data collected from the survey suggests that 80% per cent of specialists were working full-time. This was described working eight clinical sessions or more a week, which would constitute at least a full-time equivalent workload. This is consistent with national data (Australian Institute of Health and Welfare, 2014b) suggesting those specialists in ASGC RA2 had lower rates of part-time work and higher work hours than their metropolitan ASGC RA1 colleagues.

Specialists were in practice in a range of specialities including Emergency Medicine, Anaesthetics, Surgery, Psychiatry, Obstetrics, and Internal Medicine. Ninety-three per cent had on-call responsibilities and only two clinicians did not have hospital appointments. No comparator of amount or type of on-call was measurable as there was considerable variation between call rosters and responsibilities to both private and public facilities. Two models of remuneration and practice predominated, with specialists having either a staff specialist appointment or VMO appointment. The VMO model of practice was more predominant at three of the four sites, with Dubbo being different with a higher proportion of staff specialists. This likely reflected some additional difficulty in attracting and retaining specialists.

7.3 Specialists and recruitment

Specialists recruited to regional centres must invariably relocate after completing postgraduate training. At the time this research was undertaken, no specialist training programme could be completed in its entirety in any regional centre in NSW. Registrar training positions were available for short-term placements in regional centres, with specialist training programmes requiring trainees to reside in metropolitan centres to complete training programmes. Thus, for those completing speciality training or already qualified as a specialist, the decision to relocate to a regional centre requires a physical relocation rather than simply finding a new work location within the metropolitan area of their current residence. These work location decisions by Australian-trained doctors and those IMGs with recognised qualifications are largely 'free' ones with no geographic provider restrictions. Overseas-trained medical graduates may apply to specific positions in regional centres and may be mandated to practice in 'areas of need' and/or 'districts of workforce shortage'. These decisions are constrained until they obtain qualifications recognised by Australian specialist colleges. Indeed, specialists are confronted by a wide range of choices about practice location, although this choice is constrained by the availability of infrastructure and hospital appointments. Key recruitment predictors noted in the literature include a range of professional, remuneration, personal and social as well as geographic factors (Kiroff, 1999; Meek et al., 2009; Simmons et al., 2002).

7.3.1 Professional factors in recruitment

The literature analysed in Chapter 4 identified several key professional and financial dimensions associated with recruitment decisions of medical professionals. These include variety of work, projected workload, level of remuneration and the availability of financial incentives. Participants in this study were asked to rank in order of importance a list of key factors. Table 7.4 shows the mean factor scores of responses to a five-category Likert scale question relating to five professional factors identified as important to recruitment. Thus, scores above 3 indicate that the statement was of above average importance across all respondents' decisions to move to a regional location in the first instance, and the converse is true for scores below 3.

Table 7.4: Importance of professional factors for recruitment

Professional Factor	Rank 5 %	Rank 4 %	Rank 3 %	Rank 2 %	Rank 1 %	Total (n =)*	Mean rank
Variety of work	69.4	19.4	3.2	4.8	3.2	100 (62)	4.5
Projected workload	14.1	24.2	19.4	19.4	22.6	100 (62)	2.9
Anticipated after-hours workload	9.8	24.6	26.2	18.0	21.4	100 (61)	2.8
Level of remuneration	21.0	14.5	16.1	9.7	38.7	100 (62)	2.7
Financial incentives	5.0	8.3	6.7	3.3	76.7	100 (60)	1.6

Note: Rank 5 highest importance; Rank 1 least importance.
* n = includes only valid responses

Almost 70% of respondents ranked variety of work as the most important factor in their decision to move to a regional centre. Scope of practice in regional areas is broader than that in major cities where subspecialty practice is the norm. Respondents were less definitive about the importance of projected workload, after-hours responsibility and remuneration, with 35–40% of respondents ranking these factors as important and a similar proportion rating them not important. Financial incentives were not important for most specialists, with nearly 80% stating they were least important in their decision-making.

Variety of work

Eighty-nine per cent of participants rated variety of work as highly important or important, and several respondents identified this factor in the semi-structured interview as of key importance in their decision to make the move to a regional centre. This can be seen in the high mean ranking of 4.5. It highlights a key difference between some types of metropolitan practice that are highly subspecialised and the breadth of less differentiated clinical presentations seen in a regional centre. Comments such as the two below affirmed work variety.

> *Yes, so I came up here to do a locum and really liked working here. Why did I like working here? I liked the variety of the patients. I liked the acuity of the patients. I*

liked the general environment, hospital environment, with which I could treat them. S17.

You'd have to be general with a subspecialty interest. You couldn't just do the subspecialty. S29.

Projected workload including anticipated after-hours and on-call

Survey participants were asked to consider and rank the importance of projected workload and anticipated after-hours workload at recruitment. These two factors were collectively ranked at 2.8 and 2.9 respectively in terms of their importance in influencing recruitment (see Table 7.4). It is important to note that projected in-hours workload may have been difficult to anticipate, particularly for newly accredited specialists and participants who were starting up as visiting medical officers. In the Australian context, when commencing practice in a new location specialists have to develop a referral base from general practitioners in order to see patients. Hospital work and patients referred through the acute hospital would no doubt commence immediately so those commencing as hospital-appointed staff specialists would have had a more predictable workload and expectations for in-hours care in terms of clinics and inpatients. One respondent, for example, noted that:

I think projected workload was probably least important, but I regret that. If I'd had my eyes open. S56.

When asked to elaborate on the important factors, projected workload at recruitment and after-hours load was discussed by only 13% of respondents (8/62). These specialists described an expectation of heavy workload related to relatively low specialist numbers, with three concerned about the level of on-call, and one anticipating and taking pre-emptive action to ensure at least the initial sustainability of his roster.

Although on-call responsibility differed between specialists, only four respondents were not involved in on-call rosters, and only two specialists were not involved with public hospital practice. Both those specialists were involved in on-call and public hospital practice when they commenced practice in their regional centre. As two respondents suggested:

So, that [anticipated on-call responsibilities] was very important to me. That's part of the reason being in medical speciality x is –that on-call is reasonable and I didn't want to go to a country town where I was one in one or one in two, so that was definitely a big part for me. S58.

Because I was the first consultant here one of my anxieties was about burn out. And I actually got into ... I actually made them write into my contract that I would not do more than one in four on-call. S31.

Level of remuneration and financial incentives

There are two main income streams available to specialists in Australia working with acute hospitals. The most common is income paid to specialists for procedures on patients undertaken in a hospital where the specialist is designated a VMO. Typically, VMOs also have private outpatient arrangements that are undertaken separately from the hospital. The alternative model is the staff specialist model where specialists are paid a salary as a full-time staff member at the regional hospital for providing medical care. This will typically include inpatient services, outpatient clinics and participation in the hospital after-hours roster.

Level of remuneration was not considered as important to their recruitment decisions for many specialists responding to the survey, with an aggregate ranking of 2.7 (Table 7.4). Indeed, almost 40% of all clinicians suggested that the level of remuneration was the least important factor of the five suggested in their decision to relocate to a regional centre. By contrast, one in five of those surveyed did consider that remuneration was the most important consideration in their decision to take up practice in a regional centre and for one clinician money was the sole factor in his initial recruitment (and subsequent retention).

No, I wouldn't have come or I wouldn't have stayed [if it weren't for the level of remuneration]. It's the only thing keeping me here. If that [the high remuneration] was to fall out tomorrow, I would leave. S53.

Two particular issues around remuneration were highlighted in the interviews. One related to an assumption that the money would be comparable to their city counterparts – although money might have not been the primary driver there were expectations of making a good income. The second was a focus on the logistics of

'starting up in practice'. Of particular focus to several participants was the process and financial implications of commencing practice in a regional centre. This particularly applied to those commencing as VMOs who needed to organise consulting rooms, staff and equipment. For example, almost 25% (15/62) of those specialists interviewed nominated start up support from private hospitals as important to their easy entry to regional practice. As one respondent noted:

> *I wasn't wondering if I was going to get the job. There was no big committee that had to get together and all this rigmarole that you go through generally with the public hospital system. He said, "Look, come along and start. I'm going to pay your rent for a year." X said he'd give me three months free because he owned the building. So I, for the first 15 months, paid no rent. And when you're starting and you had no money and you're not earning any money, it's an issue. You think, oh, I've got to buy a computer system and rent secretaries and nurses. S52.*

However for many specialists setting up in a regional area, the time necessary to develop a referral base, and therefore a viable business, was often shortened compared to their city counterparts. This reduced the level of financial risk.

> *Well, that's one thing I would say is the advantage of coming to the country. I basically had a full referral base within a month... it takes four or five years to start up in the city. Within a couple of months I've got full ... you know, I'm as full as I can be, basically. And so that's definitely a major advantage of coming to the country. S55.*

Financial incentives were given a low level of importance with a rating of 1.6. At the time of the fieldwork, there were no federal government financial incentives available to the participants; however, health services employing staff specialists provided incentives like relocation costs and subsidised housing negotiated on an individual basis, as did private hospitals, which sometimes offered subsidised consulting rooms.

Work opportunities and connections

A common theme for participants was that of a connection or awareness about the existence of a job opportunity or position. Separate to the five factors listed, 23/62 (37%) of participants nominated access to a job as the key recruitment factor. This knowledge of opportunities available often related to previous experience working in a regional centres and/or relationships with existing practitioners.

Yeah, and I'd been here as a resident. So I came here as an intern, so I knew what the other physicians were like and they were still here. It made it easier because you knew people. S28.

And part of those was job opportunities. But it was the fact that I asked here and Dr X originally said, "Oh, I don't know." And he came back to me and he said, "Look, we can make you a job. Doctor Y and I will give up operating time for you to stay." Far out, so that was pretty good. S36.

Indeed there was a lot of 'serendipity' described in the recruitment experience, as jobs were not always advertised or were available only in a short window of time when another practitioner was leaving or had left. Twenty participants (32%) also indicated that their choice of a regional location was related to their motivation (often since medical school) to make a difference to patients by using their skills in an underserved area.

And I don't want to look after the worried well. I did medicine to look after sick people....Yes, so one of my motivations is around the amount of pathology that's here, the amount of need. I did medicine to help people, not sort of just see people who were actually quite well every three months and bill them. S55.

7.3.2 Personal and social factors in recruitment

Personal and social factors have been highlighted in the rural medical workforce literature as key to both recruitment and retention. The factors identified in the literature related to practitioners' perceptions of community and cultural facilities, shopping and sporting facilities, proximity to family and opportunities for partner employment. Most of this evidence arises from that of rural GPs although there are some references to it in specialist literature (Bruening & Maddern, 1998; Rural Doctors Association of Australia, 2012b; Simmons et al., 2002).

In this study, none of the specified social factors suggested to participants rated highly in terms of explaining their initial decision to relocate to a regional centre. For example, employment opportunities for partners was rated at 2.7 with cultural and community factors also rating 2.5, sporting and shopping facilities at 2.2 and proximity of family 2.3 (see Table 7.5). None of these factors rated with importance higher than the mean (3).

Table 7.5: Mean rankings at recruitment – social factors

	Rank 5 %	Rank 4 %	Rank 3 %	Rank 2 %	Rank 1 %	Total (n=*)	Mean rank
Partner employment opportunities	28.8	5.1	13.5	10.2	42.4	100 (59)	2.7
Cultural and community factors	6.4	16.2	22.6	25.8	29.0	100 (62)	2.5
Sporting and shopping facilities	1.6	12.9	24.2	27.4	33.9	100 (62)	2.2
Proximity to family	9.7	19.4	8.1	17.6	45.2	100 (62)	2.3

Note: Rank 5 highest importance; Rank 1 least importance.

As can be seen in Table 7.5, employment opportunities for partners were rated at 2.7. Of note is the polarisation of participants' rankings, with 29% rating this with the highest importance and 42% of participants considering it of least importance. With at least 30% of doctors being partnered with other doctors (both specialists and GPs), job opportunities for these partners may have been important. In fact 12/62 (20%) of specialists identified that recruitment was related to the availability of two specialist jobs. In addition, there were another six (10%) who were partnered with GPs, with job opportunities both sought after and more available compared to those specialists whose partners had other professions. The following quote illustrates the importance of two jobs for attracting these participants:

> *Coastal is good because we love the sea and we live by the sea now, which we enjoy a lot, every day. So it was kind of important. It is important but I wouldn't come here if there weren't the jobs for both. S37.*

Cultural and community factors also rated below the mean at 2.5. Although educational facilities for children were not listed in the important factors for recruitment to be ranked, three participants mentioned them specifically in relation to recruitment. The rural GP literature had affirmed its role in retention. Sporting and shopping facilities were also rated 2.2. Interestingly, whilst not nominated as a factor,

affordability was nominated by eleven participants (18%) as an attractant. The following quote from a participant echoes this sentiment:

> *We were feted when we came to look, shown lovely real estate that was affordable and had a look, so were almost signed up by the time we left for a look! S62.*

Somewhat surprisingly, proximity to family was not an important factor in recruitment. Indeed, as a recruitment factor its mean ranking was 2.3, and considered important by only 29% of specialists. Of all respondents, 45% considered proximity to family as least important for recruitment.

Finally, in addition to work connections with the regional centre, 5/62 (8%) of participants noted a social connection that they considered vital to recruitment. This was seen through extended family or associations with a community through friends, so not easily explained as proximity to family. This was described as rural connection and whilst as not tightly defined as proximity to family, this connection is likely important in understanding why some participants found their way to a regional centre despite no previous work-related linkage.

7.3.3 Location factors in recruitment

Three particular location factors were suggested to participants in terms of importance in their decision to locate in a regional centre. Access to capital city, climate and environmental attributes rated 3.2 and 3.0 and 3.2. All location factors rated around the average level, with an even spread of responses across all five ranking levels. These factors were only trumped, in terms of ranking, by variety of work (the only professional factor) deemed of higher importance. Additionally, each location factor was ranked of moderate or high importance by approximately 50% of specialist participants, thus clearly location factors are important recruitment factors for many specialists in regional centres.

Table 7.6: Mean rankings of location factors at recruitment

Location Factor	Rank 5 %	Rank 4 %	Rank 3 %	Rank 2 %	Rank 1 %	Total (n=*)	Mean rank
Access to capital city	24.2	25.8	17.7	11.3	21.0	100(62)	3
Environmental attributes	25.8	22.6	19.3	8.1	24.2	100(62)	3
Climate	14.5	33.9	14.5	14.5	22.6	100(62)	3.2

Note: Rank 5 highest importance; Rank 1 least importance.

> *The beach and everything at that stage wasn't really important … I mean, now it is. You'd have trouble dragging me away inland but at the time it wasn't an issue. S56.*

The quote above suggests that whilst the locational factors were important, they were considered knowing that a job opportunity existed rather than as the sole primary locating focus. Environmental attributes certainly appeared to 'sweeten the deal' for those looking for lifestyle as well as work opportunities. Despite the higher ranking of climate compared to the other location factors, no participants described climate as the sole defining or key location factor – more often, conducive climate was a reason to choose between two possible locations with job opportunities.

> *But this is definitely – I am fortunate that I had the job offer here and I came here and it happened to be one of the best weather coming here, that's all. S55.*

7.3.4 Recruitment differences

The mean rankings paint an overall picture of the importance of recruitment factors for the 62 respondents. Table 7.7 further divides these results on the basis of gender, country of initial graduation, location and age. Mean rankings were then calculated and compared to further explore the priorities of regional specialists. As can be seen in Table 7.7, participants were evenly divided according to locations (coastal and inland) with greater differences between groups seen with gender (a preponderance of males), those who were Australian trained and a more even split seen when age less than and greater than 45 was considered.

Table 7.7: Difference in mean rankings at recruitment according to location, gender, country of training and age

		Work location		Gender		Undergraduate medical training country		Age group	
Professional Factors	Mean rank	Coastal N=33	Inland N=29	Female N=14	Male N=48	Aus Degree N=45	OS Degree N=17	Age <45 N=21	Age ≥45 N=41
Variety of work	4.5	4.4	4.6	4.4	4.5	4.4	4.5	4.6	4.4
Projected workload	2.9	3.3	2.4 (p=0.017)	2.9	2.9	2.8	3.2	3.2	2.7
Anticipated after-hours	2.8	2.9	2.7	3	2.8	2.9	2.8	3.1	2.7
Level of remuneration	2.7	2.9	2.5	2.4	2.8	2.5	3.1	2.8	2.6
Financial incentives	1.6	1.8	1.4	1.1	1.7	1.5	2.0	1.5	1.6
Social Factors									
Cultural & community factors	2.5	2.6	2.3	1.9	2.6	2.5	2.3	2.4	2.5
Employment opportunities for partner	2.7	2.5	3.0	3.6	2. (p=.012)	2.6	3.0	2.9	2.3
Proximity to family	2.3	1.9	2.7 (p=0.04)	2.7	2.2	2.5	1.8 (p=0.037)	2.8	2.1
Sporting & shopping facilities	2.2	2.2	2.2	1.9	2.2	2.4	1.8	2.2	2.2
Locational Factors									
Access to capital city	3.2	3.4	3.0	3.5	3.1	3.1	3.6	3.6	3.0 (p=.02)
Environmental attributes	3.2	3.9	2.4 (p<.001)	3.1	3.2	3.3	3.0	3.4	3.1
Climate	3.0	3.5	2.5 (p=0.012)	2.8	3.1	3.2	2.8	3.0	3.1

When considering professional factors in recruitment, few differences were seen by age, gender, location and Australian or international graduation. The only statistically significant difference was seen with projected workload, which was generally rated as significantly less important by those recruited to inland locations (p=0.017). One participant from a coastal location noted:

> *I think there was enough work but I was very happy. Again, I had more money than I earnt as a registrar and I was surfing three days a week and I started my week on a Wednesday and gradually filled it out and had sort of Monday mornings and Friday afternoons free. So that was my plan. S12.*

No major differences were seen with county of graduation. In particular, no significant differences were seen in terms of likely remuneration or projected workload. Age and gender rankings were also similar in terms of professional factors.

When considering social factors, a number of differences emerged. Whilst community and cultural facilities and sporting and shopping facilities yielded similar rankings in all groups, spousal employment and proximity to family were less homogeneous Spousal employment opportunities were more highly ranked by female specialists. There was a wide difference in mean ranking (3.6 for females and 2.4 for males). This was statistically significant (p=0.04), and these findings were echoed in the open-ended questions, with the two following observations illustrating these rankings.

> *Okay, social factors for me staying, none of them are important. S17 (Male).*

> *My partner wanted it. I figured that if I could go part-time and the money was similar and childcare should be easier it would be ok. S11 (Female).*

There was little difference between professional factors based on gender. Interestingly, females did not rank proximity to family as a highly important factor, any more than their male counterparts. Thirty per cent of specialists in the cohort had medical spouses, no doubt increasing the complexity of managing job opportunities and after-hours work.

Whilst the age of practitioners was not statistically significant in the rankings of spousal employment, older practitioners rated partner employment lower than their

younger counterparts, with ratings of 2.9 versus 2. Older males described less reliance on spousal employment.

> *Anywhere, yeah. And that said, she'd be quite happy never to work again, as well. S27 (Male).*

A review of the mean rankings for the factor 'Proximity to family' produced two statistically significant results. Firstly, proximity to family was rated with higher importance by those living in inland centres compared to their colleagues resident in coastal centres (p=0.04). Proximity to family was considered of lower importance by overseas-trained graduates compared to their Australian counterparts (p=0.037). This is consistent with the trade-off that international medical graduates may have made in being prepared to move to an area of workforce need, while family is likely to be still resident in their country of origin.

Two aspects of location were rated differently by those resident in inland centres compared to those on the coast. Access to capital cities was rated similarly by those living in coastal and inland locations. There were differences between coastal and inland participants in the level of importance attributed to climate and physical environment. Environmental factors (p<.001) were more important to coastal participants then to those living inland. Participants had very different ways of apportioning value to environmental attributes when thinking about recruitment.

> *Yeah, I mean, we wouldn't work in a Siberian salt mine but Tamworth, Orange, Coffs. S16.*

> *For me, very important. I wouldn't ever move to an inland place. I'm a beach person. My kids are. I don't think my wife is. I grew up in Sydney and we had a beach house on the northern beaches. S53 (Coastal).*

The mean ranking for climate was 3 overall but differed with inland participants rating it 2.5 and coastal participants 3.5. This was also statistically significant (p=0.012). This variation in importance was highlighted when participants discussed their choices. Those on the coast who ascribed significant importance to physical attributes and climate would only consider a job with coastal location. Those inland accepted the job knowing the climate was somewhat of a limitation to them.

I had actually been thinking, you know, south-east Queensland, northern NSW. Yeah, lovely place, could be a good climate and so I went for the phone interview. S39 (Coastal).

7.4 Discussion of key recruitment issues

Overall, professional factors were rated more highly than social and locational factors for recruitment of specialists to regional centres. The professional environment with relatively high rates of on-call and work variety is not dissimilar to the rural GP who is working with a wide scope of practice, and it is this group of rural doctors that have provided the previous evidence base. This comparison is limited, however, as the professional environment differs in reliance on hospital work, the need for a referral base and the variable number of colleagues. The regional specialists in this study rated variety of work as the most highly rated professional factor in recruitment. This was consistent with GPs who also rated work variety highest, albeit with a lower ranking at 3. Financial factors were rated somewhat lower. The expectation of regional centre work was of a wide scope of practice and an expected after-hours workload. The regional workforce studied was characterised by the high level of provision of out of hours on-call services, with 97% providing at least some on-call services, usually in the public sector. This contrasts with the MABEL data on Australian specialists nationally, where only 80.8% of specialist were practising in public hospitals, 32.7% exclusively and 48.1% in mixed practice in public and private hospitals (Cheng et al., 2013). This result, taken with the MABEL study, would suggest that regional centre specialist workforces have a greater involvement in the public sector than those working in metropolitan areas.

With this higher level of involvement in local public hospital practice, the workload and on-call would have ensured a significant variety of work. Regional centre-based specialists could expect significant on-call responsibilities with their hospital appointment. If the number of existing specialists was low then the workload was likely to be high. A numbers of clinicians were aware of the potential for burnout at the time of recruitment and actively limited their after-hours in their contracts. The availability or otherwise of a critical mass of other specialists in the same discipline at the time of recruitment would have dictated the potential workload, which

interestingly was not rated as high as factors like variety of work. Specialists who resided at the coast ranked projected after-hours of higher importance than those inland. This finding suggests that clinicians who were proposing to move and subsequently moved to coastal areas were keen to ensure that their projected workload did not impact adversely on their planned work-life balance compared to those inland. This may suggest that work-life balance and in fact, the priority of recruitment and retention factors may have been different at the coast as compared to inland regional centres.

Two other themes emerged in terms of recruitment. The first was a pragmatic and somewhat 'tempered altruism'. Backer (2006) described this altruism in rural GPs as a sense of fulfilment in treating those who had few choices. Comments from study participants echoed this, describing rural patients as having higher levels of need. Often a specialist's alternative choice was trying to establish a practice in a metropolitan area with already existing large numbers of specialist services and competition for hospital appointments and patients.

The second theme was the importance of having a job opportunity in order to relocate. No specialist had considered relocating to a regional centre until they knew there was a VMO appointment in the public or private sector. Specialist practice differs from general practice in that a hospital appointment is often necessary in order to practise. Without a VMO or staff specialist appointment, the decision to relocate was difficult. Whilst work opportunities were available from time to time, there was little flexibility for registrars to continue in a regional centre following their completion of training (and previously few advanced registrar positions in order to do this). New senior 'fellow positions' established in two regional centres are now providing this opportunity as a pilot programme (Dr S Gamble, Director Surgery Wagga Wagga Base Hospital, personal communication, December 3, 2013). A more flexible service plan considering succession planning, critical mass and likely retirement or relocation of existing specialists would have aided recruitment in a number of the regional centres studied. Private hospitals were much more flexible in providing VMO appointments, but given the fact that specialists needed a referral base and could not see patients unless they had been referred, the financial and infrastructure gap to commence

practice was often large. Also notable was the greater need for public hospital involvement given the limited services available. The importance of work opportunity relates to the high transactional and social costs in moving locations (Scott et al., 2013). This gives credence to the concept of the training pipeline based in regional centres where the 'home base' can be the ultimate residential location for training specialists and their families. Access to, and knowledge of, possible job opportunities was also articulated as highly important so those in training could plan for training and potential location over time. The concept of transparent and coordinated workforce planning where the needs of a community and a region or catchment are projected and costed, and the potential optimal specialist workforce configuration is considered, would provide a greater level of certainty for those considering a career outside the metropolitan area.

Whilst remuneration is acknowledged as a key factor in both recruitment and retention, there are a number of complexities to be considered. Different specialties are differentially remunerative, with those in procedural specialties generating higher incomes than those without procedural practice, making comparison difficult (Cheng et al., 2013). In addition, the different models of specialist practice are also important in determining income level, with staff specialist incomes generally lower than VMO incomes. In a recent Australian study, hospital-based salaried specialists with no right of private practice had salaries 28–31% lower than those who were self-employed VMOs (Cheng et al., 2012). The four centres in this study all had private hospital facilities, and specialists described a mix of income sources, with self-employed hospital and non-hospital based practice and hospital-based salaried specialists. The two inland centres appeared to have higher numbers of staff specialists than the coast, where the VMO model predominated. The study by Cheng (2012) suggests that mean annual specialist gross income was $334,000. There was also a differential between GPs and specialists of at least 2 to 1, with Australian specialists earning 4.3 times the average national wage and GPs earning 1.7 times the average national wage (Organisation of Economic Cooperation and Development, 2013).

The mean ranking of remuneration at the time of recruitment was lower than work variety but not dissimilar to projected workload and after-hours load. Factors affecting

income in regional centres include the catchment population's capacity to pay (Chapter 2.2) and costs of practice. It is fair to say the impacts of these factors appeared to differ depending on specialty and set up. For example, for obstetricians the low rates of private insurance appeared to impact on income levels compared to their metropolitan counterparts. For others, the rates of private insurance were less important as the volume of work available was compensatory. Those accepting a staff specialist's salary were likely to be similarly remunerated to their metropolitan staff specialist counterparts; therefore, for those specialists, remuneration was not a point of difference despite sometimes differing responsibilities and on-call rosters.

It is worth considering that participants may not have wished to be perceived as financially driven, and therefore remuneration may have been undervalued in the mean rankings. Interestingly, those who considered remuneration a low priority talked about the fact that they would be paid well wherever they worked.

A key theme was the financial challenge to establish a specialist practice. Private hospitals appear to have taken a role in supporting clinicians with subsidised rent, and/or access to staff. The high cost of infrastructure for some specialties was also daunting and reflected long lead times to profitability, the need for careful risk assessment and the reliance on public sector work to lease or buy expensive equipment. In terms of the low ranking around the provision of financial incentives, many participants dismissed this factor as there were no financial incentives available on recruitment. Some interpreted this as personal relocation support for IMGs coming from overseas countries to employment as staff specialists and welcomed it.

Key themes for recruitment relating to social factors are important to consider. In specialist recruitment the availability of a job and the lure of work variety appeared more important to participants than cultural and community facilities and spousal employment for partners. None of the factors reached the ranking of work variety and ranged between 2 and 3. The highest ranking social factor was partner employment opportunities with gender having a strong influence on its ranking.

Thinking first about the factors as a whole, the degree to which social and location factors are mitigated by rural origin is still unclear. Rural origin and rural spousal

origin are noted as a predictor of rural practice (M. Jones et al., 2009; Laven & Wilkinson, 2003; McGrail, Humphreys & Joyce, 2011a; Walker et al., 2012). Rural origin as a predictor of rural practice was also affirmed in this study with 33% of specialists identifying rural origin defined by primary school attendance in a non-metropolitan area. This would suggest that rural *or* regional origin is significant and may give credence to the metropolitan (RRMA1-2) and non-metropolitan (RRMA3-5) division when considering rural origin and selection processes for medical training.

McGrail, Humphreys and Joyce (2011a) noted the correlation with rural origin for specialists only became significant after rural residence of more than eleven years, perhaps suggesting the greater barriers for specialists compared to GPs between rural location and eventual practice with longer metropolitan-based training programmes. Whilst small numbers preclude statistically robust prediction, there was a higher rate of rural origin in those specialists under the age of 45, which may be a good prognostic sign for the rural affirmative programmes instituted over the last ten years. Even allowing for this trend, the need to continue to attract metro origin students to rural clinical schools and rural postgraduate training is notable. In this study, 67% of specialists had non-rural origin, suggesting the need to not only recruit medical students and postgraduates with rural origin but also to provide significant opportunities and exposure for those with metropolitan origin. Clark (2013) notes the value in those of metropolitan origin who choose to spend time in rural clinical schools who have a higher likelihood of accepting rural internship and pre-vocational training.

Spousal rural origin was strongly influential in this study, with 40% of Australian-trained specialists reporting rural origin spouses. There are important implications in this observation, with long lead times to recruitment and retention. With increasing numbers of students entering medical school via postgraduate entry courses, and with long training lead times in metropolitan areas, trainees are likely to be partnered prior to commencing practice. If these trainees have already partnered with a metropolitan origin person their chances of going rural will be reduced. However, if they partner with a person with rural or regional origin the chances of them going rural or regional is certainly greater. This is important in considering rural exposure during medical training and the likelihood of meeting a rural origin partner.

This study also highlighted the concept of rural connection. Many of the participants had knowledge of the regional centre they were considering prior to locating. At least 50% of them had knowledge based on their upbringing or spousal links. For some this was a linkage through training, either as a medical student, postgraduate or vocational trainee. Other participants described extended family connections, recreational experiences or experiences during childhood of visiting the location. This concept of knowing about or being known prior to locating is described in the literature and may play a role in both the decision-making to come and the support to stay (Hancock et al., 2009; Lea & Cruickshank, 2005). As this study examines the preferences of those who decided to stay, the value of the rural connection to this group is likely positive. The value of rural connection for those who decide not to come, as well as those who came and then left, would be important to measure, as part of a better understanding of connection to place and intention to practise.

Rabinowitz (2000) noted the likelihood of practising in an underserved area becomes overwhelming at the point where not only is the person from an underserved group, but if they have lived in the location and describe the intention to relocate to an underserved location. Many regional centres are underserved with inland locations appearing to have greater workforce shortages than more coastal locations. One of the challenges facing Australian medical schools is how to measure and understand rural intention in order to translate rural affirmative selection into later rural residence. The value of rural connection in addition to rural origin may be a useful addition to this discussion in assessing likely intention. The importance of positive rural undergraduate experience for metropolitan students who describe rural intention and interest in rural and regional practice also must not be understated. These students are important given the number of metropolitan origin graduates who have taken up regional specialist practice.

In this study, there were a number of specialists who had partners who were either GPs or specialists. Spousal employment was an important consideration for these participants. IMGs were also keen to see their spouses able to continue their careers, no doubt in deference to the fact that they had moved countries and sometimes cultures in order to take up a job opportunity.

The ratings for proximity to family were lower than expected. Whilst 45% considered this aspect least important, the qualitative interviews suggested that connections to family, extended family or friends were influential for some in the choice of a regional centre. In fact, inland specialist participants had higher rankings for proximity to family (p=0.04) suggesting this group may have stronger family connections than their coastal counterparts. IMGs did not consider proximity to family to have as greater importance as their Australian colleagues. This would be consistent with a motivated group of practitioners who have already made a decision to move countries and who may have been obligated to work in a location. In this scenario, professional factors such as job opportunity and remuneration trumped other considerations.

Location factors appeared more important to participants than social factors. All three factors were identified by some participants as important. Similar to GPs, there appeared to be differing attitudes. For some specialists, location was hugely important and would dictate recruitment. This group described location as paramount and would only consider a job if it was in a certain climatic and importantly coastal location. The second group rated professional factors highly and had more flexibility about the environmental attributes and climate in locations they would consider.

7.5 Specialists and retention

The decision to locate to an area usually occurs from outside that setting, whilst the decision to remain takes place from within the practice setting and arises from a stream of experience there (Cutchin, 1997b). It follows that retention was more easily considered by participants in terms of their current knowledge and experience. There were a number of different ways that retention and professional and personal satisfaction were considered. The approach had a number of components. The first was an opportunity for participants to rank their preferred work locations based on population size RRMA categories (Australian Institute of Health and Welfare, 2004). The second exercise involved comparative ranking of regional centres as places to work and live compared with metropolitan locations. The third measure was a satisfaction rating in terms of work and liveability relating to their current regional centre. Finally,

there was opportunity for participants to rate and discuss a set of professional, social and location factors considered important in retention.

7.5.1 Professional factors in retention

When considering preferred population sizes in terms of places to work, 96% of participants preferred a location with a population size of 25–100,000. In terms of Australia's settlement hierarchy, this means a strong preference for work locations outside capital cities and major metropolitan areas – in regional centres, of a similar size to their current location.

Specialists had only one real comparison in terms of work location, thus the next question involved comparison between a capital city work environment and the participant's current regional centre. Ninety-two per cent described their current regional centre work environment as more attractive than a capital city with three (5%) considering it neither unattractive nor attractive. Two participants (3%) who described their current location as unattractive had both moved to regional locations for family and spousal reasons. Respondents were asked to rate their level of work satisfaction whilst resident in their current regional centre location. The result reflected a high level of satisfaction with their current regional location as a place to work, with 98% considering their current regional location as satisfying or very satisfying as a place to work:

> *Variety of work that was actually an attraction. You know, I was at (a large city hospital) before I came here and anything exciting came in, you got shunted to the back of the line. S16.*

The only participant who nominated themselves as dissatisfied with their location as a place to work was resident in a regional centre for family and spousal reasons.

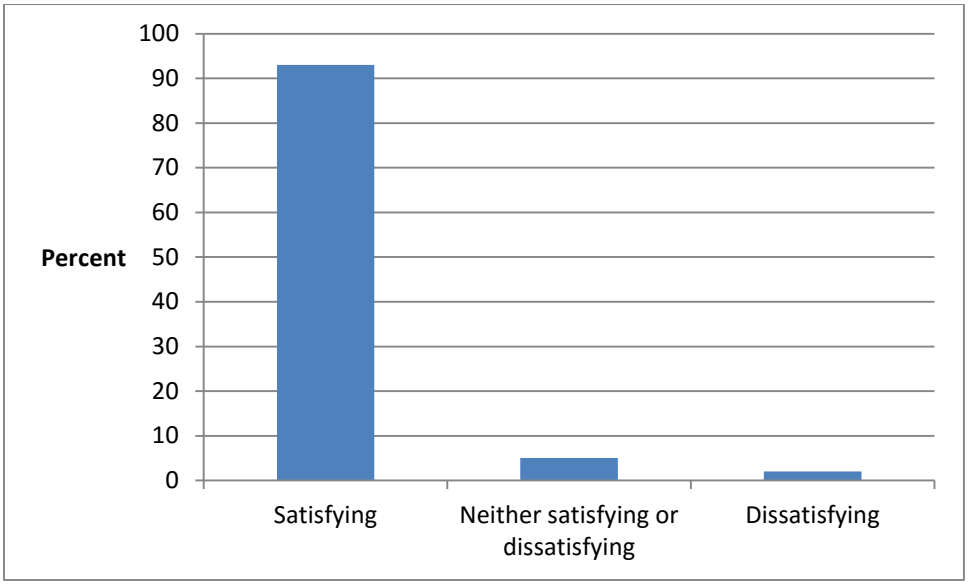

Figure 7.2: Satisfaction with regional centres as places to work compared to metropolitan centres

Participants were asked to rank factors identified in the literature as important to retention (see Appendix 6) from highest importance to least importance. As can be seen in Table 7.8, the highest-ranking workplace factors for retention were work variety (as with recruitment) and workplace culture. Both work variety and workplace culture were highly rated by nearly all participants. Furthermore, after-hours workload and in hours workload also rated higher than 3, with higher rankings for all these factors than noted at recruitment.

Variety of work

Variety of work was universally highly rated by respondents (see Table 7.8). Participants described a diversity of work, a need for a diverse skill set and their often extended role, with 32/62 (52%) of participants highlighting this factor. They discussed the fact that patients often present later in their illness, often with highly complex care needs, creating challenging diagnostic and management scenarios.

Table 7.8: Table of mean rankings for professional factors

Professional Factor	Rank 5 %	Rank 4 %	Rank 3 %	Rank 2%	Rank 1 %	Total (n=*)	Mean rank
Work variety	59.0	27.9	11.5	1.6	0	100(61)	4.4
Workplace culture	57.4	29.5	6.5	4.9	1.6	100(61)	4.4
After-hours workload	31.1	26.2	24.6	1.6	16.4	100(61)	3.5
Workload in hours	11.5	47.5	23.0	9.8	8.2	100(61)	3.4
Level of remuneration	17.8	22.6	11.3	17.7	30.6	100(62)	2.8
Access to other diagnostics	16.1	22.6	16.1	11.3	33.9	100(62)	2.8
Access to career path	9.7	16.1	9.7	17.7	46.8	100(62)	2.2
Access to CPD	3.2	8.1	14.5	21.0	53.2	100(62)	1.9
Capital funding	6.6	6.6	14.8	4.9	67.2	100(61)	1.8

Note: Rank 5 highest importance; Rank 1 least importance.

Look, I mean, I must admit, I enjoy the variety of the work that I do. I get to do a bit of everything... I mean, that can be a challenge as well because you've got to maintain your clinical skills in all those areas. But, yeah, I think it's a huge positive, really. S18.

Regional centres are my preference as I love the diversity of work and the ability to have a wide scope of practice and the lack of competition. S20.

Regional centre Y is attractive because of the variety of work and the interesting caseload. There is both depth and variety of work. It's good to be considered a public asset and you have enough traction in the system to change things. S38.

As can be seen in these quotes, there is a sense of being a valuable commodity and a sense of being needed and valued as a community resource. Similar comments can be seen from GP participants and were reported as a 'tempered altruism'.

Workplace culture

Workplace culture was ranked as highly important with a mean ranking of 4.4. This reflected 86% of participants rating it highly important or important, with only 7% of participants regarding it as less or least important. This suggests that most respondents regarded their workplace 'culture' as clearly key to their professional satisfaction and subsequent retention.

Workplace culture was described by participants as comprising a number of attributes. First, participants described the importance of their workplace relationships with other clinicians, colleagues in nursing and allied health, and management. This was articulated as being able to provide team-based care:

> *The smaller size of the hospital and the collegiate nature of relationships between allied health and doctors which really helps in day to day work and benefits patient care. That means there is more control and capacity to influence the patients' journey. S8.*

Thirty-nine per cent (21/62) of participants affirmed the importance of the collegial nature of the interactions with other clinicians. The capacity to call a colleague if you had a difficult case and the sense of cooperation engendered was a strong theme in many of the interviews. This appeared to extend to nursing and hospital staff as well as medical colleagues.

> *So I know that when I was here as a registrar I remember thinking that's a very ... this is a nice place to work and people seem to get on and that attracted more people and then the more different specialists you get, I think that probably encourages more people to come. S36.*

The collegiality extended to support in managing difficult situations and also for younger clinicians early in their career. Conversely, the sense of professional isolation when senior support was unavailable or where local critical mass did not exist was also noted.

Most particularly is the emotional isolation and the sense of aloneness. This is keenly felt by younger or inexperienced consultants. This is mitigated by the collegiate nature where they can be confident that someone will come in and give you a hand and give you some advice. S2.

In addition the 'culture' was set by expectations of clinical and professional behaviour. The presence of a reflective clinical environment with appropriate clinical governance was also seen as important.

The negative of a small fish bowl where often the tone might be set by someone not offering best practice. Whereas in Metro hospital X policy would be set for 60 Doctors but it isn't so easy when numbers are smaller. S50.

The importance of supportive administration and management relationships was also expressed. Visiting medical officers are involved in both public and private hospital administration and so need to negotiate working relationships in both sectors. There was a spectrum of concerns about perceived efficiency, motivation and competence of health service managers to support efficient and effective workplaces.

So you need leaders, not only in the medical field but you need supportive leaders in the health bureaucracy system. People with balls, I mean.S47.

Workload (considering in-hours and after-hours including on-call)

The workload both within hours and also the after-hours workload and on-call responsibility was important to retention with mean ratings of 3.4 and 3.5. This is reflected in that 60% of participants rated this as highly important or important.

There was a spectrum in regional centres in terms of on-call demands and also on-call frequency. This related at some sites to workforce shortage and in others to the registrar seniority and in others to the presence of subspecialty rosters.

The on-call is difficult. The constancy of demand and the relentlessness of the on-call is grinding. S20.

It is not sustainable to sit here and just say, right, from the age of 33 I am going to be here. I am going to do a one in three on-call for the rest of the term of my natural life. It is not going to happen. Either I stay here and I work hard and I retire, burnt out at 55, or I leave here in 10 years', time, go, and work somewhere else. S26.

Well, that has improved every couple of years. That has gotten better, better, and easier. It looked like ... you know; it had the potential to get ugly there a little while ago. S26.

In addition, once you've got the critical mass and we can get it to a one in three roster and one in four rosters then it made it a lot easier. Then as each person came, I kept on encouraging him or her to stay on the roster. In addition, they would say, "Oh, geez, I'm not sure." In addition, we would say, "That's okay, we'll support you." S47.

In addition, there was envy of other places and specialities where on-call commitments were lower and/or less arduous.

In addition, I think that is difficult for us to understand. Therefore, I do general call. I have been doing one in five. However, I lived in Town Y, I would do one in seven, one in eight. S23.

Remuneration and financial incentives

Level of remuneration had a mean ranking of 2.8, being important or very important for only 40% of respondents (Table 7.8). There was a variety of perspectives on the relative level of remuneration compared with metropolitan areas. Interestingly, only two participants felt that they were definitely receiving lower remuneration compared to specialists working in capital cities.

Yeah, I knew I would earn less but I was happy with that and I knew it would go further. S23.

However, three were confident they were earning more than their metropolitan counterparts were and for at least one participant this was a defining factor in both recruitment and retention.

In addition, it is financially also, rewarding, and I think that is the most important thing - you should put that - because if I am doing all this and then financially I am at a disadvantage then I would not be here. Financially, I think my income is double than any what a city hospital staff specialist would be getting. S55.

There were differences in the cost base and earning capacity between visiting medical officers and staff specialists. For the sixteen (27%) who were operating as staff specialists, the cost and complexity of running consulting rooms was avoided but the

capacity to increase their income via private patients was also more limited. Finally, in terms of financial incentives there was little clarity from the participants surrounding the availability of grants and funding. Whilst programmes exist administered via Local Health Districts and also Commonwealth funded, these were not well known to the participants and access appeared to vary between speciality groups. The differences in payment to fly-in fly-out (FIFO) specialists who were supported with travel and accommodation was contrasted by one participant with the lack of support he experienced whilst living in a regional centre:

> *None that I know of. Well, I think there might be a ... is there a rural loading or something. Anyway, it wasn't part of my decision. S36.*

> *If they're paying specialists to fly in from Sydney why can't resident specialists be given some sort of package to go and attend educational things or why can't there be some sort of incentive to resident specialists. S43.*

Capital funding was also rated at low level of importance (1.8) with 67% of participants nominating this factor as least important as a retention factor. Those involved in VMO practice had set up costs initially but were then working with an established cost base that was relatively predictable.

Access to diagnostic or other medical facilities

This inclusion of this factor was designed to pick up on the interdependence of specialist medical facilities, diagnostic and treatment services. Some specialist services can be difficult to provide without a team of nursing and allied health professionals to support. An example might be the provision of complex ear surgery requiring access to high quality audiogram services pre and post-surgery. The mean ranking was 2.8 with similar percentages of participants rating as important and as less or least important. Notably 11/62 (18%) affirmed the importance of associated services and specialties in order to practise as they wished. These participants were more commonly from inland locations where critical mass of both specialists and allied health services was perceived to be poorer. One respondent noted:

> *Access to other diagnostic facilities is so important because lack of access undermines the conviction that you are doing a good job. S3.*

Access to a career path

Access to a career path had a mean ranking of 2.2, making it seventh of the nine professional factors listed. Interestingly, however, many respondents said teaching was enjoyable and extended them and kept their knowledge up-to-date. This could be regarded as an existing career path. Seven participants indicated they were quite happy about their existing career path and felt as though they had been able to progress their careers in their regional centre. Respondents said:

> *I've spoken to some of my colleagues recently. He's finally got a job in Sydney, which he thinks is fantastic. And I thought, well, I've spent 17 years driving five minutes backwards and forwards to work. I've been able to go on the faculty council. I've been able to publish research. I mean, it hasn't really limited my career. It's probably helped. S18.*

Perhaps most importantly there were those who were more than happy with their chosen career as a specialist in a regional centre providing medical services, thus explaining the low rating.

> *So access to career path, I don't think ... well, for me, it's irrelevant. Because this is the career path. S24.*

> *Yeah, because the University has got a medical school ... but that's actually an incentive to bring people here because from our point of view that's an extra and new stimulus to teach medical students. So you're not stepping out of Sydney and losing any contact with academic processes. S44.*

Three IMGs suggested their academic and research skills were underutilised in regional centres but their location choices had been limited at the time of recruitment due to restricted registration.

> *No, it's not my preference at all because I did not come to Australia to work in a peripheral area.*

> *I was a senior faculty. I was a reader when I came here, so it's teaching with the research activities, and I've done many publications. And so all those things is my drawback here when I moved here, so that is why I said good and bad. S33.*

Access to Continuing Professional Development (CPD)

Maintenance of CPD is required both for continuing professional registration and also for credentialing processes in most hospitals. The low rating for this, coupled with the commentary, suggested that whilst this was an issue for some clinicians, others were already accessing support or did not see it as a concern in retention. Access to CPD was considered important by rural and remote GPs as important to retention (Humphreys et al., 2007). The availability of existing support for some specialists may explain the mix of responses. There have been scholarships or grant support available for staff specialists through their employing health service in NSW (Staff Specialist's Training, Education and Study Leave (*TESL*) to obtain leave and financial support to complete CPD. VMOs have recently had access to locum support programmes in Obstetrics and Anaesthetics to complete CPD but little in the way of direct financial support (Royal Australian and New Zealand College of Obstetricians and Gynaecologists, 2010). Specialists also valued time away from home with their colleagues in metropolitan centres to keep abreast of current trends and skills in their specialties. In essence, either CPD needs were already covered with hospital support or were not considered an impediment to retention.

> *My access to CPD, actually, it couldn't be better. It's not an issue. S31.*

> *Access to continuing professional development, that's important but I think you can do that as well here as you can anywhere else. So that's one of those things. It's very important.S16.*

7.5.2 Social factors in retention

Social factors were considered for their role in retention and reviewed in three ways. The first exercise was a comparative ranking of regional centres as places to live compared to metropolitan and smaller rural locations. The second measure involved participants ranking social factors in terms of their importance to retention. Finally, an overall measure of current satisfaction was obtained from survey respondents.

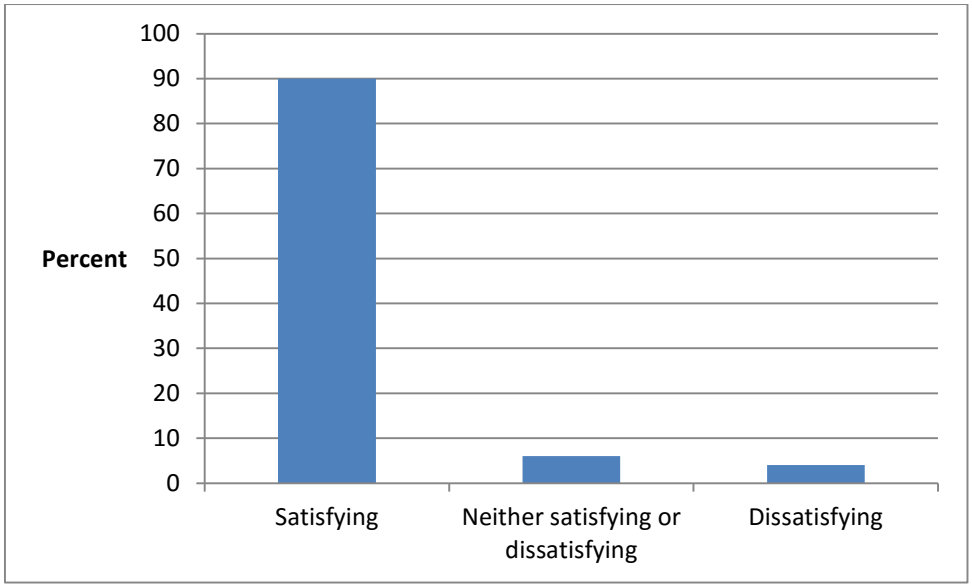

Figure 7.3: Satisfaction with current regional centre as a place to live

Participants were asked to rate their level of satisfaction with the liveability of their current regional centre. As can be seen in Figure 7.3, 90% of participants nominated that they were satisfied or highly satisfied with the liveability of their current regional centre. Whilst the overwhelming majority of respondents were satisfied with liveability, six survey participants (10%) noted a capital city as preferable as a place to live whilst six (10%) were undecided. The majority (80%) or fifty participants found their current location in a regional centre more attractive than the capital city alternative for liveability. Reasons cited included lack of traffic and ease of travel, a strong sense of belonging and good access to sporting and shopping facilities.

> *A regional centre is big enough to have choices. There is no traffic and there are excellent facilities plenty of restaurants and places to have a cup of coffee. Good golf courses and it's not too small that I feel like living in a gold fish bowl. S19.*

Listed social factors were ranked by participants on a Likert scale in terms of their importance to retention (Table 7.9). A notable feature of these rankings for social factors is that they were rated consistently higher – that is more important – than the social factors in recruitment, suggesting a greater focus on social factors in retention.

Table 7.9: Mean rankings of social factors in retention

	Rank 5 %	Rank 4 %	Rank 3 %	Rank 2 %	Rank 1 %	Total (n=*)	Mean Rank
Sense of community	46.8	25.8	4.5	3.2	19.7	100 (62)	4.0
Educational facilities for children	33.9	22.6	11.3	1.6	30.6	100 (62)	3.3
Employment opportunities for partner	33.9	13.6	13.6	10.2	28.7	100 (59)	3.3
Cultural and community factors	17.7	24.2	24.2	21.0	12.9	100 (62)	3.1
Sporting and shopping	11.5	31.1	26.2	18.0	13.2	100 (62)	3.1

Note: Rank 5 highest importance; Rank 1 least importance.

Sense of community

The highest ranked listed factor 'sense of community' had a mean ranking of 4.0 (see Table 7.9). Indeed, 47% of participants rated it highly important with another 20% seeing it conversely as least important. Twenty (32%) of participants commented on sense of community as a personal retention issue. This was discussed as 'being known and knowing people'. This reflected, for some, a real sense of value in considering themselves as being part of a community.

> *My sense of community? Oh, I feel like I belong, absolutely. S54.*

> *And also, I guess, we have established quite strong friendships and also sort of social things. Like, I play tennis. I've been playing at the same place for 10 years and the last few years I've taken up sailing. So I'm a member of the yacht club and I really look forward to that. S43.*

The second aspect of their responses related to a positive close-knit environment in which their partner and family could function, for example:

> *I like the friendliness. You can be part of the community. People respect your privacy and yet there are good opportunities for kids with sports and education. S10.*

Regional centres have a small community feel because I want to raise my children in a place where values are proudly protected. They are socially great places to live where the kids can ride to the shop. S3.

There's a bit of camaraderie and people know each other, so they're nice to each other because you've got to see the same people over and over again. ... And good news spreads fast and bad news spreads faster, that kind of situation,... and also in the country town people are more appreciative. S30.

Being known for some was a double-edged sword. For some participants, being well known and valued was very positive whilst other felt the loss of anonymity was not attractive for retention.

The negative of the strong sense of community is the gossip and small town natures of things. The gossip and knowing everybody else's business whether you want to or not are tedious. S13.

You have to recognise that you are always recognised like seeing patients in the supermarket. You just have to accept it and I'm comfortable with that. S16.

Educational facilities for children

Education facilities for children were mentioned in recruitment and were identified by participants as key to decision-making in retention. This factor was ranked 3.3 overall. Respondents discussed the importance of having choice, considering a variety of primary and secondary school options and also the issue of access to tertiary studies. Indeed there was dichotomy in the mean rankings, with 30% of participants considering it most important and 30% least important.

Yeah, it's the rural doctor's lament, isn't it, education. S17.

I'm sure the schooling's great for most people and most people are happy unless you've got kids who are thinking of doing something like medicine and it happens and then suddenly the schools are never going to be able to cater for that. So I think schooling's an issue. S53.

Employment opportunities for partners

Employment opportunities for partners had a mean ranking of 3.1. Whilst at recruitment participants were trying to ensure their partners had work opportunities, there appeared at least two subgroups in those who had chosen to stay; those whose

partners had found a career path, meaning both partners were professionally satisfied, or those who had chosen to work part-time or prioritise other activities over paid work.

> *But in the last, say, 10 years my wife, who's a professional and runs the big practice in town, they do an outstanding service, she's got about 80 people working for her. So now, when I look at it, there's no way I can move now..... because she's a very important person here. S33.*

> *I think there are issues like if you're married to someone whose job's not portable to the country. You know, it's not for everyone. I guess something that's different; we don't have children, so we are very mobile and very flexible in terms of time. S23.*

Cultural and community, sporting and shopping facilities

The mean ranking for both cultural and community factors and sporting and shopping facilities was 3.1. Participants described having adequate access to basic facilities to meet their families, and their personal needs. However, there were concerns expressed about lack of options for elite sport and some forms of cultural activity. An additional benefit was the relatively greater affordability of real estate and enjoyment of a lifestyle that would be much more expensive in a metropolitan location.

> *There's a little bit of feeling that you're missing out on that and there's a little bit of feeling that you're missing out on theatre and culture, that kind of thing, and it is a bit of a trip when you've got family to get to Sydney to achieve that. S41.*

> *I can roll out of bed and be in the labour ward before the next contraction. You know, that sort of stuff makes it easy. And this morning I can do a ward round. I can go back and spray my tomatoes and spray my cabbages and come to the surgery and start work. S24.*

> *The affordability is really important. We can afford a great lifestyle with a house and pool and lots of space, this would be unaffordable in the city where we would need to work all hours of the day and night to support the mortgage. S13.*

7.5.3 Location factors in retention

All location factors became more important to participants as they considered their continuance in their regional centre. Mean rankings for the three factors seen in Table 7.9 were 3.1, 3.4 and 3.6. Access to a capital city was rated highest, followed by

environmental attributes and climate. These high rankings indicate a level of importance behind only workplace variety, culture and sense of community. All the location factors had higher rankings for retention than respondents apportioned to them for recruitment.

Table 7.10: Rankings in location as a retention factor

Locational	Rank 5 %	Rank 4 %	Rank 3 %	Rank 2 %	Rank 1 %	Total (n=*)	Mean Rank
Access to capital city	33.9	29.0	16.1	9.7	11.3	100 (62)	3.6
Environmental attributes	29.0	29.0	12.9	6.5	22.6	100 (62)	3.4
Climate	21.0	32.3	11.3	11.3	24.1	100 (62)	3.1

Note: Rank 5 highest importance; Rank 1 least importance.

Access to a capital city

Access to a capital city was considered important for accessing CPD and was also noted by participants as important in terms of accessing elite sport or cultural activities for themselves and their families. IMGs described the ease of access as being one flight to an international airport to be able to fly out overseas to see relatives or travel.

> *I'm happy with that. As I say, if I was doing anything ... I mean, what I like too about a regional centre like this is that I can jump on a plane and be in Sydney in an hour. D54.*

Environmental attributes and climate

Environmental attributes and climate had rankings of 3.4 and 3.1 respectively. Those living in coastal regional centres near the beach described the healthy lifestyle as particularly important. The access to a temperate climate was also valued, particularly as participants became older and stiffer! For those living in inland areas the beach was seen as a holiday destination, whereas on the coast it was an often a valued part of daily life. Climate was also highly rated, with 50% of participants rating it either important or most important. Interestingly, there was no mention of concern about

climate change affecting the liveability of regional centres for the respondent specialists or GPs.

7.5.4 Retention differences

The mean rankings paint a picture of the relative levels of importance of the listed factors to the 62 respondents. Further division of these results can be seen in Table 7.11 on the basis of gender, country of initial graduation, location and age. Mean rankings were then calculated and compared to further explore the decision-making of regional specialists. Where differences were seen they were tested for statistical significance using the Mann-Whitney test.

Looking at professional factors, workplace culture, already the highest-ranking factor, was ranked highly by women participants in this study with a mean ranking of 4.9. The difference between genders achieved statistical significance ($p=0.03$). This was the highest ranked factor by any group in the study. In addition, variety of work and after-hours workload was also considered highly important, with values higher for females than males. Another difference was seen also in access to career path, with women rating access to a career path higher than their male counterparts (2.9 *vs* 2.0). Rankings of remuneration, access to CPD and access to other diagnostic facilities and capital incentives were all similar.

Table 7.11: Specialists' retention: Differences according to age, gender, country of graduation and location

Professional Factors	Mean rank (N=62)	Coastal N=33	Inland N=29	Female N=14	Male N=48	Aus Degree N=45	OS Degree N=17	Age <45 N=21	Age ≥45 N=41
Workplace culture	4.4	4.3	4.4	4.9	4.2 (p=0.03)	4.3	4.5	4.2	4.5
Variety of work	4.4	4.4	4.5	4.6	4.4	4.3	4.7	4.6	4.4
After-hours inclusive of on-call	3.5	3.3	3.8	4.1	3.4	3.5	3.7	4.0	3.3 (p=0.03)
Workload in hours	3.4	3.5	3.4	3.3	3.5	3.5	3.3	3.7	3.3
Level of remuneration	3.2	3	3.5	3.4	3.1	3.3	2.9	3.3	3.1
Access to other diagnostics	2.8	2.4	3.2 p=0.016	3.0	2.7	2.8	2.6	2.8	2.8
Access to career path	2.2	2.2	2.2	2.9	2.0	2.1	2.5	2.6	2.0
Access to CPD	1.9	1.9	1.8	1.8	1.9	1.8	2.0	1.7	1.9
Capital Funding	1.8	1.8	1.8	1.5	1.9	1.7	1.9	1.7	1.9
Social Factors									
Sense of community	4.0	4.1	3.9	3.6	4.1	4.1	3.6	3.8	4.1
Educational facilities	3.3	3.4	3.1	3.3	3.3	3.3	3.2	3.6	3.1
Employment opportunities for partner	3.1	3.0	3.3	3.8	3.0	3.0	3.6	3.3	3.1
Cultural &community factors	3.1	3.3	3.0	3.1	3.1	3.1	3.2	2.8	3.3
Sporting and shopping factors	3.1	3.3	2.9	3.1	3.1	3.2	2.8	2.9	3.3

Table 7.11: Specialists' retention: Differences according to age, gender, country of graduation and location (contd.)

Locational Factors	Mean rank (N=62)	Coastal N=33	Inland N=29	Female N=14	Male N=48	Aus Degree N=45	OS Degree N=17	Age <45 N=21	Age ≥45 N=41
Access to capital city	3.6	4.0	3.3	3.1	2.8	2.9	2.7	3.1	2.7
Environmental attributes	3.4	4.1	2.5 $p<0.001$	3.1	3.4	3.4	3.2	3.4	3.3
Climate	3.1	3.8	2.4 $p<0.001$	2.9	3.2	3.1	3.3	2.9	3.3

In terms of social factors, no statistically significant differences were seen by gender. In particular, no difference in sense of community and educational facilities were noted. Employment opportunities for partners did show a non-significant gender difference. Women rated it 3.8 and males 3.0. This was also corroborated in the qualitative data. For example:

> *My partner wanted to come and had a job I figured that if I could go part-time and the money was similar and childcare should be easier it would be ok. S11.*
>
> *Schooling, church, recreational facilities, shopping - got to keep the wife happy. S47.*
>
> *In my experience, from what I've seen, both with our trainees and at a training level nationally, is that you'll get a trainee who comes to a regional area and thinks it's fantastic - and let's use a male as a model because that's the more traditional model. In the old days the wife had a low-end job and would be happy to join and then become a housewife. That's a traditional model. That model doesn't exist much anymore. S54.*

When looking at IMG rankings, little difference was noted in their ranking of professional factors compared to Australian-trained graduates. In particular, similar rankings were observed for workplace culture, work variety and level of remuneration. The smaller number of international medical graduates no doubt influenced the lack of variation in the results.

Considering social factors, the only obvious difference related to employment opportunities for partners, with a higher ranking and higher importance for IMGs at

3.6 compared to Australian-trained graduates, who ranked it lower at 3.0. Somewhat surprisingly given distance from home, international medical graduates did not differ from Australian-trained graduates in their ratings of cultural and community, educational facilities or sense of community. Finally, there was no difference between IMGs and Australian-trained graduates on the importance of location factors in retention.

When age was considered, participants ≥ 45 were less concerned by after-hours and on-call workload, with a lower mean rating of 3.3 than their younger colleagues with a rating of 4.0. This result reached statistical significance (p=0.03). They also had similar rankings to their younger colleagues for other work related factors. In addition, social factors were similar for both age ranges. The older practitioners were less interested in educational facilities, with a rating of 3.6 compared to those aged ≤ 45 with 3.1. In terms of location factors, similar ratings were seen for both age brackets.

Finally, when location was considered, both inland and coastal participants had very similar perceptions of the work environment, particularly in relation to work variety and workplace culture. They both rated work variety and workplace culture highly. They differed, however, in the ranking given to access to other diagnostic facilities. Those living in inland locations ranked it as 3.2 whereas the coastally-located specialists rated it as 2.4 (p=0.03). This is not surprising given the much more limited access to diagnostic services, available in many inland locations in NSW.

> *It is also difficult where there are not good sleep studies or formal audiogram services which leave me exposed as I cannot formally assess hearing before I operate. This is not ideal. SI5.*

Social factors were similar for both inland and coastal participants. In particular, opportunities for partner employment were rated similarly in inland and coastal locations. Major differences were seen between coastal and inland participants in regard to the mean ranking of location factors. Location factors such as climate, environmental attributes and access to capital city all showed differences in responses between inland and coastal participants. With regard to retention, all three locational factors showed higher mean rankings for retention than recruitment. Climate was

ranked by coastal participants at 3.8 and a lower rating inland of 2.4 ($p<0.001$). Environmental attributes also ranked differently depending on location. The mean ranking for coastal participants was 4.1 whereas inland participants ranked it much lower at 2.5 ($P<0.001$). For access to a capital city, coastal participants' average rank was 4.0, recording higher importance than inland participants who ranked it 3.3.

> *No, the coast, it was a big part of my family. My father was a lifesaver....Yeah, and beach is a big part of what we do with the kids, a huge part....Yes, and I don't even understand why anybody would want to live away from the coast. To me, it's Australia. S60.*

> *Climate was not that important. Environment such as the beach and national parks. No...S17.*

> *I mean, it's interesting that the attraction of the coast is the beach and the surf and the sea and all that sort of stuff and yet a lot of people who live in those areas don't use them. It's not a big issue for me. S17.*

7.6 Discussion of key issues in retention

Given the clear key importance of professional factors in retention, it is salient to reflect on why certain factors were highly valued by regional centre specialists. Indeed, very high rates of satisfaction were described in terms of 'work' both for regional centres generally and for the current regional centres where participants were working. Work variety and workplace culture had the highest mean rankings of any factors in retention. So why was professional satisfaction rated so highly overall? What is it about regional centre practice that made participating specialists highly satisfied, but perhaps does not appeal to others, as evidenced by reduced workforce supply in some regional centres (Australian Institute of Health and Welfare, 2014b)?

There is little existing literature on professional satisfaction for *regional* specialists. Evidence from the MABEL data does not show any difference when considering geographic location on levels of professional satisfaction; however, specialist and GP data are combined and ASGC-RA is utilised with significant limitations (Joyce et al, 2011; Joyce et al., 2010). High rates of professional satisfaction are reported in other studies of specialists so the findings of this study are consistent with previously

reported high levels of satisfaction (Hays et al., 2008; Kluger, Townend, & Laidlaw, 2003). The regional centre component, however, is difficult to tease out. In this study, the two professional factors considered highly important by participants were workplace culture and work variety.

In relation to work variety, the themes noted in this study were related to specialists using their skill base, and the challenge of maintaining clinical skills and clinical reasoning to a high level. This speaks to the different role that specialists by virtue of small critical mass must play within regional centres. As was noted in the recruitment rankings, participants affirmed the importance of work variety, speaking not only about meeting patient need, but also in terms of wanting a stimulating hands-on role in medical care. Work variety, for some specialists, may have equated to a more generalist skill set, in addition to the predominantly subspecialist skill sets supported in metropolitan areas.

There is also little doubt of the importance to participants of a positive affirming workplace culture. Not only was it ranked as highly important by the majority of participants, but many commented on the high value they put on a positive workplace experience not only for themselves but also for the provision of good patient care. There is considerable evidence about the value of positive affirming environments to optimise productivity, reduce error and improve patient care. Within the public hospital system in NSW, the Garling (2008) report identified negative workplace cultures affecting both patients and staff satisfaction. NSW Health then devised a framework to address improving workplace culture (NSW Health, 2011).

Participants noted collegiality and collaboration as a positive feature of their work environment. Participants appeared positive where they felt they could influence or be part of a positive workplace culture. Where there was less influence, for instance in the workforce planning and clinical services decisions, participants described being alienated and separating themselves from hospital structures and influencing 'their own culture'. The perceptions of a poor culture or non-performing environment were seen in comments by participants about not being valued and feeling unable to add value. This has been noted in other recent surveys (Australian Medical Association

NSW, 2014a; Rural Doctors Association of Australia, 2012b). This was described by participants as a lack of valuing by health service managers, and also by their metropolitan colleagues in specialist colleges.

The health service management issues were evidenced in the participants' eyes by long lead time to advertise or offer work, perceived inadequate planning, decisions to limit critical mass and a sense that health service managers did not respect them or the job they were doing. Where existing relationships with managers were positive there was often perceived to be a shared vision for better patient services.

The concerns about the lack of being valued by their metropolitan colleagues was evidenced both by a perceived attitude of superiority and by pragmatic difficulty in transferring patients when required. Smith (2002, p. 58) described these sentiments in the survey commissioned by the Commonwealth Department of Health where she found 90% of respondents describing 'rural stigma' and the sense of being considered 'second rate' .

The level and type of training being utilised by colleges reinforced this in some specialities, where junior or unaccredited registrars were sent to regional centres – not being able to contribute to the after-hours and requiring substantial amounts of supervision and training time, with little college support or recognition. The premium for participants on workplace culture and work variety echoes the findings of the retention study of rural GPs by Kamien (1998) noted in Chapter 6. He identified a triad of factors: work variety, clinical autonomy and the feeling that one is doing an important job. The 'tempered altruism' expressed by some participants in this study fits well with this model as they wanted to be valued by patients for their decision to work in a relatively underserved area. The development of a 'valuing culture' would also likely further improve professional satisfaction and attractiveness of regional centre practice. The findings of this study and discussion at the AMA policy forum in December 2013 noted speciality college attitudes and negativity with health service administration had caused qualified and resident regional specialists to consider leaving or reorienting their practice away from the perceived non-performing and non-

supportive cultures or work environments (Australian Medical Association NSW, 2014).

Looking at other professional factors, the issue of after-hours has been well evidenced as a major professional factor in retention (Hays et al., 1997; Humphreys, Jones, et al., 2002). As was noted with recruitment, the availability of critical mass is central to sustainable rosters for clinicians to provide continuous after-hours care (NSW Health, 2012b; Rural Doctors Association of Australia, 2012b; Smith et al., 2002). In this study, after-hours was the third factor of importance behind workplace culture and variety. The importance of critical mass within specialties relates in major part to the frequency and intensity of on-call responsibility. Recent work by the Australian Medical Association (2012) has focused on safe hours for junior doctors. In addition, there has been work by colleges and other bodies identifying conditions and hours of work deemed appropriate for supervising and admitting clinicians. The Australasian College of Surgeons' position paper suggests that sustainable on-call regimens of one in four should be a minimum, with provision to reduce if fatigue or wellbeing of the surgeon is in question (Royal Australasian College of Surgeons, 2007). The Canadian Society of Rural Physicians' discussion paper (Leduc 1998) suggested rosters of at least one in five for small obstetric units. They pointed out the importance of considering both minimum hours of rest and maximum hours of work. Obviously with small subspecialties this is not practical and rosters need to take into account the frequency and likelihood of call, and the capacity of those with a generalist scope to share the load.

Aside from safe working hours, the onerousness or intensity of the on-call component of regional centre practice also related to the high likelihood of being called in and the junior nature of the medical staff. Over time, the role of regional centres as hubs for medical care, and reduced procedural work in some of the smaller centres, has increased the workload seen in regional centres. At the same time, the often junior nature of the medical staff has meant a higher workload for regional specialists being called in to consult and provide hands on care. The vexed issue of the number of junior or unaccredited registrars was mentioned as a significant retention issue, with their obvious training needs and inability to support the after-hours roster as problematic

for the existing specialists. Where more advanced registrars were available, they were able to participate in the provision of care, taking more responsibility commensurate with their experience level.

Given the evidence in the literature that women juggle family responsibilities in addition to their work ones, it would have been expected that women would rate after-hours more highly than their male counterparts. This was not evident in this study. The small number of women may account for this (n=14). Other evidence, though, suggests a greater need for women to control their after-hours work. There is also evidence of reducing working hours for women and a lower income than their male counterparts (Cheng et al., 2012). The provision of after-hours care and management of unremitting workload was an added difficulty for partners where both were specialists or GPs.

Access to CPD as a retention factor did not rate highly in this study. In fact it was considered by participants to be 'non-problematic'. Previous work suggested it was a key factor (Alexander & Fraser, 2001; Wagga Wagga Regional Medical Specialist Recruitment and Retention Committee 2010). This may have related to the fact that this has been the focus of significant policy innovation with both Commonwealth and state programmes focusing on the delivery of high quality CPD both regionally (Committee of Presidents of Medical Specialist Colleges, 2014) and more centrally with financial support provided through NSW Ministry of Health and Local Health Districts. In addition, the advent of online platforms for the delivery of CPD may have influenced perceptions of access to CPD.

Access to locums, although not discussed specifically in this study, has been well documented as an issue in small rural communities and is certainly applicable in the some regional specialties space where there are not enough specialists to provide internal cover. Again, recent programmes initiated by government have been directly addressing this issue, with Rural Obstetric and Anaesthetic Locum Programme (ROALS) and local hospital networks providing internal cover. This may explain why participants did not highlight the issue, or it is possible that specialists felt they did not need to be responsible to organise locum cover as it was a public hospital

responsibility (Royal Australian and New Zealand College of Obstetricians and Gynaecologists, 2010).

Access to career path, whilst not rated highly as important to retention, provoked reflection among participants. Firstly, there appeared to be a high level of contentment with the career path being clinical work in a regional centre. This could well relate to the high levels of professional satisfaction as previously discussed with variety of work, clinical autonomy and a satisfaction about providing a much needed service. The advent of rural clinical schools and the involvement in teaching was highlighted by two clinicians as part of their career path, and finally a small number of IMGs identified the lack of high profile research opportunities as a negative. This should not be a surprise as these clinicians had significantly less choice in their location and aspired to move on to teaching hospital locations.

It is important to reflect on the responses by participants in this study towards remuneration and financial incentives. Differential income and incentives are one of the key levers that can be used by government and others to impact supply. Importantly, this group of specialists did not rate remuneration as highly as other professional factors. It rated below work variety, culture and workload both in hours and after-hours. In addition, there were a variety of responses. There was a sense that it was a key cofactor but for many, the capacity to be paid well was important in how they were valued and how they compared to others rather than the actual dollar value. This came on the back of an expectation that they would be paid 'well'. Policy that planned on workforce mobility on the basis of remuneration alone would not appear to be supported by these participants' responses. A key theme was that there needed to be some differentiation from metropolitan earnings to *compensate for some of the benefits foregone*. This sentiment was echoed in the RDAA specialist survey (2012b) where financial incentives were suggested as offsets to some of the social costs of living in regional centres. Additional expenses to employ locums, travel and attend CPD events, boarding school expenditure and the loss of capital gains in property ownership were all costs borne by those practising in regional centres in comparison to their metropolitan colleagues.

As mentioned, for those who were VMOs and who were not employed by the hospital there were higher costs in supporting staff and delivering services in some regional centres. Participants in this study thought the concept of differential-based item numbers based on complexity or geography were appealing. For those who saw benefits accrue to visiting specialists under the MSOAP scheme (FIFO practitioners) the fact that they were not entitled to it suggested a lack of fairness, given that those who were resident had after-hours and continuous care responsibilities. The low rating for capital funding suggests that specialists, once set up, did not see support for capital funding as useful. This may have related to the study cohort, who were established specialists. The availability of this support at start up may be worth pursuing as cost pressures were a disincentive to those wishing to commence in VMO practice. The unique 'mix' relates to the unique regional centre environment in which a balance between the fee for service private model of service delivery and the staff specialist's models of care, which need to sit alongside each other, to ensure the range of service provision required. Health services need to 'fill gaps' with staff specialists and the opportunity for specialists to commence in a staff specialist position and then transition to a non-employed VMO model in some specialties was a not uncommon pathway, particularly when a referral base was established.

In summary, despite the low rating it is likely that adequate remuneration may be a necessary but not sufficient factor in recruitment and retention. It may be also possible to trade off by supporting specialists with costs related to service provision.

The generic qualities of regional centres as places to live were affirmed by study participants. Advantages like ease of access with short travel times and sporting and shopping facilities with reasonable choice were commonly described. In addition, a rural lifestyle with access to space and affordability was valued. There were commonalities with GP responses, pointing to a similar set of social factors and experiences driving retention decisions. Educational facilities for children were included in the retention mean rankings but not in the mean rankings for recruitment. With the increasing age of prospective regional centre recruits, and with the long training times for specialists, this appears important at recruitment also. Regional centres provide educational options to specialists with a range of public and non-

government schools. Satisfaction was high with primary schools but there was some ambivalence expressed by participants about secondary school, particularly if their children had special needs or were pursuing elite study or sports, or there were family traditions and expectations important in school choice. Post-secondary options were also seen as a limitation, with university options either limited or not available in the regional centres studied. The impact of life stage was also evident with older practitioners (≥45yrs) less interested in educational opportunities for children. This was evident for both GPs and specialists. There is evidence that younger practitioners' expectations do not appear to be aligning with those of their older colleagues. Regional centres provide *some choices* with underlying concern by younger parents articulated as wanting to ensure their children and young adults were afforded similar opportunities to themselves. Practitioners had a number of solutions, including sending children away, boarding with grandparents or moving back to metropolitan centres when the local options were not appealing, but secondary and tertiary education facilities did tip the balance for some clinicians as the stimulus to leave.

As noted with the GP responses, a sense of attachment to place (encompassing both the natural and the social) and community engagement and participation have been noted as important parts of the psychological process that tend to integrate people into a place (Hancock et al., 2009). This was affirmed by many participants as a reason to stay in their regional centre. It rated highly as the third factor behind work variety and workplace culture. It encompassed a sense of belonging, of being known and knowing and was described both negatively and positively. The high mean ranking in retention and the degree to which participants felt that this sense of community or belonging was important to them and their families was notable. This was not different according to age or location but was possibly less valued by those who did not complete their primary degree in Australia or who were providing services with no choice of location. The balance between anonymity and 'being known' and the shared emotional connection described by McMillan was articulated by specialists in this study (McMillan & Chavis, 1986). There is little doubt that this is an intangible but important retention factor for many specialties and their families.

With 80% of Australia's population living in close proximity to the coast, the importance of location and regional centres is critical. This study surveyed practitioners in two inland and two coastal locations. Whilst work variety was the highest-ranked factor, locational factors such as climate and environmental attributes fell closely behind. This high valuing of location overall was echoed in the responses of GPs to retention. In this study, clinicians described a desire to live in a place where they felt connected to, and satisfied with, their 'sense of place'. For coastal dwellers the picture was often pre-set with the familiarity of growing up by the sea. For others it was a growing realisation of opportunity cost for self and for family, having trained in metropolitan areas near the sea. Additionally, the higher population density at the coast rather than inland could also have inclined specialists to consider coastal locations. The subjective norms of Australian lifestyle and ambience do not accord as well to the physical amenity and climate of inland regional centres as they do to the coast. As noted in the discussion about recruitment, coastal specialists ranked access to a capital city, climate and environmental attributes as more important than their inland counterparts. There seemed to be two groups of specialists – those who would have considered a job wherever it was and those who were only interested in a job in a coastal location. Additionally, there was difference regarding the importance of projected workload at recruitment that suggests coastal participants were very keen to ensure work-life balance. In terms of retention, the importance of location for those living at the coast was affirmed with higher values for environmental amenity and climate than at recruitment. Location, either inland or coastal, emerged as a key recruitment and retention factor, and results suggest that there may be a different mindset in the specialists choosing these two types of locations.

It is apparent, though, that practitioners considered professional, social and locational factors when trying to work out a tipping point when they were considering staying or leaving. For others, there was no tipping point as a change of location wasn't on their horizon. Two reasons were advanced for this. Firstly, that this appeared related to the natural inertia of having to contemplate significant social disruption to move locations and secondly, that this related to a high level of satisfaction with community

connection. The two quotes below echo the balancing of professional factors and then the natural sense of inertia to move.

> *But, you know, you talk about tipping points. You know, if there were to be major changes in work or … I'd consider leaving. But I don't foresee … I mean, I can foresee changes in the work environment, regarding retirement and new people coming in and so forth. But at the moment, that's … none of those things are likely to make me want to change. S21.*

> *It's important, yeah, probably very important because as you get older the feeling of starting all that again is not as attractive as when you're younger. Well, you haven't got the roots down, I suppose. S29.*

The effect of inertia to stay must be balanced against the social or professional opportunities available elsewhere. It is clear that with a strong professional driver for those who are recruited inland, the decision to retire or reduce work hours may be a trigger to move either to a better climate or closer to family. As professional factors become less important, social factors increase in importance. So while coastal specialists may retire at the coast, inland specialists may not have the same drivers to stay in their inland locations. It could be expected that over time, shorter lengths of stay may be seen in inland than on the coast. This is evidenced by participants' stronger attachment to the coast and physical amenities than their inland counterparts. This is consistent with Bolduc's utility model (1996) where there may be a concentration on professional factors like remuneration and variety of work for a while and thence a plan may be made to move to the coast or nearer to family later.

7.7 Considerations of international medical graduates, age and gender

7.7.1 International medical graduates

Consideration of the preferences of IMGs must be tempered by the limitations of the study design and response. Twenty-six per cent of the participants had done their medical degree outside Australia and their average age was a little higher at 50.5 years. Whilst most participants had restricted choices in their decision to locate in regional centres initially, many had chosen to stay on when other choices had become available.

Commonly specialist colleges request that overseas-trained graduates pass the Australian fellowship exam within a certain timeframe enabling them to seek unrestricted registration and hence job mobility.

There is an implicit bias in that the participants who chose to be in the study were compliant with their specialist college expectations and participated in CPD and other professional activities. There are other IMGs living in regional centres who have restricted registration and few choices of location as a result. Their perspectives have not been as well represented in this study. Work by Han and others notes high levels of frustration and perceived racism in their treatment (Han & Humphreys, 2005; Parliament of Australia House of Representatives Standing Committee on Health and Ageing, 2012). Non-medical issues, such as 457 visa restrictions on education and access to Medicare, are hard to overcome when clinicians are providing valued clinical services to a community but not eligible to receive the same benefits their patients receive. One couple described the difficulty in getting routine immunisations for their infant son despite both parents providing full-time and extensive after-hours coverage in their regional centre.

Existing evidence of retention for IMG rural GPs in Australia shows a 52% shorter retention time than for Australian-trained GPs (Russell et al., 2012). It is likely that IMG specialists in regional centres will also have lower lengths of stay and that more positions will be available in inland areas where recruitment of Australian-trained graduates is less effective. Support for IMG specialists both at recruitment and in terms of retention has been discussed at length in a Senate inquiry. This was titled 'Lost in the Labyrinth' and described concerning complexity in pathways to registration and ongoing support for IMGs (Parliament of Australia House of Representatives Standing Committee on Health and Ageing, 2012). Logically, support to ensure high standards of collegial practice can be achieved by the specialist colleges. What is less clear is how spousal employment, a major arbiter of personal satisfaction and assistance with community integration, can be achieved. Task forces set up by regional centre councils or workforce agencies could be well placed to support the social and locational concerns, ease recruitment processes and orientate IMGs to regional centres.

7.7.2 Age and gender

In this study, 75% of the specialists were male and of those ≥ 45, 85% were male. Overall specialist participants had an average age of 49.8 years. Older participants considered employment opportunities less important than their younger counterparts. Not surprisingly they were less interested in educational facilities and career paths than their younger counterparts. However, they had similar ratings in terms of community and cultural facilities and sense of community. In fact, there were few differences based on age, and in particular retention issues such as workplace culture and work variety appeared not to be age or gender related. This suggests that approaches that consider these modifiable retention factors should be targeted and effective to support both younger practitioners and also older practitioners with often a wealth of experience and wide scope of practice.

Changing societal expectations and the normalisation of dual career couples has created changes in the relative importance of spousal employment. Twenty per cent of specialists were interested in locating in a centre with the availability of two specialist jobs – for self and spouse. In addition, there were another 10% who were partnered with GPs. This is consistent with other studies predicting around 30% of doctors partnering with other doctors (Tolhurst & Lippert, 2001; Uhlenberg & Cooney, 1990). In fact in one survey, 51% of female physicians were married to physicians whilst 6% of male physicians were married to other specialist physicians (Uhlenberg & Cooney, 1990). Many more would have been partnered with GPs and allied health clinicians. Therefore, the importance of finding a location with job opportunities for two and the potential of work-life balance for both was evident in this study. The lower percentage of female specialists in regional practice is likely to be reflecting the difficulty of finding two jobs and two career paths, among other factors.

Specialists who were ≥ 45 rated partner employment opportunities for retention lower than their younger counterparts. Those specialist respondents were overwhelmingly male. Other evidence suggests the likelihood of location decisions being made primarily by the female physician is lower (Uhlenberg & Cooney, 1990). Labour force statistics point to lower workforce participation rates amongst women in the 30–39

age groups in regional centres (Australian Institute of Health and Welfare, 2013). This can be seen in the lower number of work hours by rural GPs who are women (Health Workforce Qld and NSW Rural Doctors Network, 2012). Women, if they weren't the major breadwinner, were not the key person upon whom location decisions were being made. In a study by Uhlenberg in Holland, in the case of physicians, 73% of the husbands earned more than the wife and 60% of the time the male worked longer hours (Uhlenberg & Cooney, 1990). Male careers still took precedence, although this evidence is dated. They did note that with the dual specialist couples, women described working fewer hours. In addition, there was the finding that work-home stress was higher for female physicians than their male counterparts. A more recent study highlights the same trends with a US study concluding that female physicians still shoulder the majority of traditional household responsibilities (Dyrbye et al., 2014). This would translate to a higher priority of social factors for female clinicians. Female specialists had higher ratings than their male counterparts for spousal employment in both recruitment and retention and demonstrated greater concern in the value of social connectedness and sense of community once they were installed in regional communities.

7.8 Conclusion

Regional specialists surveyed have shared important perspectives on their decision-making relating to both recruitment and retention. Whilst much of the experience of specialists related to social and locational factors that are shared with GPs, there are a number of professional issues that are very different. The scope of practice and need for both subspecialist and generalist practice is unique to the regional centre environment. So is the often debilitating in hours and after-hours load that accompanies a low critical mass of clinicians. Workplace culture was also highlighted as a major retention issue for specialists, who must depend upon and relate to staff and hospital management, in addition to their private practice locations. Workplace culture with its slightly different nuances compared to GPs merits further attention. In fact, it was second only to work variety in importance for retention.

Regional centres share some of the recruitment and retention factors with rural environments but differ in many aspects. There are also similarities that relate to non-metropolitan practitioners across medical workforces as a whole and others that pertain to specialists and not GPs. The increasing number of dual career couples and the challenge of finding work opportunities for couples in regional centres is important to note. In addition, the strong sense of community, a factor shared with GPs was important and had a pull on many specialists and families. Finally there was a clear cross cutting theme, shared with GPs, about the importance of climate and environmental attributes for those who had chosen to locate at the coast. This inland/coastal difference may have implications for evidence-informed policy initiatives created with the intention of supporting workforce supply.

It is clear that regional centres, providing as they do secondary care services for large catchments, require an adequate and sustainable supply of specialists able to provide care. The results from these participants combined with the picture generated of workforce supply and existing GP evidence highlight key aspects of recruitment and retention. The addition of these new perspectives and influences inform the May framework outlined in the next chapter (Chapter 8). The importance of modifiable professional factors, the increasing importance of dual career opportunities and the notable differing priorities for clinicians living in coastal and inland regional centres provide important evidence with which to consider potential targeted policy responses and contributions by government, the profession and the community. In addition to providing the evidence for targeted policy, to be explored in Chapter 8, the findings highlight the complexity of regional centre recruitment and retention set in the midst of changing expectations and patterns of practice. Chapter 9 reviews the findings from the study, contextualising them within the wider health environment and considering the opportunities and learnings that this exploration highlights.

CHAPTER 8
TOWARDS EVIDENCE-INFORMED POLICIES TO IMPROVE THE SUPPLY OF MEDICAL WORKFORCE IN REGIONAL CENTRES OF AUSTRALIA

8.1 Introduction

Regional centres are different in context both from small rural and from metropolitan areas in Australia, but they continue to receive little attention in terms of deliberative health policy. This chapter seeks to incorporate the study results into a more comprehensive picture of recruitment and retention of medical practitioners to regional centres and to give contextual clarity to the need for targeted action to sustain medical workforce in these locations. The previous chapters demonstrated that the decision to move to, and stay in, a regional centre is likely to be influenced by a number of key factors – notably professional, social and locational aspects and other characteristics such as gender, obligation and whether the regional centre is located on the coast or inland. The previous chapters also noted a changing scope of practice for both GPs and specialists, with an imperative therefore to consider models of service delivery able to meet the health needs of regional centres and their rural hinterland. In light of this new body of evidence about the recruitment and retention decision-making of specialists and GPs working in such areas, this chapter discusses how future policy can be best configured to ensure adequate workforce supply in regional centres.

Section 8.2 reviews the framework on recruitment and retention derived from existing literature that was described in Chapter 4 in light of the new evidence generated from this study. Reflections on the study outcomes take into account the juxtaposition of long lead times for new medical practitioners preparing to commence regional practice with ongoing change in policies and practice. Policy responses must therefore be measured over time, with impact potentially occurring ten to fifteen years after their implementation. In addition, measuring and evaluating individual components of

policy interventions remain problematic with inherent difficulties of attribution, and synergistic and overlapping effects.

Eight years have passed between the genesis of this study and its conclusion. It is not surprising that there have been a number of shifts in the availability of data, key stakeholders and policy across the study period. Notably, in the time taken to complete this study, ASGC-RA has become the major classification system for health outcomes and workforce policy, and now looks likely to be replaced by the new Modified Monash Model. Section 8.3 evaluates the important impact of classification systems on regional centres.

Section 8.4 reviews the rationale for the rural workforce 'pipeline' and considers how the results of this study can be incorporated, considering the current policy context and the potential for influencing workforce supply. This is the first time the context, scope and preferences of regional centre practitioners have been interrogated. Using the framework introduced in Chapter 4 and modified in the light of the study findings as a springboard, interventions can be considered in terms of both the 'pipeline' approach and the capacity for policy to modify the environment. This creates a clearer picture of possible policy approaches and interventions applicable to regional centres and identifies the key stakeholders and influencers: state and Commonwealth governments, specialty medical colleges and communities who may play a role. Section 8.5 concludes the chapter with a summary of the desired outcomes including specific targeted and practical responses to ensure the provision of an adequate and appropriate medical workforce into the future.

8.2 Framing recruitment and retention in regional centres

Prior to this study, the understanding of factors key to recruitment and retention for those in the regional centre medical workforce was inferential at best. The framework developed in Chapter 4 was based on Jones and Humphreys' (2004) categories of professional, social and locational factors and used a continuum approach of modifiable and non-modifiable factors. Hancock et al. (2009) developed a model of installation and maintenance that better linked recruitment and retention though

neither of these models focused on regional centres. The combination of the two models and the existing literature was presented in Chapter 4. The 'May' model in Figure 8.1 uses the data collected and synthesised from the four regional centres in this study to further flesh out the framework, with additional factors directly from the study findings highlighted in blue. Regional centre recruitment and retention processes are seen as separate but interlinked activities with influencing factors that could be considered professional, social and locational. This framework considers GPs and specialists together whilst acknowledging that the professional factors that govern recruitment and retention are different. It does appear however, that there are many commonalities in terms of social and locational factors.

The decision for specialists and sometimes for GPs, to commence practice in regional centres is usually made from outside the regional centre (due to lack of local training options). The decision to remain is made by assessing the strengths and weaknesses of the professional, social and locational factors whilst 'in the situation' (Cutchin, 1997b). Tipping points exist within each of these domains that influence individuals in making decisions. The rationale for a multipronged approach to regional workforce policy as detailed by Buykx et al. (2010) rests in this diversity of triggers and an understanding that the work-life balance encompassing professional and social factors will potentially depend on factors like age, gender and IMG status.

Over the last twenty years, there has been a change from the previous social norm of financial provision and professional roles as paramount to a quest for a different work-life balance (Costa & Kahn, 2000; Shrestha & Joyce, 2011). In considering recruitment factors, whilst professional satisfaction remains of the highest importance, the increasing importance of family responsibilities is also evident. The impact of increasing feminisation of the health workforce as well as changing expectations for males of greater work-life balance may challenge the previous primacy of professional factors in decision-making. In this study, spousal employment and 'sense of community' both for the practitioner and for family members was considered highly important to practitioners in the decision to stay. These study findings were common to both specialists and GPs.

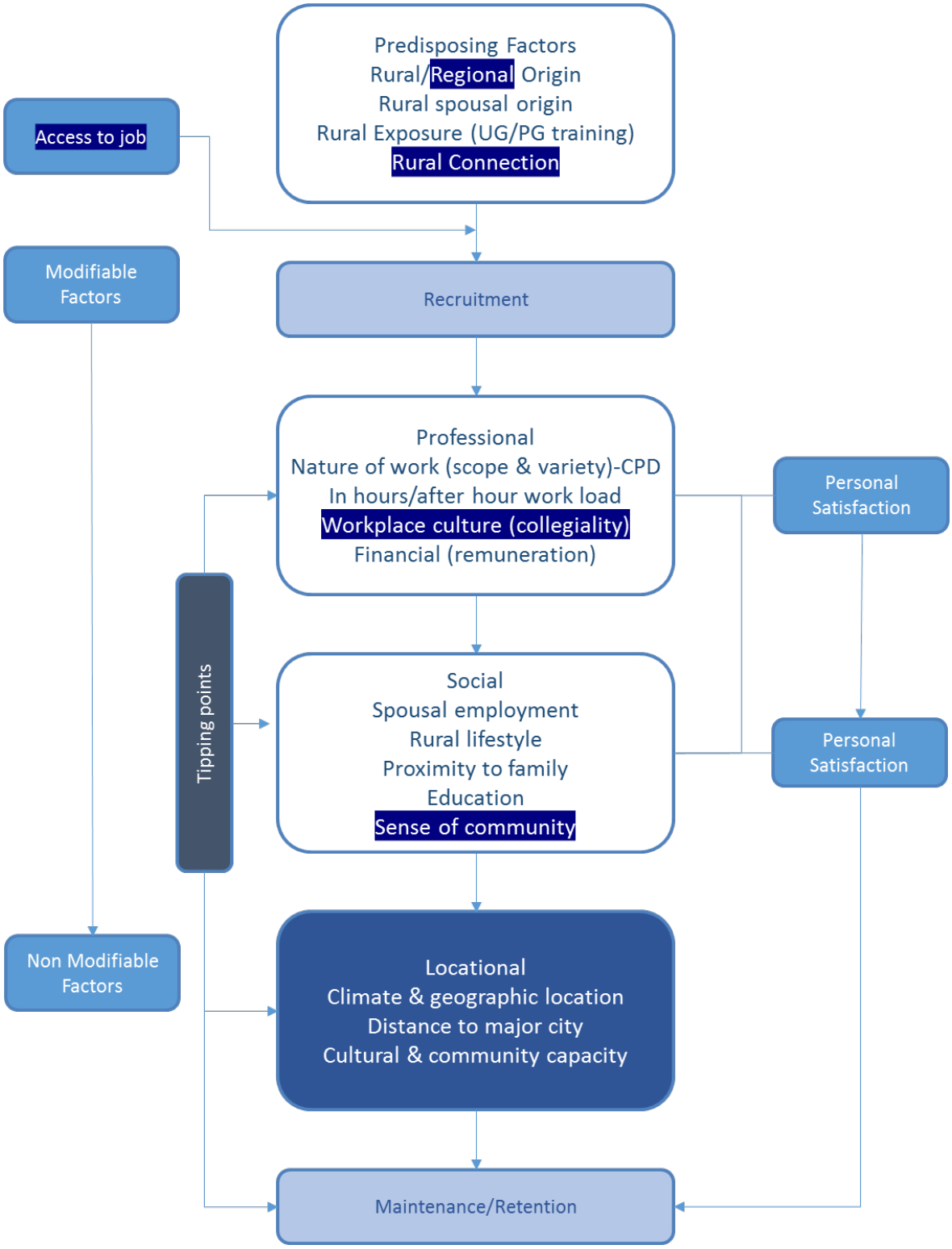

Figure 8.1: Recruitment and retention factors affecting regional centres (May model)

Source: Adapted from Humphreys (2009).

The regional centre was seen by respondents as homogenous and able to support a set of definable services and functions from a medical practitioner's viewpoint. Regular flights to capital cities, access to supermarkets and shops providing an array of basic goods coupled with education facilities (both public and private) capable of supporting students through to Year 12 were common experiences across the four regional centres studied.

Predisposing factors

The respondents in this study affirmed the importance of rural origin as a predictor of long-term rural residence with over one-third of practitioners of rural origin and rural connection or exposure in many others. The practitioners in this study noted positive exposure to rural and regional centre communities sensitising them to the scope of practice, the opportunities available and the 'sense of community'. The bracketing of rural and regional centre origin in the definition of 'rural origin' has merit as the consistent level of rural origin in this study suggests that rural and regional origin are both important in sensitising medical practitioners to non-metropolitan practice. The current cut-offs in medical student selection of metropolitan and rural (encompassing regional centres, rural and remote locations) appear appropriate for rural origin affirmative selection for training places.

Rural spousal origin was also affirmed with 41% of the specialist cohort and 47% of the GPs in the cohort and remains a key factor in increasing likelihood of long-term regional location. Immersion undergraduate experience in regional and rural areas may well provide opportunities for social connection and possibly meeting a rural partner. The trend towards older medical students (due to the increasing number of graduate entry courses) would be a counter to this, with decisions about partners and their careers occurring possibly prior to rural and regional exposure.

This study did not directly capture positive or negative exposure through regional or rural undergraduate training. The availability of undergraduate training as a systematised programme is relatively recent, with the RCTS funded programme commencing in the early 2000s. Thus evidence of positive rural undergraduate training being a predictor for both rural and metropolitan origin students is increasing

but is not referable from this study (Clark et al., 2013; Kondalsamy-Chennakesavan et al., 2015).

The rural connection – both for those in their formative years and for those considering working in a regional centre – is notable. This connection can take many key forms: family and friends, work opportunities and knowing and respecting those who were already resident. The difficulty lies in identifying this connection and potentially assessing it if it is part of likely rural intention. This is obviously important in both framing and measuring policy intervention based on both rural intention and strategies to support 'rural connection'.

Attraction, recruitment and retention

Attraction or predisposition is followed by 'installation', which describes the commencement for the practitioner of working in a regional centre (Hancock 2009). This process was usually made possible by a combination of a 'work opening or opportunity' in addition to the predisposing experiences allowing regional centres to be on a practitioner's 'radar' as a possible location. Professional factors were important in both assessing the opportunity and then being maintained in the location. Professional factors noted in the framework include remuneration, work variety and scope and workload considerations. This study affirms the high values regional specialists placed on professional factors for both recruitment and retention. Specialist practice differs from regional GP practice in that there is reliance on access to key infrastructure such as public and private hospital beds and facilities and the availability of hospital appointments. Thus decision-making regarding regional specialist practice relies on the *availability of job opportunities*, hence their inclusion in the framework. GPs also noted the availability of job opportunities as key in their decision to practise in a regional centre.

Work variety and the concomitant scope of practice emerged from the study as the key professional factor in recruitment and retention for both GPs and specialists. Regional centres differed in that the scope of practice was wider than in most metropolitan contexts. GPs ascribed similar priorities to professional factors but with lower rankings than their specialist colleagues. Although professional or work factors had the highest

rankings in recruitment and retention, work variety for GPs was highly valued but with the caveat or recognition that the scope of practice was significantly less than that required in smaller rural town where in and out of hours workload was higher.

The high ranking of work variety for specialist recruitment and retention suggests that those who choose regional practice value the wider scope of practice required in an environment with traditionally lower availability of subspecialist services. Work variety remained very important to participants in retention. The implications of this are that it is modifiable through planning and policy. If a policy response was geared towards supporting a critical mass of specialists in regional centres, it would only be achieved with appropriate training, access to infrastructure and ongoing professional development opportunities with specialist college support.

Workplace culture was identified as crucial to retention of clinicians and is influenced for specialists by private and public hospital workplaces and in particular by hospital management. The need for close collaborative agreements with colleagues and managers to maintain rosters and manage services means that clinicians in regional centres cannot work in isolation and are often dependent to an extent on other's work attitudes and decisions. In fact, collegiality was valued by participants as a positive feature of the regional centre experience. GPs are in a different situation, mostly without the hospital workplace, but they have employer and employee relationships to negotiate within their general practice environments and they also valued positive workplace culture. This is an area where deliberate efforts to modify, support and enhance workplace culture would be a potentially effective intervention.

The key importance of critical mass to enable sustainable after-hours service provision and therefore reasonable work-life balance must be reviewed. This was considered the third key professional factor by specialists and GPs. For specialists, the maintenance of a critical mass of colleagues to share the work with, and the importance and trade-off between generalist and subspecialist skill sets have been highlighted. It remains one of the major conundrums in delivery of manageable afterhour's rosters and needs to be a focus of ongoing efforts to support retention. For GPs the study findings highlight low

levels of involvement of practitioners < 45 years and those in coastal locations in VMO and after-hours services, a trend that merits further review.

The importance of remuneration to regional centre GPs and specialists is also a consideration. Whilst remuneration did not figure as highly important to either group, participant GPs described a trade-off between the higher amounts payable when working longer in smaller rural communities often with significant on-call and after-hours commitment, with likely reduced earnings working in a regional centre. Many reported that the regional centre context with choice over hours worked was seen as more attractive. Remuneration was not nominated as a major driver by practitioners in this study, and the advent of retention payments in regional centres had not had an impact at the time of survey.

Specialists also did not have high ratings for remuneration. Evidence from this study does add reflections from specialists seeing remuneration as a trade-off for time or opportunities foregone and also having an expectation that they would be well renumerated in whatever working arrangements they found themselves in.

The study results affirmed the importance of spousal employment as a key social factor impacting on the recruitment and retention framework. Women rated this highly compared to men and the dual career couple is now a normative paradigm. This was also more important to IMGs for whom location choice may have been limited. Rural lifestyle was affirmed with access to educational facilities noted as important for both recruitment and retention. Proximity to family was moderately rated by participants but interestingly was more highly rated by inland participants. This suggests there may be differences in the priorities of those who choose to work in inland and coastal locations.

Whilst some aspects of rural lifestyle and community and cultural facilities are non-modifiable, the 'sense of community' and potential for community engagement did appear important for many clinicians and was a key factor in retention. The 'cosmopolitanisation' of regional centres evident in the last ten years has also supported the potential liveability of regional centres, certainly as compared to small rural locations. There are positives of 'rural lifestyle', with many shopping, cultural and

educational needs met within the regional centre. The inherent trade-offs in access to elite sporting, social and cultural events only available in metropolitan areas was possible with more easily available air services to capital cities up to ten times a day in some locations. Thus the liveability of regional centres was valued by those having made the decision to stay.

Finally, non-modifiable location factors noted in the framework such as environmental attributes, climate, access to major cities and community capacity were considered by study participants as important in both recruitment and retention. Without effective policy responses available to address for these non-modifiable factors, an approach to balancing or increasing attractiveness of other factors may be required.

The framework, then, links professional, social and locational factors acknowledging that any combination of factors may become tipping factors triggering a decision to leave. It also links predisposition, recruitment and retention, recognising they are interlinking processes with many of the professional factors common to both processes. The framework best represents the interplay of factors operating and demonstrates the multiplicity of factors and thresholds existing that contribute to the decision-making of practitioners in regional centres.

8.3 The impact of classification systems on regional centres

The issue of delineating regional centres becomes critical when considering the opportunity to target more modifiable factors of recruitment and retention through policy. Classification systems utilised in recent times have had little ability to identify regional centres, which have a different nature of practice than more rural or remote locations.

The RRMA classification was in widespread use till the mid-2000s with demarcation of regional centres with populations of 25–100,000. Thereafter, the use of ARIA and then ASGC-RA has been dominant for reporting health outcomes, workforce distribution and distributing rural funding programmes. In both ASGC-RA and ARIA classifications regional centres have been invisible as a result of the lack of a population denominator. Controversy has continued with concerns of the distortion of possible recruitment

efforts with Darwin, a metropolitan area, being classified similarly and therefore meriting similar incentives to rural towns in NSW such as Urana and Hay (Schuh, 2012).

McGrail and Humphreys (2009; 2012) have offered an alternative classification system named the Monash Model. Their six (and *expanded* 13) stage classification took into account population size as well as remoteness and hence practitioners with similar responsibilities were more likely to be classified similarly (see Appendix 10). As the population variable was used, the congruence of their classification equated well with four of six sentinel indicators selected on the basis of their known importance in attracting rural medical workforce and influencing length of stay. Four of these factors related to professional factors and two related to non-professional or social factors. The professional factors were hours worked, type of procedures, on-call arrangements and ability to have time off. Non-professional factors included spouse support and schooling arrangements. One potential drawback, however, was the lack of distinction related to population density (similar to the other classification systems), meaning that coastal and inland communities could be classified the same although the catchment or density of the local region could be very different.

By taking into account population size, the 'Monash' classification (Humphreys 2012) has achieved a more appropriate discrimination in classifying regional centres together. This was noted by a Commonwealth inquiry into the factors affecting the supply of health services and medical professionals in rural areas (Rural Doctors Association of Australia, 2012a). In the Mason review of Australian Government Workforce programme (2013) the Monash model was preferred to ASGC-RA as it had better correlation with known workforce factors and was therefore more likely to provide incentives if used for this purpose to those working in areas where retention is more problematic. Practically, it is likely to classify those GPs working in regional centres as requiring a smaller incentives than their more rural counterparts who are working after-hours and using a more extended scope. The Commonwealth government announced in November 2014 that the Modified Monash model of classification would be introduced after consultation by an expert working group (Australian Government Department of Health, 2014c; Australian Government

Department of Health-Rural and Regional Australia, 2015). In addition, definitions around DWS and return of service locations for bonded medical places were also under revision so as to use population size as an additional arbiter (Nash 2014).

From the perspective of this study, the adoption of a classification system like the Monash model that better differentiates different scopes of practice and after-hours responsibility and considers remote, rural and regional centres differently is a foundational and welcome step to enable delineated and differentiated workforce issues in regional centres. Without a classification system with this discrimination there is no capacity to target policy to regional centres and thus influence workforce supply.

Finally the fitness for purpose of classification systems needs further mention. Whilst the Monash model differentiates regional centres from smaller centres with lower population, it does not account for locations of regional centres (whether inland or coastal). The key finding of differing priorities from those who intended to locate at the coast and those prepared to consider inland locations highlights a dilemma in terms of possible policy intervention. There is obviously need for greater clarity and precision in defining and thence classifying workforce shortage and location (as highlighted in Chapter 3) and considering delimiting workforce shortage or other measure of undersupply. This would be a necessary first step prior to any consideration of policy or mechanisms to differentiate inland and coastal and thus consider possible policy intervention.

8.4 Evidence informed policy – how these findings can add to the rural and regional medical pipeline

The findings from this study reinforce the premise that regional centres, being key elements in the delivery of health care in rural areas, require specific and targeted policy responses. Their role in both delivering care to the population in regional centres and also acting as a hub and spoke service delivery mechanism to surrounding rural areas makes it imperative that workforce supply and geographic distribution of medical workforce is adequate to the maintenance of health and wellbeing for all non-

metropolitan Australians. The rural workforce policies described in Chapter 2 provide a basis upon which the findings of this study can be considered. While the existing policies comprise a raft of necessary and important responses, they are not sufficient at this time to ensure adequate and sustainable workforce supply to all regional centres. This section will consider strategies to ensure that policy in this area is as targeted as possible.

One policy framework that has been utilised for consideration of rural workforce is the 'pipeline' approach. As noted in Section 2.5 there is a notional connection and synergy between policies of selection (including obligation), training and the provision of support for the workforce. This can be loosely considered as a 'pipeline' and is useful as a tool to review medical workforce policy for regional centres. The rural pipeline framework is utilised to couple the major findings of the study with existing and potential policy options. The Wilson criteria considered in Table 2.4 provide the policy section headings commencing with selection, followed by training, coercion, incentives and support (N. Wilson et al., 2009).

8.4.1 Pipeline: Selection of medical students

Table 8.1: Selection

Study Findings	Current Policy	Potential New Policy options
Rural and regional origin predictor affirmed	Medical school rural quotas (currently 25%)	Increase medical school rural quotas Medical colleges rural and regional quota for specialist vocational training AMC accreditation of specialist colleges conditional on the accountability to train for geographic distribution
Rural spousal origin predictor affirmed	Rural Health Multidisciplinary Training Programme (RHMTP) merger of RCTS,UDRH and DTERP programmes – Supports opportunities for community engagement and social integration (Bachelor and Spinster Ball principle)	

The Commonwealth Government has the capacity to influence medical workforce though it's funding of the university sector, the number of medical student places and rural affirmative programmes. Medical student places are capped, unlike other health profession courses where universities determine the numbers (Mason, 2013). Given the longstanding evidence regarding rural origin, the value of affirmative rural student selection is already well understood. This study found that rural origin was also a feature, with 30% of specialists now resident in regional centres of rural origin, and increasing numbers of practitioners < 45 years having rural origin. More controversial, though, would be a view towards origin from underserved communities. The evidence from Rabinowitz et al. (2000) affirms the value of recruiting from underserved communities, and given the higher levels of workforce shortage inland, consideration could be given to recruiting from specific locations. There is currently no capacity within current classification systems or any Australian modelling to evaluate this proposition.

The large body of evidence about rural, and now regional, origin should prompt consideration of mechanisms to encourage specialist colleges to recruit rural origin trainees for their specialist training programmes. Specialist colleges may need to consider their social accountability and population need when selecting trainees and designing training programmes.

Rural spousal origin is hard to mandate but can be facilitated with rural immersion for students at formative times in their lives. Bachelor and spinster balls (B&S balls) used to be the form of country courting that was most coveted by metropolitan students (Tourism Australia, 2011). The value of community and social engagement during positive educational placements – whilst hard to measure– may well promote both rural connection and rural intention. This study confirmed the value of rural connection to many of the study participants who did not have rural origin but who chose to take up practice in regional centres. The quantification and measurement of this effect would be an area for further study and would further enhance the current synergistic effect between regional and rural origin and positive rural undergraduate experience.

8.4.2 Pipeline: Medical training

Table 8.2: Training

Study Findings	Current Policy	Potential New Policy Options
Work variety an important component to professional satisfaction (specialists)	One current innovation project 'Specialist training 'in place' and 'in reach to metropolitan centres' (Pilot project running 2 colleges in 1 regional centre)	Seamless non-metropolitan postgraduate training pathways from undergraduate PGY1 and 2 and specialist training pathways STP funding 'owned' by regional centres to ensure in reach to city by regional centre based trainees rather than outreach Specialist colleges mandated to develop regionalised training models (with supervisor support)
Importance of after-hours and workload (specialists)	Registrars dependent on College and LHD support-often junior and /or unaccredited. Supervisor accreditation variable. 'Surgical Fellow programme' implemented in 2 regional centres (no recurrent funding) for senior registrars at end of training	(as above) STP support linked to regional specialists workforce as teachers and supervisors Specialist colleges mandated to develop regionalised training models with registrars attracting support both financial and non-financial to equate to metropolitan experience and teaching
Importance of work variety and scope of practice-(GPs) in professional satisfaction	GP training classified rural or general. Regional currently undefined	Identified regional centre scope of practice with training fit for purpose
Importance of regional job opportunities -the end points of training		Transparent workforce planning with state and private hospitals
Importance of rural connection whilst training	RCTS –promotes immersion and community engagement John Flynn Placement Programme	Expanded role supporting rural immersion to long term PGY 1 and 2 and vocational trainees with outcome measures

There is much that the findings from this study can add, in considering the nature of practice in regional centres and the extent to which current training is fit for purpose and sustainable. In order to improve the targeting of specialist and GP training to the needs of rural and regional patients, a wider scope of practice must be encouraged and

supported. There is a value proposition for the Commonwealth Government (and state governments) if residents of regional, rural and remote Australia can receive the majority of their primary and secondary care in non-metropolitan areas. Part of the answer to rural GP recruitment and retention lies in ensuring that GP trainees are able to acquire suitable skills, training and support. The advent of the rural generalist programme is a major step forward in this regard (Larkins & Evans 2014). Undoubtedly there are elements of the same value equation that could be utilised to review the maldistribution of specialists in regional centres. The Commonwealth invests significantly in training, with current support for national intern places, general practice training and additional specialist training posts (STPs). Streamlining this investment to ensure that registrar training is fit for purpose would improve access to rural and regional health services and work to reduce costs in the long term. There would be reduced need for IMG recruitment and there would be a reduction in patient transfers if scopes of practice in regional centres were maintained or enhanced. This will be further discussed in the section on a regionalised training model.

Health workforce policy should include regionalised local planning where community requirements, service models and financing structures can be regularly reviewed This was well articulated in the Rural Surgery Futures report (NSW Health) released in 2012. Whilst flexibility is certainly required when considering the number of dual specialist/dual doctor couples, the need for registrar training and career development should not happen in isolation from projected demand and opportunity. Collaboration between public and private service providers to ensure catchment and critical mass for subspecialist practice with a unified approach would ensure FIFO models do not usurp viable local models. Where FIFO is utilised and funded there could be a requirement for Commonwealth supported models to articulate with and work to the strengths of existing providers to maximise hub and spoke capacity and minimise health and patient cost.

Rural connection can be enhanced with activities and collaborations similar to those already running in the Rural Clinical Training and Support Programme. The role of non-government and community organisations to assist with building sporting, social

and cultural relationships has been proven to assist installation and maintenance (Felix et al., 2003).

The case for a regionalised specialist training model

The scope of practice in regional centres was denoted by study participants as different to their perception of metropolitan practice. This is supported by the high percentages of specialists involved in on-call responsibilities. In addition, work variety was the most important recruitment and retention professional factor noted in this study. The challenge of managing diverse problems and managing with reduced access to other diagnostic services (in some locations) was noted as a positive attribute by way of work variety but also negative in terms of professional isolation. It is also a reflection of the important reality that regional centres need to maximise the variety of clinical presentations that can be safely managed whilst recognising that highly specialised tertiary services like neurosurgery and cardiothoracic surgery will need to remain in metropolitan areas. This overall 'catchment approach' recognises the needs of surrounding small communities and their patients in addition to the population residing in regional centres. With centralised transport links and the 'hub' role of regional centres, the feed-in role can be used to reduce the need for patients overflying regional centres to tertiary facilities.

A potential model could include reallocation of STP funding to regional centre hospitals to be spent at those sites for advanced registrar positions. The Commonwealth Government has a condition of funding for Rural Clinical Schools, being the stipulation that 95% must be spent in non-metropolitan areas. A similar model could be utilised for STP funding, ensuring that the workforce being supported received the majority of the funding support. Relevant specialist colleges could support the positions with training and supervision, with the express purpose of building a specialist workforce with the requisite skills to work in regional centres. The current problems of junior and unaccredited registrars, who have high supervision needs, being placed in regional centres should be reviewed with funding conditional on college support and accreditation of supervisors and mentoring. Measurement of outcomes within networks as a basis to funding would ensure close cooperation if training posts funding were conditional on the distribution of existing workforce.

In most medical specialties, regional centre residents would benefit from access to both subspecialist and niche practice capacity in addition to a wide generalist capacity. This could be conceptualised as dual qualifications or additional skills and/or training. Controversy continues about the 'right role' of specialisation in medicine and the cost and impacts of the growing move to subspecialisation (Australian Medical Council, 2015; Detsky, Gauthier, & Fuchs, 2012; Nova Public Policy Pty Ltd, 2011). The drivers for specialisation are professional preference, growing levels of complexity in science and technology requiring highly developed skill sets, and economic factors where specialisation is greatly valued. This is incompatible with a regional centre context where the full array of subspecialty practice cannot be provided and where travel for patients and care at a distance is costly both financially and socially. Therefore the 'right' combination of skills is that that allows people to be seen 'in place' for as much as possible. For example, a physician who is a rheumatologist as well as being capable of admitting and triaging patients on a general roster is an ideal 'fit' for a regional centre.

Thus, in order to recruit specialists who can work confidently with a wide generalist capacity and have additional subspecialist expertise, training must equip them with the requisite skills and confidence. A regionalised training programme is one solution that should be canvassed. The pipeline approach of moving from undergraduate rural clinical school exposure to postgraduate years one and two spent in regional centres and then the capacity to apply and commence specialist training (including general practice) without having to move would be a major step forward. This sort of an initiative requires funding alignment between a number of current providers. Traditionally the states control funding and support to hospital employees, including specialist trainees. Currently, specialist trainees rotate for periods of up to six months to regional centres but must complete significant amounts of time in metropolitan hospitals or networks. A new model of regionalised training would see 'in reach' into metropolitan hospitals rather than the current 'outreach' model. The trainees would not only be suitable for regional practice but also have portable skills and expertise enabling them to effectively practise in metropolitan centres. It is a vision of training that is enhanced by context, not reduced to a generalist approach, which could be a

crucial underpinning of long-term sustainable workforce models for regional centres. These models would require the support of specialist colleges and also state governments who fund training posts. It would require a vision from regional centre clinicians valuing a dual scope of practice and being supported by their metropolitan colleagues. Training pathways emanating from regional centres would need to build status within their specialties, with training quality and job prospects demonstrated. A model such as this is being piloted in Dubbo NSW (Royal Australian College of Physcians & Internal Medicine Society of Australia and New Zealand, 2012).

The benefit to regional centres of having advanced trainees who have been supervised and supported to understand context and in addition develop subspecialist expertise would be significant. The difference would be felt over time both in reductions in after-hours call outs due to registrar seniority and capacity, and in the accruing of critical masses of clinicians to provide a sustainable service.

Regionalised training networks would need to be developed, building on the current infrastructure provided by Local Health Districts, universities and private providers (Mason, 2013). The Commonwealth has a current investment via the Specialist Training Programme. This current investment could be leveraged with the specialist colleges to develop mentored long-term training arrangements, with resourcing consistent with metropolitan programmes. If training is not available locally, it could be outsourced by supporting trainees who are based regionally to rotate into subspecialist units in metropolitan areas. This would be required to attain a credentialed subspecialist skill set in addition to a generalist competence and experience available in regional centres and would enable clinicians to participate in a generalist roster (Australian Medical Workforce Advisory Committee (AMWAC), 2005).

Risks to successful training outcomes

There are a few specialties for which this model is not suited. Anaesthetics and Emergency Medicine have fewer subspecialist scopes so would not require dual training with generalist and subspecialist expertise. They could both have training

programmes based in regional centres with 'in reach' as required to expose trainees to the required experiences.

It is vitally important that the training model addresses the known drawbacks. A recent narrative review of rural general practice placements suggests that weak placements were characterised by poor resourcing, supervision and support, providing negative experiences for junior doctors (Young, Larkins, Sen Gupta,McKenzie et al., 2013). Unpublished evidence from a recent rural psychiatry project in NSW indicates that entry motivation by trainees and localised quality support are key to retention (Nash, 2013). The recent review of the rural surgical training programme found that the programme did not result in trainees staying in rural practice (Health Workforce Australia, 2012b). The review highlighted the importance of professional support, having surgeons installed in rural clinical school teaching roles, and the seamless relationship and support of metropolitan centres. Trainees will not locate to what are perceived to be inferior quality training posts and remain in situ. Training must have specialist college buy-in and support at the highest level. This would require colleges and metropolitan providers – in collaboration with the local health district – becoming accountable for workforce skills and distribution, and as a consequence building capacity and valuing regional contribution. The current lack of 'valuing culture' was articulated in this study and, unless addressed would make non metropolitan training unattractive. A values approach, if combined with clinician engagement strategies in planning and service delivery would leverage positively on the tempered altruism displayed by many clinicians interviewed in this study.

The case for regionalised General Practice training

Consideration of training models for regional centre general practice is very topical with the General Practice Education and Training body (GPET) being merged into the Commonwealth Department of Health at the time of writing. The scope of practice being trained for, in regional centres, has been unclear. It appears variable, with a skill set extended compared to that of many practitioners in metropolitan areas, and a scope of practice that appears somewhat dependent on the number and type of specialists available. Regional centre hospital training positions can provide ideal training posts for regional generalists who plan on more rural practice, especially

within a geographic catchment where ongoing supervision and feedback can be provided (Australian College of Rural and Remote Medicine ACRRM, 2015). However, given the apprenticeship type model of GP training, the influence of current GP practice combined with the low level of involvement in VMO activities noted in this study suggests that those training for regional centre general practice will have a narrower scope, consistent with metropolitan models.

The inherent difficulties of servicing nursing home or palliative care clients may well continue to be problematic if there is not a critical mass of practitioners able to provide these extended services. Thus, training considerations should follow a robust discussion of the role of general practice, given the fact that more trainees are entering specialist practice than primary care and the leverage the Commonwealth has in being the funder of general practice training. The capacity to train for regional and rural general practice without moving to a metropolitan location *must* be supported if implicit in the equation is a workforce fit and interest in non-metropolitan practice. Whilst this is possible currently, in early 2015, there is little clarity in terms of the number and location of GP training providers.

The concept of training programmes that better target the skills required, in regional centres for both GPs and specialists must be considered. Evidence that current specialist training programmes in metropolitan areas are supporting regional centre recruitment and retention is lacking given current workforce data and the need to rely on IMG recruitment. Given the current increased number of medical students graduating, the time is ripe for review of current medical training pathways (Larkins & Evans 2014).

8.4.3 Coercion

In this study, there were GPs and specialist participants working in regional centres who did not have choices in location. These GPs and specialists, working under restricted registration in DWS, were obligated to work in regional centres or rural locations. Table 8.3 reviews the study findings in relation to obligation and policy.

Table 8.3: Coercion

Study Findings	Current Policies	Potential New Policy Options
	MRB and RMBP programmes	Linkage and immersion with clear training pathways as these students should have maximised opportunities for skills acquisition given their need for subsequent service
Lower levels of personal satisfaction with obligated service (IMG GPs)	DWS and AoN restrictions	Regionalised linkage with existing professionals and culturally relevant social support

There has been discussion of obligatory service (in the form of geographic provider numbers) as a policy lever to reduce workforce mal distribution in health workforces since the 1970s. The strategies used by governments over the last decade have revolved around the use of IMGs, and the use of bonded medical student places. The impacts and preferences of this obligated workforce are yet to be seen as most of this cohort are still in training. Mason (2013) estimated that 11% of the rural medical workforce will be bonded in some way within the next decade. Planning to ensure these trainees find seamless pathways to rural and regional practice is required so that social and locational decision-making can be complementary. Retention of these practitioners will rely on their perception of support and professional satisfaction coupled with community engagement strategies that integrate the clinician into the regional centre over time. A number of IMGs who completed their obligated service have continued in their regional centre, content that the professional opportunities and sense of community are an appropriate tradeoff for the social and locational supports foregone.

There were a group of IMG GPs in this study for whom obligation has had no upside, with social and locational factors negative and their motivation related to a job opportunity only. Evidence from this and other studies suggests that the long-term retention of those under obligation is limited (McGrail et al, 2012a). The management and support of obligated practitioners is important if the translation of obligation into rural service and long-term retention is to be successful. Policy responses are required

to ensure this group of students and young trainees have pathways and positive experiences to leverage.

8.4.4 Incentives and support

The use of financial incentives as discussed in Section 2.5 has been a major platform of Commonwealth workforce policy over the last decade. For regional centre GPs, access to Commonwealth financial incentives was made available in 2010. This included both relocation incentives to move from metropolitan locations to more rural or remote locations and retention incentives supporting those who choose to stay in communities. The incentives were larger the more remote the location was (using ASGC-RA areas). Prior to 2010, most regional centre GPs were ineligible as the classification system being used did not apply to RRMA3 locations where most regional centres in this study were classified. More recently the intention to use the 'Modified Monash' model has been articulated by the Commonwealth government (Australian Government Department of Health, 2014b). Regional centres with > 25,000 population will be similarly classified and the level of assistance payable will be consistently lower than for small rural centres. GPs in this study rated capital financial incentives lower than other professional aspects and also remuneration lower than many other professional factors. This may have been related to their lack of awareness about them at the time of the study, or a true reflection that the level of the incentives were unlikely to change the tipping points in whether to stay or go. This contention is supported by evidence cited in Chapter 6 that 65% of GPs would not change their location despite any financial incentive support (Scott et al., 2013). This is also consistent with the priorities for recruitment and retention cited by coastal residents who place high value on their existing coastal location. Financial incentives for those practitioners living in locations with workforce shortage would seem to comprise a more targeted approach, although the value of financial relocation or retention incentives was not well supported in this study.

Table 8.4: Incentives and supports

Study findings	Current policy	Potential new policy options
Remuneration not as important as other professional factors	RA2 GPs in receipt of current retention incentives	Monash Model likely to reduce the level of financial incentives in regional centres relative to GPs providing 24/7 afterhours in rural locations
	HECS Reimbursement Scheme with a sliding scale with remoteness	Consideration of models prioritising areas of workforce shortage for financial incentives
Relocation financial support for specialists useful	Ad hoc private hospital support at present on case by case basis	Relocation business support (assistance with business set up)
No evidence from study around GP relocation	RA2 GPs in receipt of current relocation incentives	Monash Model likely to reduce the level of financial incentive relative to GPs providing 24/7 afterhours in rural locations
Remuneration trade off		Package to reorient funding to provide incentive for resident specialists (compared to FIFO)
CPD Support	Specialists - Only policy that supports differing scope of practice metropolitan *vs* regional is Rural Health Continuing Education Programme (RHCE)	
Workplace culture highly valued	State Health Programmes to improve culture	Support active engagement with and within health services (i.e. Medical Staff Council) Opportunities for partnership between clinicians and managers at a local level
Importance of spousal employment opportunities	Nil or ad hoc	Recruitment task forces targeted to easy entry Flexibility by hospitals when considering dual doctor couples
Importance of sense of community	Nil or ad hoc	Specific engagement strategies provided by communities Chamber of Commerce, councils etc.

Reimbursements of Higher Education Contribution Scheme debt (HECS) is also available with larger repayments waived by the Commonwealth the more remote the practice[1]. There are no available figures on the numbers of practitioners taking up this option. In this study, reduction of financial incentives did not appear likely to change the balance in terms of recruitment and retention factors for those participating GPs. Specialists were not currently eligible for these relocation and retention incentives.

Specialist relocation incentives are worthy of consideration. For those starting up private practice, the costs involved in commencing small business are often significant. In this study, support by private hospitals to get 'set up' was certainly valued by the clinicians who were able to access it. The alternative was a pathway from staff specialist practice to VMO practice once a referral base was generated.

Finally, specialists made much of remuneration being a 'trade off' for opportunities lost. These could take the form of support for continuing professional development (which exists via RHCE), locum procurement (RANZCOG, 2013) and to adequate after-hours remuneration. The value of resident *vs* FIFO models seems currently uneven, with locums and FIFO services commanding higher prices and support than local resident models. This creates an imbalance in the system where on-call and continuity of care appear undervalued. As was made clear by one of the participants, the incentive to provide services was weighted in favour of FIFO clinicians, which reduced the incentive and attractiveness for financial investment or commitments to be made by resident specialists who would also provide much of the after-hours service, and this should be reviewed. This study suggests that if a critical mass of specialists offering after-hours is to be supported then any financial incentives considered by State or Commonwealth should be biased in favour of resident practitioners, thus providing some incentive for specialists changing location and living in a regional centre.

Workplace culture was seen by participants as of high importance to retention. The development of policy to mandate a positive 'culture' is a significant challenge. NSW Health has developed leadership programmes and resources (NSW Health, 2011). Policy responses that make collaboration and a shared vision possible such as

[1] HECS reimbursement was suspended in Commonwealth Budget Papers 2015

leadership and support opportunities for clinicians and managers at a local level are important.

Non-financial support at recruitment and better integrated training and support pathways is a key lever to improve recruitment (Felix et al., 2003; Shannon, 2003). Community participation in matching practitioners to communities and having community members as an integral part of recruitment and retention has been happening in Queensland in smaller centres (Veitch, Harte, Hays, Pashen, & Clark, 1999). Given the key importance of spousal job opportunities, the importance of such a holistic approach to the doctor as part of a family cannot be understated. Study participants described the provision of information for school choices, sporting opportunities and real estate as vital to their easy entry into a regional centre. Such models are already operating in some regional centres (Wiseman, 2012). The use of promotions like Evocities (2014) and community wide supports often managed by state governments as part of regional development policy could be leveraged to provide personal contacts and information to interested parties.

Regional infrastructure is also important. For regional centres to remain hubs of health service delivery, access to air services and charters, accommodation and communication infrastructure remain imperative. Given the great importance of broadband not just for health services delivery but also for liveability, the need for commercial grade broadband to be available in regional centres is vital. State and Federal government policy to facilitate broadband access is an important precursor for recruitment and retention of all professionals in regional centres. Differential policy settings for coastal and inland locations have been considered, with zonal tax rebates one possible mechanism. This is predicated on policy settings encouraging the decentralisation or counterurbanisation seen at present with significant population increase in major cities. The use of tax incentives or HECS forgiveness would be methods of increasing the attractiveness of regional centres to professionals and providing an attractive discount for living in non-metropolitan areas.

8.4.5 The pipeline in profile

Framing the policy

Critically, the policy options canvassed in the preceding section need to be considered in terms of their linkages and interdependence as seen in Figure 8.2. With respect to the capacity of policy to influence the goal of adequate medical workforce in regional centres, it can be seen that Commonwealth, state governments and medical colleges strongly influence inputs at the predisposition and installation end of the framework. Whilst this chapter has identified the regionalised training model as a potential way forward the interlinking and multiple recruitment and retention factors require an approach that understands the importance of many other aspects of the pipeline.

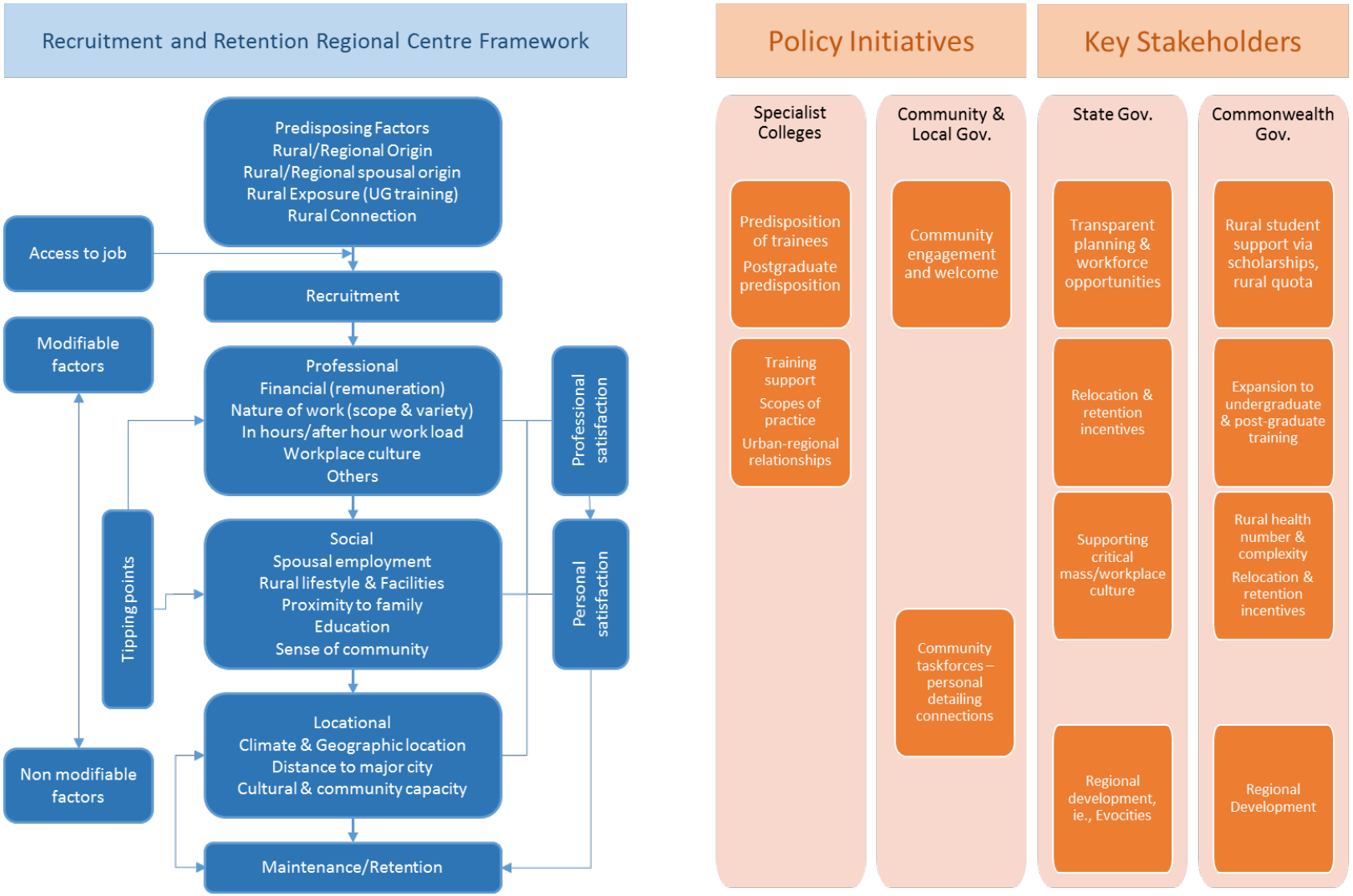

Figure 8.2: Recruitment and retention factors affecting regional centres

The importance of predisposition, moving to the many elements of professional satisfaction and personal satisfaction that are available in regional centres, is highlighted in Figure 8.2. Communities must play to their strengths in supporting practitioners and their families to build relationships and identity. The role of spousal employment and matching practitioners with communities is also valuable. State and Commonwealth governments have longitudinal roles in supporting rural students, supporting positive regional training pathways and working with practitioners and specialist colleges. The juxtaposition of the key policies discussed in Section 8.4 with the framework previously described gives on overall picture of the relevance, interdependence and complexity of factors influencing recruitment and retention.

8.5 Conclusion

Regional centres are an important context for the delivery of medical care in non-metropolitan Australia. As such, and in order to ensure the provision of adequate and appropriate medical workforce, bespoke policy responses are required to deal with issues of workforce supply. Revision of the framework developed through the literature review and modified as a result of the study findings yields a set of key professional, social and locational factors that better reflect importance to practitioners resident in regional centres. The opportunity arises then for evidence-informed policy to dictate reasoned and applicable policies working at origin, selection, training and support in place.

Key stakeholders – the State and Commonwealth governments, the Specialist Medical Colleges, and the community – all have roles going forward if an adequate workforce is to be maintained. Undoubtedly, with increased numbers of students in training, growth will occur in most medical workforces. Unless a systematic approach is developed and adopted to generate a critical mass of medical specialists who can be guided to, established and supported in regional centres, the affordability and availability of local health care for regional and rural Australians will not be maintained.

Policy options that deliberatively support the workforce and their families will assist as they are bundled together with no individual factor holding the key alone. Acknowledgement of the complexity of the policy environment and the interrelationships and interests of differing stakeholders is essential in considering the potential study outcomes. The final chapter summarises this study against its objectives, considers the study in context and highlights areas for further consideration.

CHAPTER 9
CONCLUSION

9.1 Introduction

The aim of this study was to explore the factors associated with medical workforce supply in regional centres of Australia. The objectives focused firstly on outlining the role of regional centres in the delivery of medical care in non-metropolitan Australia. This was then supported by a focus on the supply and nature of the GP and specialist workforce with particular emphasis on the factors related to recruitment and retention of these professionals. Finally the evidence informed framework generated from this exploration has served as lightening rod on which to explore the workforce policy milieu and consider options to improve the supply of medical workforce and thus support provision of health care for the demonstrated health needs of non-metropolitan Australians. This study has afforded an opportunity to contribute to the previous gap in understanding of the factors that medical practitioners considering regional centres prioritise when choosing where to live and work. Indeed, these insights add a regional context previously lacking in conceptualisation of rural and urban medical workforce environment.

The title of the study – 'Rural *and* urban' has been affirmed with the regional context having unique contextual issues and similarities and differences with both rural and urban environments. Whilst there are important similarities, the discrete differences were both in the nature of practice and in the priority of key recruitment and retention factors. Also acknowledged is the 'messy reality' in which this study was conducted, with both the effluxion of time and the changing policy context muddying the waters. This concluding chapter looks at the study in context, and identifies much of the messy reality and big picture issues that surround it. The chapter then identifies areas requiring further research enquiry and suggests that there is now an imperative for the four key stakeholders to work cooperatively over time to ensure an adequate workforce

supply. In so doing, there is opportunity to ensure access and provide health care to residents of Australia's regional centres and their rural hinterlands.

9.2 Study findings

This research focused on understanding regional centres and their role in health care, the adequacy or otherwise of the supply of medical workforce and key factors in recruitment and retention for this group of practitioners. The evidence base thus generated provided a platform for a discussion of workforce policy targeted at regional centres. In order to achieve this a number of underlying realities needed to be reviewed and tested. These facts or realities were important as they framed any regional centre medical workforce discussion. They related to a robust definition of regional centres; the difficulties and disparities in data sources pertaining to the workforce, its activity and scope; and finally the changing scope of practice occurring over time.

Regional centres share a degree of homogeneity that permits consideration of their role in the provision of medical care. Whilst their definition is complex and their visibility in terms of classification systems problematic, they have a key role in providing primary care to their inhabitants and secondary care to their centres and surrounding rural catchments. The key role has been further highlighted with the increasing availability of specialist services in regional centres and the reduction in the delivery of GP procedural services. The issue of availability and supply of medical services stood alongside the evidence of a negative gradient in mortality and morbidity the further one moves from major cities. Also apparent in regional centres are higher rates of socioeconomic disadvantage and an ageing population, with implications for greater health need.

The study highlights a number of the methodological challenges in measuring medical workforce supply and proposes that the adequacy of supply be considered in its complexity, rather than with single headline measures. Moreover, measurement of supply is hamstrung by the imprecision of the measurement of need, making it problematic to equate the two. The relative invisibility of regional centres in current

workforce classification makes assessment of the adequacy or otherwise of the workforce difficult. The study reviewed the characteristics of the medical workforce and considered the supply of GPs and specialists as compared with more metropolitan locations. Available data suggested lower levels of supply of medical workforce in non-metropolitan areas, compared to metropolitan locations for specialists. In addition, lower ratios of GPs to their populations were seen in some regional centres with possible negative consequences in terms of access to health services for their populations and catchments. Importantly, feminising trends and generational changes such as dual career couples have seen changes in the workforce leading to shorter working hours and partner/family considerations. These changes are being reflected in regional centre clinicians, albeit more slowly than in metropolitan areas, whilst IMGS remain a key component of the workforce.

The scope of GP practice in regional centres has changed markedly over the last twenty years with a transition from GP responsibility for procedural care including surgery and obstetrics to low levels of hospital involvement from regional centre GPs. The scope of practice being vacated by GPs has now been taken up by specialists taking an increasing role in secondary care in regional centres and providing services for those in the rural hinterlands. Whilst not all specialties are the same, specialist scope of practice has also changed with increasing numbers of specialists in regional centres allowing a model of 24/7 coverage of all major specialties. The skill set required is dual, with both a wide generalist scope and subspecialist expertise needed in order for a comprehensive range of secondary care services to be made available.

Key to this research was the acquisition of evidence identifying the issues associated with recruitment and retention of medical workforce in regional centres. A comprehensive literature review refined a framework of the professional, social and location factors instrumental in decision-making for rural practitioners. The available evidence referable to regional centres provided the basis for primary data collected from 128 resident practitioners in four regional centres. The approach to four centres – two coastal and two inland – was based on a pragmatic insider view and designed to explore in depth the priorities and experiences of participants. With data collected in the form of a survey and semi-structured interview, the wealth of information collected

was analysed and synthesised and informed the development of the May framework specifically focused on regional centres. There were important differences in recruitment and retention factors, previously not articulated in the existing rural GP literature. The importance of a job or opportunity to move to was a major consideration and, while professional factors differed between specialists and GPs, social and locational factors were similar and corroborated. Rural origin and rural spousal origin remained positively associated with regional centre residence.

The combination of professional factors, the need for family-friendly solutions with high priority on spousal employment and locational attraction towards the coast were important in recruitment to many practitioners. Retention was also multifactorial, with a preponderance of modifiable professional factors (particularly work variety and workplace culture), the importance of strong community connection and ongoing attractiveness of coastal locations. Regional centres did differ in attractiveness in terms of places to live and work, with striking differences in the importance of location seen between those who were resident in coastal and inland regional centres. This propensity for the coast highlighted different drivers for location in inland and coastal regional centres. This key finding of the focused career planning of some doctors to move to the coastal locations and the lack of consideration of job opportunities in inland areas is cause for reflection. Thus, the available medical workforce interested in locating in inland regional centres is only a subset of the total number of practitioners who are in the job market. Clearly the drivers to inland practice appear more weighted to professional issues compared with their coastal colleagues, where location is used to discount against remuneration and work-life balance. The implications of this locational focus trumping many other factors suggests the need for a different approach to recruitment and retention for coastal and inland locations.

Importantly, there were also differences between subgroups of practitioners. The importance of spousal employment was highlighted in this study with the increased degree of difficulty of often trying to find two medical job opportunities for a couple. Generational trends of feminisation and changing work preferences and practices is likely to influence workforce participation and may be problematic for the provision of after-hours and maintenance of rosters where a critical mass of practitioners is

required. This is juxtaposed with the need in regional centres for specialists to maintain significant on-call and after-hours workload. The preferences of IMGs, with less locational focus and slightly higher priorities on remuneration and spousal employment are consistent with obligatory service expectations.

Finally, the research sought to identify policy options informed by evidence to achieve and maintain adequate workforce supply. Fundamental to this activity was a way of classifying regional, rural and urban locations delimited by population and function. The development of a classification taxonomy fit for this purpose remains paramount. Policy options to best target the gaps in medical workforce in regional centres need to be multifaceted with a range of supports. The model of the rural pipeline with affirmative selection for regional and rural residents, supportive training and exposure, and articulated training pathways based in regional centres would address a number of the current gaps in post vocational training. Concerns about competitive levels of remuneration and partner employment opportunities will certainly need addressing. Finally, the need for workforce planning and clarity around job options with the planned strategy to develop a critical mass of specialists involved in after-hours care is key. The 'May' framework (see Figure 8.2) provides a scaffold on which to consider these key issues alongside the potential roles and capacities of the four major stakeholders involved in maintaining medical practitioners in these centres. The need for long-term collaboration and synergy between clinicians (and their specialist colleges), state and Commonwealth policy makers and the community in which the medical care occurs is crucial. A measured long-term focus on recruitment and retention using a pipeline approach whilst having long lead times has the potential to support a satisfied and retained workforce with improved access to medical services and positive cost implications for individuals and the community at large.

9.3 The big picture

The new evidence generated by this study must be seen in a wider context. Whilst the 'May' framework and proposed policy options and pipeline have taken into account many of the policy influences within the medical realm of regional centres, the picture is by no means complete.

The need for a critical mass of medical workforce in regional centres is part of the larger national picture of workforce supply. It is important to consider the impact on GP workforce in more rural locations of any targeted initiatives in regional centres. Careful analysis is needed to ensure there are no unintended consequences on other areas of workforce shortage if regional centres are prioritised. Training, both generalist and procedural, is also required to equip practitioners for rural practice with financial and non-financial incentives to support GPs working in rural locations. The models and incentives considered must provide the balance to ensure that both these workforces reach adequacy. The specialist workforce with the need for both subspecialist and generalist skills for specialists and the role for GPs with a changing scope needs targeted review.

When considering policy that might affect regional centres it is important to note the change in policy settings during this time. In the last ten years, and following the implementation of much of the Commonwealth's rural workforce programmes, there has been a significant and welcome shift in the national workforce supply (with increasing medical student numbers and junior doctors) and the commencement of financial incentives for those GPs who are retained in regional centres and all areas classified by ASGC-RA 2-5. However, neither of these changes alone is likely to deliver a sustainable critical mass of specialists in regional centres, nor distribute GPs uniformly across inland and coastal locations.

Given the multiplicity of factors involved in recruitment and retention, success will not be achieved if strategies are not congruent and run the risk of cancelling each other out. A recent example might be the proposed deregulation of university fees with a reduction in funding for higher education from the Commonwealth government (Parliament of Australia Library, 2015). Evidence exists from the United States on the

impact of increasing debt on individual practitioner choices, with intentions increasing towards specialised and procedurally remunerative parts of medicine. These intentions are noted to move away from primary care and lower remunerated specialties (Graysen, Newton, & Thompson, 2012; Phillips et al., 2010). The relatively low importance of remuneration articulated by participants in this study may well be swayed in the light of increased undergraduate debt levels. Recent U.S. evidence notes the reducing percentages of medical students from lower socioeconomic backgrounds over the last decade (Greysen, Chen, & Mullan, 2011). Rural and regional centre communities have much higher rates of socioeconomic disadvantage than metropolitan areas (Chapter 2). The capacity of scholarships and other financial discounting to compensate for these increased costs is unclear. Thus, despite a combination of rural origin and rurally available training, indebtedness may reduce the attractiveness of working in comparatively less remunerated position in regional centres.

The findings from this research and the resultant framework developed may also inform other health and professional groups that operate in a regional context, particularly those providing hub and spoke models of service. Nursing and allied health workforces are crucial in the functioning of an effective health system and are critical to health care in regional centres. Their scant attention in this thesis is related to the different training, accreditation and funding models. The learnings from this study have potential applicability to dental and other allied health services and should be explored. Legal professionals also appear to face very similar issues (Forell, 2010), whilst acknowledging that medicine is somewhat unique in its need to provide 24 hour emergency care. Other professional workforces where students must leave regional centres to train – such as accountancy and veterinary services – may also find common ground. There are commonalities in social and locational recruitment and retention factors likely relevant to all professionals that relate to the liveability of regional centres. The importance of rural and rural spousal origin, spousal employment and the attractiveness of sense of community are also likely to be shared experiences, regardless of profession.

9.4 Future directions for research

This study proposes a more contextualised approach to medical workforce delineating regional centres, separate from rural and urban entities, with differing workforce drivers and practice. The evidence presented raises a number of questions which were beyond the capacity of this study to explore, but are key areas for further research.

Firstly, this study focused primary data collection on four regional centres in NSW. These regional centres share similar state governance and are all located in central and northern NSW. The geographical and jurisdictional limitations of this approach would suggest that the study findings and conclusions should be tested across a larger number of regional centres and in other state jurisdictions. Whilst workforce data and policy approaches were considered nationally, further work to review the conclusions on clinicians nationally would be prudent to consider and assess whether the impacts of policy are spatially variable. Recruitment and retention factors were considered from the incumbent practitioner's perspective. Further enquiry to corroborate findings from the viewpoint of practitioners who have declined an offer to move to a regional centre or have relocated from a regional centre would enhance the current knowledge base.

Secondly, there were challenges acquiring data to inform the question of medical workforce supply. There is inherent difficulty in measuring activity or adequacy when the workforce generates data that is referable to both the MBS (collected and reported thought the Commonwealth) and through hospital activity (collected by the state). The reliance on self-reported data and data using classification systems that do not delineate regional centres has made estimations of supply inexact. Further in-depth review of the scope and type of services being provided in a regional centre would create a clearer picture of the scope of practice and thus the workforce skills required. Alternative indicators of workforce undersupply or delimitation of regional centres related to their attractiveness, environmental amenity or climate could be investigated with a view to further refining both population need and appropriate policy response. The results in turn could contribute to long term evidence informed planning.

Thirdly, the synergy between the role of rural origin, connection and exposure in influencing rural intention is not well understood. Early data relating to rural and regional recruitment from rural and regional undergraduate exposure is promising; however, the relationship between rural origin, rural connection, rural intention and total exposure is likely overlapping and unclear. In fact the consideration of 'underserved' origin rather than rural origin may be worth exploratory research. Predisposition, perhaps with facets such as 'tempered altruism' or strong coastal affinity may be possible predictors of long-term rural or coastal location. Further exploration of these relationships would improve the selection and support of students with high probability of targeted rural and regional practice.

Finally, this thesis has concentrated on the impacts of health policy on health workforce and acknowledges the gamut of other government policies and influences impacting regional centres. The continuing drive to large highly urbanised major cities has its genesis in longstanding policy affecting real estate prices, job opportunities and access to utilities like transport and broadband. These policies and their impacts were not explored in this thesis; however, further review of the drivers to urbanisation and research on balancing policy to support population increase in regional centres is critical.

9.5 Conclusion

This study has afforded an opportunity to consider regional centres as key and separate environments in terms of the delivery of medical care. The focused approach highlights the role these centres play to provide for the health needs not only of their local populations but also of the surrounding rural hinterlands. By exploring the nature and adequacy of the regional centre workforce and considering the key aspects of recruitment and retention, this study adds a new contextual lens. This evidence, amassed in part as the 'May' framework, adds the dimensions of job opportunity, sense of community, and the issues of workplace culture in addition to the previously known factors, as well as exploring the nuances of professional, social and locational factors as they relate to regional centres. The importance of modifiable professional factors, the increasing importance of dual career opportunities and the notable differing priorities

for clinicians living in coastal and inland regional centres are important new knowledge. The framework then provides a foundation on which to consider targeted policy responses and contributions by government, the profession and the community. The key stakeholders engaged in the geographic distribution of the specialist and GP medical workforce are now better defined. This provides an opportunity for new evidence specific to the regional context, to match reasoned and applicable policies, working along the rural pipeline considering predisposition and origin, selection, training and support in place.

Regional centres will remain a key demographic feature of the Australian landscape. This study shines the spotlight on medical care in these centres and their rural hinterlands with the intention that a systematic, evidence-informed approach can be developed to generate a critical mass of GPs and specialists in regional centres in Australia. In turn, the outcome will be the supply of primary and secondary medical care for many regional and rural Australians in the years to come.

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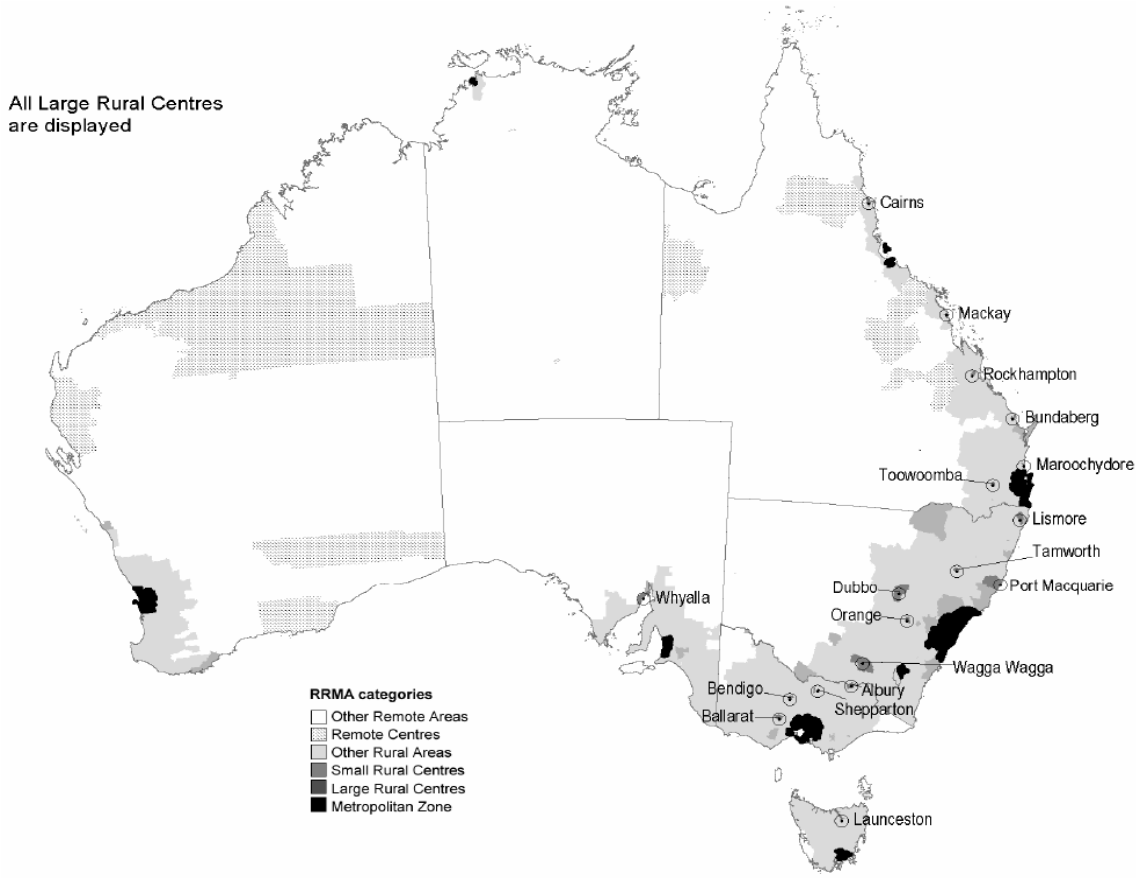
APPENDIX 1
RRMA 3 Areas Australia



Source: DoHA.

Figure 1: RRMA areas of Australia

Source: Adapted from *Rural, regional and remote health: A guide to remoteness classifications,* by Australian Institute of Health and Welfare, 2004, (Vol. AIHW Cat no PHE 63), Canberra: Australia, with permission.

APPENDIX 2
Key events and reports in Rural Health Policy 1973-2014

Date	Commonwealth Workforce Policy pertaining to rural and remote workforce	Landmark Reports or Organisational responses
1973		Karmel report
1974		Introduction of Medicare
1970s		Commencement BEACH study
1978		RACGP meeting focusing on plight of rural doctors
1988		Rural Doctors dispute in NSW Formation of RDAANSW and RDAA
1990	Medical Student Places frozen (CSP)	AHMAC rural taskforce formed
1991		NRHA formed First rural health conference
1993	GP Rural Incentives programme-RUSC and RHSET commence	
1994		National Rural Health Strategy
1996	Formation of early UDRHs GP Vocational registration	
1997	John Flynn scholarships commence	ACRRM formed
1998	First GP incentive programme	AMWAC strategy and reports National Review of GP training and GP Strategy
1999		Healthy Horizons Framework
2000	Rural Health Strategy –[More doctors More services-Rural Clinical Schools, HECs reimbursements, MRBS, RAMUS]	

Date	Commonwealth Workforce Policy pertaining to rural and remote workforce	Landmark Reports or Organisational responses
2001	General Practice Education and Training established [regionalised GP training] Health insurance act amended for rural and remote exemptions [IMG access] MRBS places increased by 100	
2001	Funding for practice nurses, more UDRHs	
2002	Medicare Plus [bulk billing incentives with rural loading] Also incentives for outer metro and increased GP and specialists registrar training in outer metro and Area of Need	
2003	Rural GP incentives [using RRMA]	
2003	Rural Health Strategy to improve GP distribution including Bonded Medical Places, procedural grants, SOLS	
2005	Strengthening Medicare (higher rebates for non VR in DWS) PGPP commences	Productivity commission report *Australia's Health Workforce* Council of Australian Governments formed (COAG)
2006	605 additional medical places and guarantee of internship for Commonwealth supported students	
2007		Health and Hospitals Reform commission established
2008	Super Clinics programme commences some in regional centres	Audit of Health workforce in regional and rural Australia
2009	GP incentives change [GPRIP] relocation, retention and registrar funding and ASGC replaces RRMA enabling regional centre GPs to be covered. Also HECs forgiveness for rural practice and rural GP locum support	Health Workforce Australia commences
2010	Capital infrastructure grants available to GPs Further super clinics and funding for Medicare Locals. Practice nurse incentive payment commenced. Further GP and specialist training positions including PGPP Widening of 19A exemptions for small rural hospitals	
2011		Commencement of entity 'Rural and Regional Australia' within DOHA

Date	Commonwealth Workforce Policy pertaining to rural and remote workforce	Landmark Reports or Organisational responses
2012		HWA training plan published Senate report [*The factors affecting the supply of health services and medical professionals in rural areas*] published House of Representatives inquiry [*Lost in the Labyrinth Report" report on the inquiry into registration processes and support for overseas trained doctors]* published
2013		Mason review of Australian Government medical workforce programmes released.
2014	Health infrastructure round announced GPET, PGPP ceased HWA, AIHW, NHPA and other health data clearing houses merged Foreshadowed changes to funding for universities announced Modified Monash Model announced as new classification for rural GP incentives. Rules to be reviewed for DWS and bonded scholar future work locations	

APPENDIX 3
Snapshot of Commonwealth & State funded policies
30.11.2012

A. COMMONWEALTH-FUNDED PROGRAMMES

Programme	Overview
Health Workforce Fund (2011)	Designed to support activities to improve capacity, quality and mix of the health workforce to meet the requirements of health services, including through training, registration, accreditation and distribution strategies. Consolidated approximately 26 existing programmes in 2011, including: • General Practice training • Specialist medical training • Telehealth - training of health professionals • Recruitment, retention and support of Overseas Trained Doctors • The ATSI health workforce through the provision of education, training, mentoring • Health workforce locum schemes • Increasing numbers of, and support to, regional, rural and remote health professionals • Development and regulation of the health workforce • HECS reimbursement scheme • Medical Rural Bonded Scholarship (MRBS) Scheme.
Specialist Training Programme (STP)(2009)	The STP was administered by DoHA. A number of programmes were consolidated to form STP in 2009/10. In 2013, 750 specialist-training places were supported. This was expanded to 900 in 2014. Objectives: • Increase training opportunities for specialists in training • Supplement specialist workforce in outer metropolitan, rural and remote locations • Develop specialist training beyond traditional inner metropolitan teaching settings for Australian specialist trainees, OTDs, SIMGs What was provided: • Funding for specialist training posts: $100k salary contribution per FTE trainee plus up to $20k for posts in ASGC-RA 2-5 • Funding for system wide education and infrastructure projects managed by specialist colleges, to enhance training networks, with a focus on rural and regional training • Funding for private sector clinical supervision and infrastructure

Programme	Overview
Rural Obstetric and Anaesthetic Locum Scheme (ROALS)	ROALS was funded by DoHA and administered by RANZCOG. There was commitment to run ROALS to 30 June 2015. <u>Objectives:</u> ROALS subsidises obstetric and anaesthetic locum services to: • maintain and enhance access to services • improve workforce retention of specialist and GP obstetricians and anaesthetists in ASGC-RA 2-5 by enabling them to access personal or professional leave or take breaks from on-call commitments. <u>What was provided:</u> • A brokerage type locum placement service • Subsidies for the daily locum fee (up to 14 days per year - $825-$1100 per day), travel time ($825-$1100) and travel cost ($2000)
Medical Specialist Outreach Assistance Programme	Administered by NSW RDN Different administrative arrangement in different regions
HECS Reimbursement Scheme	Reimbursement scheme for HECS debts for medical students if they work or train in regional, rural or remote areas.
Telehealth programmes	<u>Medicare rebate</u> <u>Telehealth Support programme</u> Funded projects to assist in the introduction of Medicare rebates now available for telehealth consultations. Organisations funded include some specialist colleges.
Bonded Medical Places Scheme (BMPS)(2004)	Commonwealth funded scheme that commenced in 2004. 3282 (19.5%) of enrolled students Australia wide were participating in this scheme in 2012.Students participating in the BMPS have a return of service obligation to work in a District of Workforce Shortage (DWS), for a period of time equal to the length of their medical degree, less any reduction as a result of scaling for remoteness. Up to half of the return of service obligation can be met while completing prevocational and vocational training, the other half must be completed after completing their vocational training.
International Medical Recruitment Strategy	Support via NSWRDN for prospective GPS Various support schemes administered through ACRRM and RACGP
Commonwealth supported intern places	Commitment in 2013 to support intern places for all graduating students Money removed from PGPP programme to accommodate extra intern placement funding to states
Medical Rural Bonded	Commonwealth funded scheme that commenced in 2001.To be merged with other programmes December 2015

Programme	Overview
Scholarships Scheme (MRBSS)	469 (2.8%) of enrolled students Australia wide were participating in this scheme in 2012.Students receive a scholarship of $25,500 a year tax free (indexed annually) during their degree, and must work for six continuous years, less any credit obtained through Scaling, in locations within Australian Standard Geographical Classification – Remoteness Areas 2 to 5 after completing their vocational training.
Remote Vocational Training Scheme	Training scheme to FRACCP or ACRRM for GPs in remote locations Funded through GPET
Rural Australia Medical Undergraduate Scholarship Scheme (RAMUS)(2000)	Scholarships for medical students with a rural background (minimum of 5 consecutive years or 8 cumulative years from age of 5), financial need and commitment to working in rural Australia. There is a maximum of 587 scholarship holders with approximately 120 new scholarships awarded each year. Recipients receive $10,000 per year (tax free), are allocated a rural doctor as a mentor and are required to be a member of their university's student rural health club. These scholarships are not bonded. RAMUS is funded by DoHA and administered by NRHA. RAMUS was established in 2000. Since then, about 2,000 scholarships have been awarded and almost 1,300 RAMUS scholars have graduated from medicine. About 500 rural doctors participate as mentors.
Rural Health Multidisciplinary Training (RHMT) (2009)	The RHMT Program, established in 2009-10, brought together a number of existing programs that facilitate education and training of medical, nursing and allied health students in rural and remote regions to encourage the recruitment and retention of rural and remote health professionals. Medical component initiatives of the RHMT Programme are currently: The University Departments of Rural Health Programme; The John Flynn Placement Programme; and The Rural Clinical Training and Support programme.
John Flynn Placement Programme	Medical students are matched with a doctor mentor in a rural or remote location. Students are expected to spend 8 weeks with their mentor over the course of their medical degree. 300 students per year are accepted into the programme. Costs of student travel, accommodation and expenses are covered as well as honorary payments to mentors, community contacts and hosts. Funded by DoHA and administered by ACRRM.
Rural Clinical Training and Support programme (RCTS)	RCTS was merged in 2012 as an entity consisting of the Rural Clinical Schools (RCS) and Rural Undergraduate Support and Coordination (RUSC) Programmes <u>RUSC programme</u> Established in 1993-94, RUSC supports rural student admissions, with a target of at least 25% of Commonwealth Supported students from a rural background, and mandatory four week rural placements for all Commonwealth Supported students. RUSC also seeks to contribute to increasing the number of Indigenous Australian doctors and ensure incorporation of Indigenous issues into university medical education. <u>RCS program</u> Established in the late 1990s with the intention to develop and maintain an effective medical student training infrastructure in rural Australia around which the development of the local medical workforce can be assisted and promoted. The main

Programme	Overview
	programme target requires 25% of all Commonwealth Supported students to undertake at least one full year of their clinical training in a rural setting. The programme also aims to encourage health professionals to take up rural academic positions, often through joint funding arrangements with local area health services. The following universities have rural clinical schools in NSW: • The Australian National University Rural Clinical School: Cooma, Goulburn, Bega, Young, Batemans Bay and surrounding regions. • The University of New South Wales Rural Clinical School: Coffs Harbour, Port Macquarie, Kempsey, Wagga Wagga, Albury, Griffith, Leeton and surrounding regions. • The University of Sydney School of Rural Health: Dubbo, Orange, Bathurst, Broken Hill and surrounding regions. • University of Newcastle Department of Rural Health: Tamworth, Armidale, Moree, Taree and surrounding regions. • University of Notre Dame Australia (Sydney Campus): Wagga Wagga, Ballarat and Lithgow • University of Western Sydney: Lismore and Bathurst • University of Wollongong Rural Clinical School: Nowra, Milton/Ulladulla, Lismore, Grafton, Murwillumbah, Broken Hill, Bowral, Mudgee, Murrumbidgee.
Rural Health Continuing Education Sub-Programme (RHCE) -	Funding for medical specialists (Stream One) is open to specialist colleges and medical specialists, is funded by DoHA and managed by CPMC. Funding is available for: • CPD initiatives that promote Multi-disciplinary Teams and help build vocational support and learning capacity for health professionals in rural and remote locations; and • Support for individual specialist CPD participation up to $10k To date, 25 programme grants to 11 specialist colleges and 70 individual grants have been awarded Support for individual specialist CPD participation
Bush Support Line	A service for remote health workers and their families run by CRANA plus, providing a confidential, free 24-hour, nationwide telephone/email/skype support, staffed by registered psychologists who have experience working in remote and rural areas.
Medicare 'ten year moratorium' for IMGs	IMGs are required to gain an exemption under section 19AB of the *Health Insurance Act 1973* (the Act) in order to access Medicare benefits for the services they provide. Exemptions under the Act are generally only granted if the medical practitioner works in a recognised area of workforce shortage for five to ten years, depending on remoteness of the area.

B. STATE-FUNDED PROGRAMMES

Area of Need programme	The Programme assists employers who are experiencing difficulty recruiting GPs and specialists, to recruit suitably qualified IMGs to vacant positions that have been approved by NSW Health as an Area of Need.
HETI Rural Medical Scholarship (HRMS) Programme	A scholarship programme to support medical trainees committed to training and providing patient care in rural locations in NSW through the continuum of their training and education years. Trainees who have completed a minimum number of regional or rural terms are eligible to apply
Rural Research Capacity Building Programme	Support of selected health workers to undertake a formal research project over a two-year period with the aim of increasing the number of rural and remote health workers with knowledge and skills in evaluation and research methods and to contribute to the literature on both innovation and evidence-based practice around rural and remote health care.
Rural Leadership and Management Essentials	A programme designed to give rural and remote area health service staff access to a progressive, interprofessional and innovative evidence-based approach to leadership and management development. The course involves six full-day workshops.
Clinical Team Leadership Programme	The Clinical Team Lead Programme (CTLP) focuses on 'programme pairs'. Each team completing the programme consists of a GP/VMO and a Local Health District clinical team member. The programme consists of four two-day workshops covering leadership and clinical governance principles, self-awareness, interpersonal communication and clinical practice improvement.
Rural Preferential Recruitment (RPR)	A merit based recruitment process for final year medical students who are interested in working in a rural setting. Currently participating facilities: Albury Wodonga Health, Coffs Harbour Health Campus, Dubbo Base Hospital, Lismore Base Hospital, Manning Rural Referral Hospital, Orange Health Service, Port Macquarie Base Hospital, Tamworth Rural Referral Hospital, The Maitland Hospital, The Tweed Hospital, Wagga Wagga Base Hospital
NSW Rural Resident Medical Officer Cadetship	Fourteen Cadetships of $15 000 per year for medical students during the final two years of their medical degree (income for taxation purposes).(2 indigenous positions Recipients must undertake two of their three post graduate years at NSW Rural Base Hospitals (Tamworth, Wagga Wagga, Orange, Dubbo or Albury) for which they also receive a relocation allowance. Recipients cannot also hold a RAMUS or an MRBS. Funded by NSW Health and administered by NSWRDN.
Various other rural scholarships	Bush Bursaries & Country Women's Association Scholarships Cotton Industry Medical Scholarship CRANAplus scholarships (Australia-wide)
Rural High Schools Medicine Career Workshop	A week of activities at the Medicine Faculty of the University of New South Wales for students in Year 11 from rural and remote high schools in NSW, with the aim of motivating rural students to gain entry into a medicine program.(includes Health Careers kit)

APPENDIX 4
Regional centre study locations

	Dubbo	**Tamworth**	**Coffs Harbour**	**Port Macquarie**
Population LGA 2011	40,595	58,922	70,990 (UCL)	76,017
% Aged> 65	12.7%	10.9%	14.4%	20%
% Aboriginal	14.5%	8.4%	4.3%	3.3%
SEIFA score (IRSAD)	977	959.9	958.4	968.9
Capital city distance	400km Sydney	430km Sydney	400km Brisbane 550km Sydney	400km Sydney
Daily direct flights	10	5	10	10
Train (Public Transport)	Yes	Yes	Yes	Yes (close by)
ADSL-2	Yes	Yes	Yes NBN second release site	Yes
Public Hospital Beds	151	270	210	161
Private Hospital Beds	51	77	81	69
RFDS	Yes	No	No	No
24 hour Obstetric VMO cover	Yes	Yes	Yes	Yes
24 hour Paediatric cover	Yes	Yes	Yes	Yes

	Dubbo	**Tamworth**	**Coffs Harbour**	**Port Macquarie**
Cardiac stenting capacity	No	Yes	Yes	In train
24 hour general surgical services	Yes	Yes	Yes	Yes
Psychiatry in-patient beds	Yes	Yes	Yes	Yes
ICU facilities	Yes	Yes	Yes	Yes
24 hour general medical cover	Yes	Yes	Yes	Yes
Public Hospital MRI	No	No	Yes	Yes

Sources: NSW Health, ABS quick stats, Local Council websites

APPENDIX 5
Questionnaire and interview schedule

Thank you for agreeing to participate in this research, which is being conducted by Dr Jenny May, a GP Academic at University of Newcastle UDRH/Rural Clinical School based in Tamworth.

The research is designed to better understand how GPs feel about living and working in regional centres. This is especially important because regional centres are key hubs for the provision of medical care to regional and rural populations and little is known about them as places to live and work from the perspective of GPs.

The survey will take approximately 30 minutes to complete. Your participation is voluntary and you are, of course, free to withdraw from the study at any time. All information is strictly confidential and responses will be reported so individuals cannot be identified.

Section 1 Demographic data

First, I would like to ask you some questions about you and your work.

1. Gender	M	F
2. What is your current age? (Please tick)	<34 years	☐
	35 – 44 years	☐
	45 – 54 years	☐
	55 – 64 years	☐
	>65 years	☐
3. In which country did you complete your basic medical degree?	☐ A medical school in Australia Go to Q5	☐ A medical school in another country Go to Q4
4. If you did your degree at a medical school outside Australia, do you have any restrictions on location of practice on your registration?	Yes	☐
	No	☐

5. Did you attend a primary school in Australia outside of a capital city or outside one of the following major urban centres: such as Gosford-Wyong, Newcastle, Wollongong, Queanbeyan, Blue Mountains, Geelong, Gold Coast, Tweed Heads and Townsville 5a If yes please indicate the number of years	Y Go to Q 6a	N Go to Q 7
6. Did you attend a secondary school/college/senior high school in Australia outside of a capital city or outside one of the following major urban centres: such as Gosford-Wyong, Newcastle, Wollongong, Queanbeyan, Blue Mountains, Geelong, Gold Coast, Tweed Heads and Townsville 6a If yes please indicate the number of years	Y Go to Q 7a	N
7. Do you have a partner?	Y	N Go to Q 10
8. Did your partner spent at least 6 years of schooling in a rural or regional centre with a population centre less than 100 000? 8a If yes please indicate the number of years	Y Go to Q 8a	N Go to Q 9
9. How many years have you lived In Dubbo?	Please specify (years)	
10. Are you a VMO at Dubbo or Lourdes hospital?	Y	N
11. How many sessions do you work in medicine in a usual week?	Number (Please specify)	
12. In a usual week, what number of sessions is worked in direct patient care?		

13. Do you work any after hours on call?	Y Go to Q14	N Go to Q17
In your last usual week at work: 14. How many HOURS were you rostered or listed for after hours and on-call		
15. How many TIMES were you actually called out?		
16. In your most recent usual month, what was your on-call ratio? (For example, if it is 1 in 4 weeks call it 1:4)		

Section 2 Places to work

Now, I would like to ask you some questions about relating to how you feel about places to work.

17. Please rank the following locations from 1 (most preferred) to 5 (least preferred):In terms of its attractiveness to you as a place to work as a GP:	
Capital city (such as Sydney, Adelaide, Brisbane)	
Major urban centre population >100,000 (such as Gosford-Wyong, Newcastle, Wollongong, Blue Mountains, Geelong, Gold Coast-Tweed Heads,)	
Regional city or large town -population 25,000–100,000 (such as Tamworth, Dubbo, Coffs Harbour, Wagga Wagga)	
Smaller town – population 10,000 – 24,999 (such as Gunnedah, Moree)	
Small community -population <10,000 (such as Warialda, Quirindi, Nyngan)	
18. What is the reason for your first preference?	

19. Please rate how you feel about Dubbo as a place to work (on a scale from 1 = very satisfying to 5 = very dissatisfying).

a) In terms of a place to work, Dubbo is.

1	2	3	4	5
Very satisfying	Satisfying	Neither satisfying nor dissatisfying	Dissatisfying	Very dissatisfying

20. What factors do you think make Dubbo an attractive place to work?

21. What factors do you think make it an unattractive place to work?

22. Please consider the following statements and choose the descriptor/answer that best matches your feelings about Dubbo as a place to work.

Compared to a **small coastal town** such as Macksville as a place to work, Dubbo is

1	2	3	4	5
More attractive	Attractive	Neither attractive or unattractive	Less attractive	Much less attractive

Compared to **small inland town** such as Coonabarabran as a place to work, Dubbo is

1	2	3	4	5
More attractive	Attractive	Neither attractive or unattractive	Less attractive	Much less attractive

Compared to a **capital city** like Sydney as a place to work, Dubbo is

1	2	3	4	5
More attractive	Attractive	Neither attractive or unattractive	Less attractive	Much less attractive

Compared to an **inland regional centres** such as Tamworth, as a place to work, Dubbo is

1	2	3	4	5
More attractive	Attractive	Neither attractive or unattractive	Less attractive	Much less attractive

Compared to a **coastal regional centre** such as Coffs Harbour as a place to work, Dubbo is

1	2	3	4	5
More attractive	Attractive	Neither attractive or unattractive	Less attractive	Much less attractive

Section 3 Places to live

In this section, I'd like to ask you about your feelings about places to live.

23. In terms of its attractiveness to you as a place to live, please indicate the following locations (from 1 = most preferred to 5 = least preferred):	
Capital city (such as Sydney, Adelaide, Brisbane, Canberra)	
Major urban centre -population >100,000 (such as Gosford-Wyong, Newcastle, Wollongong, Blue Mountains, Geelong, Gold Coast-Tweed Heads,)	
Regional city or large town – population 25,000–100,000 (such as ,Tamworth, Dubbo, Coffs Harbour, Wagga Wagga),	
Smaller town – population 10,000 – 24,999 (such as Gunnedah, Moree)	
Small community – population <10,000 (such as Warialda, Quirindi, Nyngan)	

24. What is the reason for your first preference?

25. Now, thinking about Dubbo in particular, please indicate how you feel about Dubbo as a place to live (on a scale from 1 = very satisfying to 5 = very dissatisfying).

1	2	3	4	5
very satisfying	Satisfying	neither satisfying nor dissatisfying	Dissatisfying	very dissatisfying

26. What factors make Dubbo an attractive place to live?

27. What factors make Dubbo an unattractive place to live?

28. Please consider the following statements and choose the descriptor/answer that best matches your feelings about Dubbo as a place to live.

Compared to a **small coastal town** such as Macksville as a place to live, Dubbo is…

1	2	3	4	5
More attractive	Attractive	Neither attractive or unattractive	Less attractive	Much less attractive

Compared to a **small inland town** such as Coonabarabran as a place to live Dubbo is

1	2	3	4	5
More attractive	Attractive	Neither attractive or unattractive	Less attractive	Much less attractive

Compared to a **capital city** like Sydney as a place to live Dubbo is

1	2	3	4	5
More attractive	Attractive	Neither attractive or unattractive	Less attractive	Much less attractive

Compared to another **inland regional centre** such as Tamworth as a place to live, Dubbo is

1	2	3	4	5
More attractive	Attractive	Neither attractive or unattractive	Less attractive	Much less attractive

Compared to another **coastal regional centre** as a place to live, Coffs Harbour Dubbo is

1	2	3	4	5
More attractive	Attractive	Neither attractive or unattractive	Less attractive	Much less attractive

Section 4 Recruitment to regional centres

In this section, I'm interested in exploring the factors involved in your decision to come to work in Dubbo

29. Thinking about your decision to come to Dubbo, please choose the most appropriate response (from 1 – most important to 5 – least important) to each of the following factors related to your decision to come.					
PROFESSIONAL FACTORS	Most important				Least important
Financial incentives to relocate to a regional centre	1	2	3	4	5
Likely level of remuneration	1	2	3	4	5
Projected workload (in terms of hours)	1	2	3	4	5
Anticipated after hours workload	1	2	3	4	5
Variety of work	1	2	3	4	5
Other	1	2	3	4	5
SOCIAL FACTORS					
Cultural & community facilities	1	2	3	4	5
Employment opportunities for partner N/A	1	2	3	4	5
Proximity to family	1	2	3	4	5
Sporting and shopping facilities	1	2	3	4	5
Other	1	2	3	4	5
LOCATION					
Access to capital city	1	2	3	4	5
Climate	1	2	3	4	5
Environmental attributes of the region (such as the beach or national parks)	1	2	3	4	5
Other	1	2	3	4	5

30. Are there any other factors that were important in your decision to move to Dubbo? Please specify.
31. In summary what would be the most important factor for you in the decision to locate?

Section 5 Issues related to retention in regional centres

In this section, I'm interested in learning more about your decision to stay in Dubbo.

32. Thinking about how long you are likely to stay in Dubbo, please choose the most appropriate response (from 1 – most important to 5 – least important) to each of the following factors related to your decision to stay here.					
PROFESSIONAL FACTORS	Most important				Least important
Access to career path	1	2	3	4	5
Access to continuing professional development	1	2	3	4	5
Access to diagnostic or other medical facilities	1	2	3	4	5
After hours workload including on call	1	2	3	4	5
Capital funding to improve your practice infrastructure	1	2	3	4	5
Level of remuneration	1	2	3	4	5
Workplace culture	1	2	3	4	5
Work variety	1	2	3	4	5
Workload in hours	1	2	3	4	5
SOCIAL FACTORS					
Cultural facilities and opportunities	1	2	3	4	5
Education facilities for children N/A	1	2	3	4	5
Employment opportunities for partner N/A	1	2	3	4	5
Sense of community (social inclusion)	1	2	3	4	5
Sporting and shopping facilities	1	2	3	4	5

LOCATION	Most important				Least important
Climate	1	2	3	4	5
Environmental attributes of the region(such as the beach or national parks)	1	2	3	4	5
Proximity to a capital city	1	2	3	4	5

33. Are there any other factors that were important in your decision to stay in Dubbo? Please specify :		
34. In summary, what would be the most important factor for you in the decision to stay?		
35. Approximately how much longer do you plan to remain in Dubbo?	< 2 years	☐
	2 - 5 years	☐
	5 - 10 years	☐
	10 - 15 years	☐
	> 15 years	☐

36. If you were to consider moving from Dubbo which of the following locational options would be your most likely destination? Please rank from 1 (most likely) to 5 (least likely).	
Capital city (such as Sydney, Adelaide, Brisbane)	
Major urban centre - >100,000 (such as Gosford-Wyong, Newcastle, Wollongong, Blue Mountains, Geelong, Gold Coast-Tweed Heads,)	
Regional city or large town - 25,000–100,000 (such as, Tamworth, Dubbo, Coffs Harbour, Wagga Wagga)	
Smaller town - 10,000 – 24,999 (such as Gunnedah, Moree)	
Small community - <10,000 (such as Warialda, Quirindi, Nyngan)	

37	What are the reasons for your choice?
38	Is there anything else you would like to add in relation to regional centres in general (or Dubbo in particular) as places to live and work as a GP?

That completes the questions. Is there any other issue you would like to discuss?

Thank you for your participation

APPENDIX 6
Questionnaire justification

This questionnaire looks at preferences that GP s may have about regional centres. The questions in this section are planned to look at the direction and intensity (De Vous, 2004) of their attitude-

This appendix seeks to denote the sources and reasoning behind the design of the primary data collection

Concept and dimension	Data Items	Justification
Section 1 Demographic data (Q1-13)		Concurrent validity is testable for the demographic items as the MSOD,RDN and MABEL studies review similar demographic characteristics. The workforce characteristics section is shorter than those three but uses similar format and wording for many questions.
1.	Gender	Important item in terms of workforce implications. Male/Female format in wide use
2.	Age in cohorts	Less confronting question than age in years. Similar cohort methodology used in AIHW health workforce information so comparability assured (in fact most people gave their actual age as well which was recorded).
3.	Country of primary medical degree	Indicates Overseas training for undergraduate degree. Does not say whether they are employed under the moratorium. Different data sources apply different criteria for identifying international medical graduates. These include country of first medical qualification such as here as well as country of birth and citizenship (National Rural Health Alliance, 2010a)

Concept and dimension	Data Items	Justification
4.	Obligated service	After discussion with Dr Catherine Joyce (19 March 2011) there are 4 dimensions to be considered,-place of birth, place of medical graduation, visa status and registration status. The interest in terms of recruitment and retention is to understand those who have restrictions on their registration (so no choices about practice location) and those that have gone to rural and regional areas of their own free will. Hence the question we need to review is that of registration status. It is also important to review with them if they have no restrictions and whether they have ever had restrictions as this points to a decision to remain in a regional location and means that their feelings on recruitment and retention are of great interest to the research (question same as MABEL)
5 and 6.	Rural origin including early years, primary and secondary schooling home address Specified number of years important	Rural origin is a known predictor for future work in a rural area. A threshold amount of time as well as a number of years have both been proposed as valid measures of rural origin. Rural origin has been variously described to mean some or all of time at primary school, secondary school (Laven et al., 2003), continuous time spent as a child at school of five years (M. Jones et al., 2009), or discontinuous time of eight years (Australian Medical Workforce Advisory Committee 2005). Other measures have been less specific such as "being raised in a rural community"(Rabinowitz et al., 1999). Similarly, Somers investigated the threshold for the influence of rural background in a cohort of medical students and found it developed after 5 years rural upbringing and had the highest likelihood of rural intention at 8 years (Somers et al., 2007). The Medical Students Outcome Database study has released some preliminary data suggesting that two of the three strongest associations with stated rural intention are; rural residence greater than 5 years and a long duration of regional/rural residence overall (M. Jones et al., 2009) So alternatives are (from MSOD) 1. Total amount of childhood time spent in "rural postcode" (MSOD greater than 5 years) 2. Primary schooling in rural areas 0-6 3. Secondary schooling in rural areas 0-6
7.	Partner	Partner language used in ABS survey. Further split into married/never married/widowed and de facto considered not required.

Concept and dimension	Data Items	Justification
8.	Partner rural origin	See above 5 years considered most likely cut point for primary schooling. Respondent's knowledge of the spouse's rural life history may increase recall bias.
9.	Years in Current location	Could use current location but may miss those rotating through a number of practices during their FRACGP training.
10.	VMO status	Proxy measure of hospital access and in the past extended scope of practice. Ensures differentiation between hospital based and general practice location work (should differentiate Career Medical Officer)
11.	Sessions in work-definition of fulltime/part time	Self-reported hours are problematic as is the difficulty of definition of all aspects of the medical job including direct patient contact, paperwork and phone calls and after hours direct patient contact. Sessions recognised through AGPAL (accreditation agencies) and has good professional recognition in terms of payment arrangements (AMA-session constitutes 3-4 hours of work) Not used in MABEL/Viable models studies. Used in RDN workforce survey.
12.	Hours in direct patient care	As above. Known "fixing the system"(Jackson & Furnham, 2000) effect with practitioners tending to overstate their work hours and busyness. Direct patient care more likely to be sensitive to booked or unbooked appointment times. This language used in the MABEL study however further questions asked by MABEL look at other hours for teaching, indirect patient care etc. Could be seen to be not complete. Is usable as a cross check against previous item With pilot testing this item was very clumsy (18.4.11)
13,14,15,16	Hours of on call and hours spent providing care on call or after hours	This set of questions is the same as those in the MABEL .The questions attempt to understand the size of the workload as well as the frequency.

Concept and dimension	Data Items	Justification
Section 2 Places to work (Attractiveness of regional centres as places to work)		Concurrent validity is hard to assess in the absence of referable literature. The involvement of key experts and the use of pilot study both try and address this issue. The survey also has to review the "halo effect" as professional satisfaction and personal satisfaction have been separated out as different concepts. The capacity of respondents to separate them is an unknown although this separation of concepts has been used in other studies such as the MABEL study
Q17, Work preference based on population size	Measurement of ranked preferences	Ranked preferences of regional centres as a work location will derive a measure of preference for centres with a certain population size.
18	Reasons for preference for selected population size	Why question? Opportunity to explore work factors and population size
19.	Local regional centre-5 point Likert scaled statement around satisfaction with work	Measure level of satisfaction with current work environs. Identifies current regional centre rather than regional centres in general. Will allow dichotomisation of result. Satisfaction is readily understood concept amongst practitioners Likert scales can indicate the ordering of different attitudes but not precisely how far apart or close the attitudes are (Bowling, 2002)
20,21	Reasons for finding local regional centres work attractive and unattractive	Thematic analysis of responses
22	Comparison between current regional centre and other centres	Question looks at location of current regional centre as well as population size. In the decision about where to work, do people have an inclination to work at the coast? .Do respondents find the coast more or less attractive? Question aims to test hypothesis of location being important as well as population size to work factors
Section 3 Places to live Q23.Attractiveness of regional centres as places to live	Measurement of ranked preferences	Should provide a measure of preference of towns based on population size as places to live. Will not distinguish location -only population size

Concept and dimension	Data Items	Justification
24	Reasons for the above	Opportunity to explore liveability factors and population size Why question allowing thematic analysis of responses
25	Satisfaction with local regional centre as place to live	Measure level of satisfaction with current location. Identifies local regional centre rather than regional centres in general. Will allow dichotomisation of result. Satisfaction is readily understood concept amongst practitioners
26/27	Reasons for finding local regional centres attractive and unattractive	Likely unpack social and community factors in thematic analysis This information would be hard to derive through scaled or tick a box means. Will really flesh out the reasons why practitioners have chosen this location. May also derive information on the relative priority of work and living factors in deciding to live in a regional centre.
28	Comparator between current regional centre and other locations as places to live	Question looks at location of current regional centre as well as population size in the decision about where to live. Do people have an inclination to live at the coast? .(significant population change in this direction in the general population (sea changer) Do respondents find the coast more or less attractive than inland centres? Question aims to test hypothesis of location being important as well as population size
Section 4 Recruitment to regional centres Q29	Recruitment factors- broken into three sections of known recruitment factors	Ratings of factor importance. Rationale for breaking it down is related to fatigability of respondent and feasibility of an otherwise very long list. Predictive validity is difficult to measure as few other surveys have tested similar propositions Each section was alphabetically ordered to ensure even handedness. The factors were assembled from the existing literature which concentrates on rural rather than regional centres. Factors were pilot tested for content validity
	Financial incentives to come to regional practice	(Buykx et al., 2010; Department of Health and Ageing, 2010c)

Concept and dimension	Data Items	Justification
	Projected workload after hours	(Ellsbury et al., 2002)
	Projected remuneration	(Ellsbury et al., 2002)
	Work variety	(Laurence et al., 2010)
	Workload in hours	(Laurence et al., 2010)
	Cultural facilities and opportunities	(Ellsbury et al., 2002)
	Education facilities for children	(Laurence et al., 2010)
	Employment opportunities for partner	(Dunbabin & Levitt, 2003; Jarratt et al., 1989)
	Sense of community (social inclusion)	(Ellsbury et al., 2002; Hancock et al., 2009)
	Sporting and shopping facilities	(Laurence et al., 2010)
	Proximity to a capital city	(Bolduc et al., 1996)
	Environmental attributes such as the beach or national parks	(Laurence et al., 2010)
	Climate	(McGrail,et al., 2011b)
This one is not in the survey-(hard to define and in the end was not included)	Rural lifestyle-not currently included	(Tolhurst et al., 2006)
	Proximity to Family	(Laurence et al., 2010)
30, 31	Opportunity for mention of other recruitment factors	Given the lack of literature around regional recruitment factors, this question is key.
Section 5 Issues related to retention in regional centres Q32	Retention factors	Use of mean scores on importance of various factors. Evidence for retention factors from Humphreys, Jones, et al., (2002) which included regional respondents Set into three sections to reduce fatigability and sequenced alphabetically to reduce bias Wording and content validity to be field tested

Concept and dimension	Data Items	Justification
	Access to career path in teaching and research	(Simmons et al., 2002; Wilkinson, Symon, Newbury, & Marley, 2001)
	Access to continuing professional development	(Alexander, 1998; McGrail et al., 2010b; Rural Doctors Association of Australia & Monash University School of Rural Health, 2003)
	Access to diagnostic or other medical facilities	(Alexander, 1998)
	After hours workload including on call	(Alexander, 1998; Humphreys, Jones, et al., 2002; Kamien, 1998; Meek et al., 2009; Rabinowitz et al., 1999)Regional context is known to be different in terms of likelihood of VMO status
	Capital funding to improve practice infrastructure	(Rural Doctors Association of Australia & Monash University School of Rural Health, 2003)
	Level of remuneration	(Ellsbury et al., 2002; Humphreys, Jones, et al., 2002; J. Jones et al., 2004; McGrail et al., 2010b; Pathman et al., 1996; Rural Doctors Association of Australia & Monash University School of Rural Health, 2003; Szafran et al., 2001)
	Workplace culture	(Cutchin, 1997b)
	Work variety	(Gill, Thomson, & Pilotto, 1997; Shanley et al., 2002; Smith, 2005; Strasser, 1992)
	Workload in hours	(Hays et al., 1997) This pertains to the regional centre environment as afterhours may not be arduous(Meek et al., 2009)
	Cultural facilities and opportunities	(Han & Humphreys, 2005)
	Education facilities for children	(Alexander, 1998; Bruening & Maddern, 1998; Hays et al., 1997; McGrail et al., 2010b; Smith et al., 2002; Szafran et al., 2001)
	Employment opportunities for partner	(Han & Humphreys, 2005; Hays et al., 1997;McGrail et al., 2010b; Meek et al., 2009; Smith et al., 2002)

Concept and dimension	Data Items	Justification
	Sense of community (social inclusion)	(Cutchin, 1997a; Hays et al., 1997) (Kelley,Kuluski, Brownlee, & Snow, 2008; MacDowell et al., 2010; McGrail et al., 2010b)
	Sporting and shopping facilities	(McGrail et al., 2010b)
	Proximity to a capital city	(Bolduc et al., 1996)
	Environmental attributes such as the beach or national parks	(Hays et al., 1997; McGrail, et al., 2011b)
	Climate	(Auer & Carsons, 2009; McGrail, et al., 2011b)
Further considered	Rural lifestyle (? too subjective? uniformity of meaning? Proximity to family	(Stagg et al., 2009; Strasser, 1992) (Mayo & Mathews, 2006)
33,34	Any other retention factors	Factors such as proximity to family and rural lifestyle may appear here. This will provide an opportunity to find out whether other factors not described have credence.
35	Retention in current location	Question wording validated in NSW RDN survey
36	Likely location	Question predicated on moving to a place of different population size.
36	Reasons for location change	Opportunity for thematic analysis for drivers of likely relocation
37 General comments		Opportunity for further discussion about burning issues

APPENDIX 7
Consent form

Consent Form

Title: ***Rural or Urban An in-depth analysis or medical workforce in regional centres in Australia***

NOTE: **This consent form will remain with the Monash University researcher for their records**

I agree to take part in the Monash University research project specified above. I have had the project explained to me, and I have read the Explanatory Statement, which I keep for my records. I understand that agreeing to take part means that:

I agree to be interviewed by the researcher ☐ Yes ☐ No

I agree to allow the interview to be audio-taped ☐ Yes ☐ No

I understand that my participation is voluntary, that I can choose not to participate in part or all of the project, and that I can withdraw at any stage of the project until the data is aggregated and can't be identified.

I understand that any data that the researcher extracts from the interview for use in reports or published findings will not, under any circumstances, contain names or identifying characteristics.

I understand that any information I provide is confidential, and that no information that could lead to the identification of any individual will be disclosed in any reports on the project, or to any other party.

I understand that data from the interview will be kept in a secure storage and accessible to the research team. I also understand that the data will be destroyed after a 7 year period unless I consent to it being used in future research.

Participant's name

Signature

Date

APPENDIX 8
Ethics Monash University

MONASH University

Monash University Human Research Ethics Committee (MUHREC)
Research Office

Human Ethics Certificate of Approval

Date:	**25 May 2011**	
Project Number:	**CF11/1207 – 2011000666**	
Title:	**Rural or urban? An in-depth analysis of medical workforce in regional centres**	
Chief Investigator:	**Prof John Humphreys**	
Approved:	**From: 25 May 2011**	**To: 25 May 2016**

Terms of approval

1. The Chief investigator is responsible for ensuring that permission letters are obtained, if relevant, and a copy forwarded to MUHREC before any data collection can occur at the specified organisation. **Failure to provide permission letters to MUHREC before data collection commences is in breach of the National Statement on Ethical Conduct in Human Research and the Australian Code for the Responsible Conduct of Research.**
2. Approval is only valid whilst you hold a position at Monash University.
3. It is the responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval and to ensure the project is conducted as approved by MUHREC.
4. You should notify MUHREC immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.
5. The Explanatory Statement must be on Monash University letterhead and the Monash University complaints clause must contain your project number.
6. **Amendments to the approved project (including changes in personnel):** Requires the submission of a Request for Amendment form to MUHREC and must not begin without written approval from MUHREC. Substantial variations may require a new application.
7. **Future correspondence:** Please quote the project number and project title above in any further correspondence.
8. **Annual reports:** Continued approval of this project is dependent on the submission of an Annual Report. This is determined by the date of your letter of approval.
9. **Final report:** A Final Report should be provided at the conclusion of the project. MUHREC should be notified if the project is discontinued before the expected date of completion.
10. **Monitoring:** Projects may be subject to an audit or any other form of monitoring by MUHREC at any time.
11. **Retention and storage of data:** The Chief Investigator is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.

[redacted]

Professor Ben Canny
Chair, MUHREC

cc: Dr Jennifer May, Dr Fran Rolley

Postal – Monash University, Vic 3800, Australia
Building 3E, Room 111, Clayton Campus, Wellington Road, Clayton
[redacted] www.monash.edu/research/ethics/human/index/html
ABN 12 377 614 012 CRICOS Provider #00008C

APPENDIX 9
Information sheet

MONASH University
Medicine, Nursing and Health Sciences

School of Rural Health
PO Box 666, Bendigo VIC 3552, Australia
[redacted]
9080
www.med.monash.edu.au/srh
CRICOS Provider No. 00008C ABN 12 377 614 012

Information Sheet for Participants

Research project: Rural or Urban? An in-depth analysis of medical workforce in regional centres in Australia

My name is Dr Jenny May and I am a GP in Tamworth conducting research towards a Doctor of Philosophy degree at Monash University. My supervisors are Professor John Humphreys in the Department of Rural Health And Dr Fran Rolley for UNE.

The purpose of the research is to describe the nature and assess the adequacy of the medical workforce supply in regional centres and to identify the issues associated with recruitment and retention of medical practitioners in regional centres. Currently there is little understanding of the issues associated with recruitment and retention to regional centres, yet regional centres are increasingly recognised as key hubs in the provision of medical care. The research will increase understanding of this important issue and thereby provide an evidence base from which to formulate policies designed to improve recruitment and retention.

Who is participating?

General Practitioners and Specialists in active clinical practice who reside in regional centres have been invited to participate in my research.

What would you be asked to do?

If you agree to participate in the research you will be asked to take part in a short, semi-structured interview of approximately 30 minutes. The interview will provide an opportunity for discussion of your experiences in coming to a regional centre and your opinions about what keeps you living and working in a regional centre. With your permission, I would like to

record the interview. The interview can be conducted in your workplace or at the Rural Clinical School in your regional centre and will take around 30 minutes.

What are the risks and benefits of participating?

Participation in the study is entirely voluntary and you are under no obligation to participate. If you do consent to participate, you may withdraw from the study at any time up until such time as the data are de-identified and aggregated following the interview.

There are no foreseeable risks arising from participation. Individual participants will not be identified in any reports or papers arising from the project.

Although I cannot promise you any personal benefit from participating in this research, the research will increase the body of knowledge about medical workforce in regional centres.

Confidentiality

All information collected during the course of the research will be kept strictly confidential. and all identifiable features of your discussion will be kept in a secure location. Any of the information that might identify you will not be disclosed without your consent. Steps will be taken to honour your privacy and autonomy throughout the research and individual participants will not be identifiable in any publications resulting from the study.

Use and storage of data

I will be the only person who will have access to the data collected. All information will be transcribed and will be stored in password protected computer files. The information will be stored for seven years and then destroyed according to Monash University procedures.

Results

The results of the research will be reported in academic and professional journals on completion of the study, although there may be a time lag between completion of the research and publication. Individual participants will not be identified in any reports or papers arising from the project and considerable effort will be undertaken to ensure participants are guaranteed confidentiality throughout the research.

Participants can request a summary of the research findings by contacting me at [redacted]

If you would like more information about any aspect of this study, please contact either-	If you have a complaint concerning the manner in which this research is being conducted, please contact:
Dr Jenny May C/o UDRH/RCS University of Newcastle Locked bag 9783 Tamworth NSW 2348 [redacted] Professor John Humphreys Monash University School of Rural Health Office of Research PO Box 666, Bendigo, Victoria 3552 [redacted]	**Executive Officer** **Monash University Human Research Ethics Committee (MUHREC)** **Building 3e Room 111** **Research Office** **Monash University VIC 3800** [redacted] This study has been approved by the Monash University human ethics Committee Approval number: **CF11/1207 – 2011000666**

Thank you.

[redacted] **This information sheet is for you to keep.**

APPENDIX 10

Classification systems – the Monash Model compared

RRMA			**ARIA**	**ASGC RA (remoteness)**		**Modified Monash Model**	
Broad Category	Fine Category	Population	Category	Category		Category	Population size
Metropolitan	Capital cities M1 (RRMA1)	All	Highly Accessible	Major cities	RA 1	MM1.Major cities	All
	Other metropolitan centres M2	>100 000 (RRMA 2)				MM2.	>50 000
Rural	Large rural R1	25-99 999 (RRMA 3)	Accessible	Inner Regional	RA 2	MM3	15-50 000
	Small rural R2	10-24 999 (RRMA4)				MM4.	5-15 000
	Other rural R3	<9 999 (RRMA5)	Moderately accessible	Outer Regional	RA 3	MM5.	0-5 000

RRMA	ARIA	ASGC RA (remoteness)	Modified Monash Model
Remote centres >5 000 Rem1 Remote (RRMA6) Other remote areas <4 999 Rem 2 (RRMA 7)	Remote Very remote	Remote RA 4 Very remote RA 5	MM6. 0-5 000.
Logical use of 3 zones/Strong influence of population size classifies towns of similar size. *Use of straight line measurements and SLA boundaries very imprecise. Never updated (using 1991 population counts*	Flexibility to measure remoteness at any geographic level with precision *Only measures geography doesn't measure access as name implies*	More refined methodology adding further service centre category ,better separation of major cities Updated by ABS *Extreme heterogeneity within some areas like outer and inner regional* *Population size not accounted for*	In acknowledging population size more likely to have congruence within groups with similar practice demands (on call etc.) *Population of towns does not take account of hinterland density (ie Margaret River and Naracoorte*)