OVERSEAS TRAINED DOCTORS IN RURAL AND REMOTE AUSTRALIA: DO THEY PRACTISE DIFFERENTLY FROM AUSTRALIAN TRAINED DOCTORS?

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ABBREVIATIONS

ACRRM	Australian College of Rural and Remote Medicine
AIHW	Australian Institute of Health and Welfare
AMC	Australian Medical Council
AMWAC	Australian Medical Workforce Advisory Committee
ANTRDs	Area of need temporary resident doctors
ARIA	Accessibility/Remoteness Index of Australia
ASGC	Australian Standard Geographic Information System
ATDs	Australian trained doctors
BEACH	Bettering the Evaluation And Care of Health
CI	Confidence intervals
CME	Continuing medical education
COPD	Chronic obstructive pulmonary disease
DIMIA	Department of Immigration and Multicultural and Indigenous Affairs
Dr DOC	Dr Duty of Care program
ECG	Electrocardiogram
EPC	Enhanced primary care
FRACGP	Fellowship of the Royal Australian College of General Practitioners
FTE	Full-time equivalent
GMC	General Medical Council
GP	General practice/general practitioner
HbA1c	Glycated haemoglobin
IMGs	International medical graduates
MBS	Medicare Benefit Schedule
NRP	National Reference Panel
NSW	New South Wales
NT	Northern Territory
OECD	Organisation for Economic Co-operation and Development
OMPs	Other medical practitioners

OTDs	Overseas trained doctors
PBS	Pharmaceutical Benefits Schedule
PIP	Practice Incentive Program
PLAB	Professional and Linguistic Assessment Board
Qld	Queensland
RACGP	Royal Australian College of General Practitioners
RAMUS	Rural Australia Medical Undergraduate Scholarship Scheme
RDWA	Rural Doctors Workforce Agency
RRMA	Rural, Remote and Metropolitan Area – see section 3.4
RRMEO	Rural and Remote Medicine Online
RTPs	Regional training providers
RWAs	Rural workforce agencies
RWAV	Rural Workforce Agency Victoria
SA	South Australia
Tas.	Tasmania
TRDs	Temporary resident doctors
UK	United Kingdom
USA	United States of America
Vic.	Victoria
WACRRM	Western Australian Centre for Rural and Remote Medicine
WA	Western Australia
WONCA	World Organization of National Colleges, Academies and Academic Associations of General Practitioners/Family Physicians commonly referred to as the World Organization of Family Doctors.
WWAMI	Washington, Wyoming, Alaska, Montana and Idaho

DEFINTIONS

Overseas trained doctors

The term 'overseas trained doctors' (OTDs) refers to doctors whose medical training has not occurred in the country in which they are currently practising. This term is used most consistently in Australia, but other countries use different terms. For example, in the past the United States (US) referred to these doctors as 'foreign medical graduates'. Currently the most universal term for these doctors is 'international medical graduates' (IMGs). However, in this thesis the term 'overseas trained doctors' will be used, as this is the term adopted by the Australian Government when referring to this group of doctors and is also the term used in the policy which is being analysed.

Commonwealth Government of Australia and Australian Government

During the period covered by this study, a change in terminology occurred for the federal government in Australia. Up until 2001 the term 'Commonwealth', as in Commonwealth Department of Health and Aged Care, was used to describe initiatives/policies that are generated by the federal government in Canberra. Since 2001, term the 'Australian Government' has been adopted instead of the term 'Commonwealth' and to describe such initiatives. As this study covers both periods, I will use both terms, but they have the same meaning.

Medical practitioner

The term 'medical practitioner' is used in this thesis to describe the whole medical workforce as opposed to the medical workforce associated with a specific speciality. In the United States, the term 'physician' is used in the same context.

General practitioner

In Australia the term 'general practitioner' is used to refer to those medical practitioners who have specialised in general practice. While this term is used in a number of countries, it is not used in North America. Canada and the US use the term 'family physician' or 'primary care physicians', but for the purpose of this thesis I will use 'general practitioner'.

Some other definitions such as rurality will be explained in detail in the text (see section 1.3.2).

ABSTRACT

Over the last seven years the recruitment of overseas trained doctors (OTDs) has formed a significant part of Australia's policy to address the medical workforce issue of geographic maldistribution to ensure that communities in rural and remote Australia have access to adequate general practice (GP) services. This policy has not been without problems, particularly in the areas of assessment of skills and qualifications, appropriate orientation and integration into Australian communities, and retention of these doctors within rural and remote communities.

To date there has been little evidence-based research on the role of OTDs in the medical workforce in Australia. This study explores the service provision and quality of care provided by OTDs using the 5 Year OTD Scheme as the case study. In doing so, it assesses the adequacy of this strategy and discusses the implications for future workforce policies and programs.

A mixed method design was used in the study. The quantitative component involved secondary analysis of Medicare Australia data for all OTDs participating in the 5 Year OTD Scheme in 2002 and all Australian trained doctors (ATDs) practising in rural and remote Australia in the same year. A log Poisson regression model was used to assess the interactive effect of the various GP characteristics, such as age, sex, experience and practice location with OTD/ATD status on the rate of a particular service item per patient, adjusted for patient age and sex.

The qualitative component involved two focus groups with OTDs which were used to help explain the relationships between variables found in the quantitative component of the study. Template analysis was used to identify themes from the focus group.

Significantly different rates per patient between OTDs and ATDS were found across most service items and GP characteristics examined. The greatest variation was found among items relating to in-surgery consultations and non-surgery consultations such as nursing home visits. Fewer differences were found between groups relating to pathology, imaging or procedural services. Analysis of surrogate quality items identified few differences between OTDs and ATDs.

The focus group identified a number of other factors that influenced their patterns of service and accounted for some of the differences identified in the quantitative analysis. These factors included knowledge of the health care system in Australia, cultural and communication influences, health conditions of patients, patient and community attitudes, remuneration influences and training influences. These had varying degrees of influence on their patterns of service.

The reasons for the differences found between OTDs and ATDs are partially explained by the characteristics of the GPs examined and partially explained by other external influences that relate to the particular circumstances of the OTDs, such as knowledge of the Australian health care system and cultural and communication issues. Understanding the nature of practice is central to ensuring appropriate professional support measures. The study findings highlight the need for a targeted training program for OTDs that address the areas that have the greatest influence on patterns of service to ensure that rural and remote communities receive the same quality of service from OTDs as provided by ATDs.

THESIS DECLARATION

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

I give my consent to this copy of my thesis, when deposited in the University Library, being made available in all forms of the media, now or hereafter.

Signature: ..... Date: .....

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INTRODUCTION

My interest in the use of overseas trained doctors (OTDs) as a medical workforce policy arose from my time working under the Commonwealth Government's General Practice Rural Incentives Program where I assisted in establishing a process to recruit overseas doctors to work in rural and remote South Australia. This was in the mid-1990s at a time when government policies aimed at recruiting Australian graduates had not reached their fruition. Many rural communities were experiencing difficulties in recruiting general practitioners (GPs) and OTDs provided an immediate solution to this shortage. In observing this phenomenon, I was particularly concerned about the use of OTDs as an alternative policy to the use of Australian graduates and whether OTDs would provide the same quality of service as Australian graduates, making their use a justifiable alternative, regardless of cost or ethical issues. Answering this question depended on finding a method and data source. This study achieved this by examining a specific group of OTDs.

This chapter outlines the purpose of the study, including the hypothesis, with an explanation of the framework chosen. The final section provides an overview of the thesis structure.

Purpose of study

Over the last seven years the recruitment of OTDs has formed a significant part of Australia's policy to address the medical workforce issue of geographic maldistribution to ensure that communities in rural and remote Australia have access to adequate GP services. This policy has not been without problems, particularly in the areas of assessment of skills and qualifications, appropriate orientation and integration into Australian communities and retention of these doctors within rural and remote communities.

To date there has been little evidence-based research on the role of OTDs in the medical workforce in Australia. This study will describe the service provision and quality of care provided by OTDs using the 5 Year OTD Scheme as the case study. In doing so, it will assess the adequacy of this strategy and discuss the implications for future workforce policies and programs.

The overall aim was to examine the adequacy of the 5 Year OTD Scheme through an analysis of the patterns of service and quality of the services provided by OTDs enrolled in this

program and then consider the implications of the results for workforce planning and policy in Australia. The primary hypothesis proposed is that:

The patterns of GP service provided by OTDs in rural and remote Australia are no different from the patterns of service provided by Australian graduates in similar locations.

In order to answer this hypothesis the following approach was undertaken.

- firstly, to describe and compare the patterns of service of OTDs recruited through the 5 Year OTD Scheme with Australian trained doctors (ATDs) practising in rural and remote Australia, using Medicare Benefit Scheme (MBS) data
- secondly, to identify differences in quality of care using MBS data between OTDs and ATDs
- thirdly, to understand the variations in patterns in service provision using focus groups with OTDs.

Literature review

An integral part of any research study is the review and analysis of the literature. In this study the review of literature provides the context in which the study is set, in terms of medical workforce planning, policy issues and the use of OTDs as a solution for geographic maldistribution. The literature is used again in the final part of the study to assist with the interpretation of the results obtained through the analysis of the GP service data and focus groups and to provide additional input to the outcomes of the study.

The review involved a search of health and medical databases for Australia and overseas material available to the researcher. The databases searched included: Pubmed, Austhealth (AMI index, Rural and Remote Health and ATSI) and Web of Science. However, as the focus of this research is on the GP in rural and remote Australia, research based in Australia was given a high priority.

Additional material was gained from the internet using key words and searching the sites of government departments, government agencies, medical associations and support organisations to gain access to reports, conference proceedings, theses and government papers and policy documents. These sources were of particular importance for documents relating to government policies as well as for unpublished data on the OTD workforce.

The search strategy for the literature was first developed and further refined with the assistance of a librarian. The search used the MeSH terms and key words shown in Table 1.

Table 1: MeSH terms and key words used in review of the literature

International medical graduates/foreign medical graduates/overseas trained doctors	Practice patterns	Medical workforce	Rural/remote
General practice/family practice/family physician	Clinical patterns of service	Recruitment	Rural health
	Work profile	Retention	Rural health services
	GP activities	Planning/policy	
	GP services	Maldistribution	

The bulk of the search of the literature was undertaken at the beginning of the study (2002–03) and additional searches were undertaken for the duration of the study to ensure that new material could be incorporated into the study. The literature review covers the period 1966 to 2007.

Chapter overview

The first three chapters of the study provide a backdrop in which to locate the findings from this study. Specifically, Chapters One and Two form a review of the literature outlined above. Chapter One introduces the context of the study by examining the issue of medical workforce planning and the issue of geographic maldistribution of the medical workforce. It examines this issue from an international perspective, with an emphasis on the Australia context, highlighting the importance of this issue across developed countries. The second part of this chapter summarises the reasons why geographic maldistribution occurs, by focusing on the determinants of practice location for GPs. Finally in this chapter, the various policy options utilised both internationally and nationally are summarised and their limitations outlined, including the use of OTDs as a solution to the geographic maldistribution of the medical workforce. This then leads into a description of the use of OTDs internationally and highlights the type and extent of research in this area.

Chapter Two re-focuses the context on Australia, commencing with a description of the role of OTDs in medical supply from 1990 to 2003. This includes an outline of the policies

relating to OTDs, illustrating the changing attitude and role OTDs play in addressing supply issues in the medical workforce in Australia, particularly the provision of services in rural and remote Australia. This chapter also outlines the current areas of debate on the use of OTDs, including supply, distribution and quality. The policy initiatives are then placed in context by providing a profile of OTDs in Australia, including types of OTDs, source, demographic characteristics, distribution and speciality. This chapter also introduces the key policy which allowed OTDs to fill areas of workforce shortage – the 5 Year OTD Scheme which began in 1999 and is the focus of this study. This policy heralded a change in government policy and attitude to the role of OTDs in the medical workforce and the subsequent expansion of their role to fill areas of need in outer metropolitan areas in and the hospital system. This program is outlined in detail, including the results of the program based on the 2003 survey of GPs in the program and reports from various rural workforce agencies (RWAs).

The study design is presented in Chapter Three. A mixed method approach is taken, and the rationale for its selection is discussed and the three parts of the design described in detail. The first part comprised a literature review, some of which has been presented in Chapters One and Two and which is also utilised in the discussion. The study then uses quantitative data and qualitative data to address the research question. The quantitative data, the dominant component of the study, involves the secondary analysis of medical service data provided from Medicare Australia. These data were analysed to identify patterns of service provision by OTDs enrolled in the 5 Year OTD Scheme and to undertake a subsequent comparison with a matched group of ATDs. The process of data selection, identification of the study group, the variables and statistical model utilised in the analysis is described. Focus groups form the qualitative data component of the study. The selection process, development of questions and approach to analysis are described.

The next two chapters – Chapters Five and Six – present the results from the quantitative and qualitative analysis. Chapter Five presents the findings of the descriptive analysis and the multiple regression analysis. Across the GP service items and GP characteristics significant differences were found between OTD and ATD patterns of service. For the items in the Medicare data set used as surrogate quality items, few differences were found between the two groups, but the analysis was hindered by small data numbers for the OTD group. Chapter Five presents the qualitative results from the two focus groups held with OTDs. The focus groups were used to help interpret the relationships identified in the quantitative analysis; a number of themes were identified from these groups.

Chapter Six discusses the results from the qualitative and quantitative analysis in the context of the differences and similarities in the patterns of service between OTDs and ATDs. The first part of the chapter outlines a model that explains the various influences on patterns of service at a micro and macro level. With the model as a framework, the chapter then discusses these micro-level and macro-level influences, using the various service items to illustrate this. The chapter then discusses what this means in terms of appropriate professional support measures. An outline of a possible support program is included, as is an indication of the steps necessary for its implementation. The chapter ends with an outline of the limitations of the study.

The conclusion in Chapter Seven summarises the study and, based on the results, suggests areas for future research.

CHAPTER ONE: THE CONTEXT OF STUDY

1.1. INTRODUCTION

The goal of medical workforce planning in Australia as stated by the Australian Medical Workforce Advisory Committee (AMWAC), the organisation established to provide advice and estimate supply and demand of medical workforce, is:

> *To ensure all Australians have access to quality medical services appropriate to their needs by ensuring that:*
>
> *The right numbers of doctors are in the right place;*
>
> *At the right time;*
>
> *With the right skills to competently and proficiently perform the tasks expected of them in accordance with world's best practice.*[1]*: pp.1–2*

This goal is similar to that of other countries[2, 3] and is an essential process for governments, professional organisations, universities and consumers. Medical workforce planning involves the process of estimating the required health workforce to meet future health services requirements and the development of strategies to meet that need.[4] This planning can occur at many levels – international, national, state or regional and organisational. Appropriate planning can ensure that scarce resources are not wasted on producing an unlimited or unnecessary number of medical practitioners and also ensuring that the population has access to the necessary types of doctors in the right location.[1, 5] Medical workforce planning is also important because it provides the evidence on which health workforce policy hangs. The process can inform governments and relevant organisations, which can then implement policies and strategies to influence the supply side, thus ensuring that the number and distribution medical practitioners are appropriate.

Determining a balance between the supply of labour and the need for labour and the policies and strategies to correct any imbalances is not easy. Many countries[2] including Australia[6], aim to produce sufficient numbers of doctors without having to rely on net immigration, although this is not always successful.

1.2. MEDICAL WORKFORCE PLANNING

The essential elements of medical workforce planning are calculating the inflows (medical graduates, immigration and re-entry) and outflows (retirements, deaths and temporary exits) in the current supply of the medical workforce in order to predict future supply.[4] This process should take into account changing demand for services such as, those associated with an increasingly ageing population and changes in burden of disease, advances in technology, as well as changes in the workforce, which alters participation and availability of the medical workforce. The latter includes an increasingly ageing workforce, 'feminisation' of the medical workforce, the demand for shorter working hours, increasing specialisation, and qualitative issues such as satisfaction and lifestyle.[7] In most countries, workforce planning has been supply-led and resource-driven rather than needs-based, as supply can be influenced more easily by governments, although governments can also influence the demand for health services.[8]

This process is hampered by a number of factors such as the lack of relevant and reliable accurate data, the long lead time required to produce qualified medical practitioners, the range of different occupations in which health professionals can be trained, changes in national health policy, the various institutional frameworks within which practitioners operate, the complexities associated with determining need for healthcare services and the unknown effects of health care technologies. It is thus a dynamic process, requiring continual assessment and adjustment.[4]

In Australia, two main data sets provide data that can be used in workforce planning at a national level – the Australian Institute of Health and Welfare, which provides supply data through an annual survey of registered doctors, and the database of the government's national insurance scheme known as Medicare. Even so, problems exist in their definitions of the medical workforce, how they are counted and who is included, making planning and medical workforce research difficult.[9] A more detailed description of data sets available in Australia for medical workforce research in the context of this study is provided in Chapter Three.

Medical workforce planning is also more problematic because of the number of players who can influence the size and distribution of the workforce; the quality and safety of health of healthcare services; and affordability of the medical services supplied to the community also have to be taken into consideration.

Inappropriate workforce planning can lead to an oversupply or undersupply of medical practitioners. Inadequate numbers of medical practitioners will mean there are under-servicing, poor health outcomes, overworked practitioners and expensive solutions (such as transfers by air ambulance). On the other hand, too many practitioners can lead to over-servicing, underemployment of practitioners, potentially poor health outcomes and unnecessary training costs.[1]

In Australia, the federal government has a major role in medical workforce planning and policy, mainly for public interest and financial reasons. This reflects the nature of the health system and the medical market, where government is heavily involved in the provision of public hospital services (state/territory governments) and the setting of prices through the national health insurance service known as Medicare (Australian Government). The Australian Government has the responsibility for ensuring that the growth, distribution and standard of the medical workforce are appropriate to the needs of the Australian community and this is reflected in the objectives of Medicare, Australia's public health insurance scheme, enabling universal access, affordability, quality of care and outcome, equity, both in the distribution of costs and the allocation of resources and efficiency.[10]

Two key challenges face medical workforce planning in Australia and arguably most other developed countries, and these form the focus of most medical workforce policies[7, 8] The first challenge is to ensure an adequate supply of medical practitioners to meet the needs of the community and the second is to ensure the appropriate distribution of this workforce – whether it be geographically, such as rural and remote areas, or in terms of an adequate distribution across the medical specialities.

In relation to supply, Australia has gone through periods of oversupply and undersupply, while the issue of geographic maldistribution has been a persistent problem since the 1990s.

Since the 1980s there has been an increasing focus on the size and distribution of the medical workforce as medical expenditure has escalated and the market has failed to correct geographic and sectoral undersupply of practitioners. Governments need to contain costs in all areas of the health system and ensure that the best use is made of the resources in realising health outcomes. Primary medical care expenses were seen to increase with the supply of practitioners since the introduction of Medicare in 1984. At the same time, the distribution of the workforce remained uneven, with persistent shortages in rural and remote areas despite an oversupply of practitioners in capital cities.[10] In addition there were also growing shortages in

some medical specialities, under-representation of Indigenous Australians in the workforce and an overall shortage of practitioners working in Indigenous health.[10]

The uneven distribution of medical practitioners is of concern to governments, consumers, planners and health professionals for two main reasons. With universal access underpinning Australia's health system, a lack of access to health providers is an important issue for the government. Secondly, there is a linkage between medical practitioner availability, medical care utilisation and health status.[11]

In response to these challenges, the Australian Government has brought in policies either to reduce or increase the supply and redistribute the workforce. Examples of the policies include:

- capping medical school places (1990s) or increasing medical school places, as occurred in 2004 and designed to influence supply
- increasing or decreasing GP training places, aimed at re-distributing the speciality workforce
- giving incentives and training designed to address the issue of geographic maldistribution.

As this study examines in detail one policy to address the geographic maldistribution, it is important to gain an understanding of the issue of geographic maldistribution as a workforce planning issue for a selection of countries, as well as for Australia.

1.3. GEOGRAPHIC MALDISTRIBUTION OF MEDICAL PRACTITIONERS

As outlined earlier, one of the aims of medical workforce planning is to ensure that the appropriate numbers and types of doctors are appropriately located to meet the needs of different communities.[12] However, in most developed countries geographic maldistribution is a constant issue and becomes most obvious through comparisons of urban and rural areas, with rural areas suffering shortages of medical personnel.[11] As a result, this issue has been the focus of many government strategies to alleviate the maldistribution.

In measuring the medical practitioner distribution, information is required on the geographic area in which the practitioner is located, the number of practitioners and the number of people. The definitions used for these measures vary between the countries described below

and it is not the intention of this study to critically analyse the methodologies used. It is apparent that workforce data are often varied, inadequate and/or unavailable. What is clear from the literature is that geographic maldistribution exists in all of these countries, whatever type of measurement is used.

Countries where geographic maldistribution is not seen as an issue tend to be those which are geographically small, have high population densities and where the overall supply of medical practitioners per capita is much higher, such as Belgium, Switzerland and Israel.[13] Countries where geographic maldistribution is a medical workforce issue tend to have: highly urbanised populations; large areas which are sparsely populated; and high concentrations of medical practitioners in urban centres. This includes countries such as Canada, the US, New Zealand and the United Kingdom (UK), as well as Australia.

To highlight the issue and the similarities, I have summarised the medical practitioner to population ratio for these countries in Table 2 at various levels. As noted above, finding comparable statistics was difficult and the data presented cover different years. Even so it provides an overview of the issue. As shown on this table, Canada[14], the US[5] and New Zealand[15] have approximately 20% of their population residing in rural areas (Table 2). The rural population is serviced by a small number of medical practitioners, with their medical practitioner to rural population ratios ranging from 53 practitioners per 100 000 in Canada[14] to 82.6 per 100 000 in New Zealand[16, 17], well below that found in urban centres. The rural medical workforce consists mainly of general practitioners, for example, in the US, GPs formed 64% of the total rural medical workforce in 1997.[18] Another common feature is that the shortages are not uniform across the rural regions of these countries.

What is not shown in Table 2 is that for some of these countries, particularly the US and the UK, geographic maldistribution of the medical workforce is not only found in rural areas, but also in inner city areas. A more detailed description of the geographic maldistribution of the medical practitioners for these countries is found in Appendix 1.

Table 2: Summary of medical practitioner to population ratios per 100 000 in selected countries

Country	% population residing in rural areas	Total medical practitioner ratio	Medical practitioner to population ratio rural areas	GP to population ratio total	GP to population ratio in rural areas
Canada[14]	22	188	53	95	n.a.
United States of America [14, 19]	20–25	232	39	69	n.a.
New Zealand[16, 17]	23	222.5	n.a.	82.6	28–29
United Kingdom[20]	n.a.	209	n.a.	63	n.a.
Australia [21]	12.8	260.8	142.8	110.3	86.5

n.a. = not available

1.3.1. Geographic maldistribution of the medical practitioners in Australia

Australia has many of the features described in the countries above. It is one of the most urbanised populations in the world, with 66% of the population residing in capital cities and 85% of the population living within 50 kilometres of the coast. The majority of the rural population resides in large regional towns with population of 20 000 or more. Only 3% of the population lives in remote locations, and most of these are of Aboriginal and Torres Strait Islander descent.[22] The geographic maldistribution of the medical workforce is most prevalent in rural and remote Australia. More recently, however, maldistribution has not been limited to rural and remote areas of Australia. There is an increasing shortage of medical practitioners in the outer areas of the city as new suburbs grow[22], but as the study is based in rural and remote Australia, this is the focus of the description of the issues relating to geographic maldistribution in Australia. In 1998, there were 7757 medical practitioners who worked in a rural or remote area of Australia, representing 15.6% of all medical practitioners.[23]

In 2003, the national average was 260.8 medical practitioners per 100 000 population with 268.1 practitioners per 100 000 in capital city and other metropolitan areas, while rural and remote areas had only 142.3 medical practitioners per 100 000.[21] These rates are well below the estimated benchmarks for Australia set by AMWAC in 1994, of 240.6 medical practitioners per 100 000 population.[24]

There are significant differences in the profiles of the rural and the metropolitan medical workforces. In 1998 the majority of medical practitioners in rural areas were GPs/primary care practitioners (60.2%), 7.4% were hospital non-specialists, 25.7% were specialists, 4.1% were specialists in training and the remaining 4.1% were non-clinicians (Table 3).[25] In rural areas in 2003 there were 86.3 GPs per 100 000 population compared with 109.8 GPs per 100 000 population in metropolitan areas[21], underlining the shortage of GPs.

With the rural medical workforce in Australia dominated by general practitioners, the focus of most of the government policies and strategies has been on this group. Of the GP population, 22.4% of GPs' main practice locations in 1998 were in a rural or remote area.[26] This contrasts with the overall population distribution of 28.7% living in rural and remote Australia in 1998.

Table 3: Percentage of medical practitioners by type and location, 1998

NOTE:
This table is included on page 12 of the print copy of the thesis held in the University of Adelaide Library.

The total number of GPs in rural areas has increased by 10.6% from 1997 to 2003 (Table 4). This increased number of GPs in rural areas is likely to be result of a number of government initiatives implemented over the last decade, including increased rural training positions, educational initiatives, as well as the recruitment of OTDs.

However, while there is a larger rural GP workforce, this workforce is working fewer hours per practitioner, with older GPs are carrying a larger share of the workload and younger doctors increasingly working shorter hours.[27]

Table 4: General practitioners per 100 000 population by location of practice, 1997–2003

NOTE:
This table is included on page 13 of the print copy of the thesis held in the University of Adelaide Library.

Maldistribution also exists with specialist medical practitioners. In 2003, there were 56.5 specialists per 100 000 population rural and remote areas compared with 158.3 specialists in metropolitan areas.[24] Specialists are predominantly based in the capital cities and major regional centres.[22] For rural communities, access to specialist services is limited to regional centres or visiting services, often requiring patients to travel some distance to access care.

In addition to the differences in numbers of GPs to population between urban and rural areas, the geographic distribution varies across a range of locations. As you move further away from a capital city, the GP to population ratio decreases (Table 5).

Table 5: GP to population ratio per 100 000 by regional area, 2003

NOTE:
This table is included on page 14 of the print copy of the thesis held in the University of Adelaide Library.

1.3.2. Definition of rurality

In Australia, there have been a number of definitions of rurality. However, there are three definitions which are used most commonly by government programs and organisations. These are the Rural, Remote, Metropolitan Area classification known as RRMA, the Accessibility/Remoteness Index of Australia, known as ARIA, and the Australian Standard Geographical Classification known as ASGC. These are used by different organisations in determining rurality and thus geographic maldistribution of the medical workforce.

RRMA is the oldest classification system, developed jointly in 1994 by the Department of Primary Industries and Energy and the Department of Human Service and Health.[28] ARIA was developed in 1997 by the Commonwealth Department of Health and Aged Care, based on a continuous measure of remoteness. In this classification, an ARIA category is allocated on the basis of an average ARIA index score (between 0 and 12) within an area. The score is based on the road distance from the closest service centres in each of four classes. ARIA categorises areas as highly accessible, accessible, moderately accessible, remote and very remote.[29]

The most recent classification for rurality was developed by the Australian Bureau of Statistics in 2001 and is based on an enhanced measure of remoteness known as ARIA+[29]. This is the ASGC Remoteness Areas. It has five categories – major cities, inner regional, outer regional, remote and very remote.

The two main categories utilised in analysing medical service data and medical workforce are RRMA[28] and ASGC.[30]

1.3.3. Rural general practice functions

From the description above, it is clear that the supply of GPs in rural and remote Australia is not adequate to meet the needs of communities in these areas. To gain an understanding of why it remains difficult to recruit and retain general practitioners in rural and remote Australia, it is important to understand the characteristics of rural general practice that make it different from urban general practice.

In the last 25 years there have been a number of key studies on rural general practitioners in Australia which provide insight into the characteristics and functions of rural general practice. These include Kamien[31], Strasser [32], Wise et al.[33], South Australian Health Commission[34], Strasser et al.[35] and Mara[36] and consist of surveys of rural and remote general practitioners. While each study has a slightly different focus, all of these studies focus on describing the characteristics of rural general practice and what distinguishes it from urban general practice. The key distinguishing features of rural general practitioners compared with their urban GPs include:

- Rural general practitioners were more likely to practise and practise more frequently a range of clinical and procedural skills such as major surgery, anaesthesia, obstetrics and emergency skills.[33, 34, 37-39]

- Rural GPs feel geographically isolated, with restricted access to medical specialists, other health professionals and community services.[33, 39]

- Rural GPs work longer hours and spend more time on call.[33, 40, 41]

- Rural GPs see more patients[42], but see them less often[43] and charge a higher co-payment.[40]

- There is a larger distance separating patient from doctors and doctors from other doctors.[39, 41]

- The personal characteristics of rural doctors differ – they are older and there are fewer females.[38, 40, 41]

- The amount of hospital/state-paid work undertaken by rural GPs is substantially larger, with more than half undertaking this work compared with one in ten in metropolitan areas.[42]

While the characteristics outlined above focus on the clinical aspects of rural general practice, there are also non-professional and community characteristics which also differentiate between rural and urban general practice. Rural GPs have a close relationship with their communities and this can result in greater expectations of confidentiality and limited privacy for GPs and their families compared with their metropolitan counterparts.[39]

These studies highlight the variations in characteristics of general practice in rural and urban settings, but differences also occur within rural practice – rural general practice is not homogenous.[38, 44] Britt et al.[42] found differences between the work carried out by GPs in small, medium and large regional centres. GPs practising in larger regional centres, with large hospitals, access to medical specialists and other health services and a limited amount of state-paid work undertaken were similar in some respects to metropolitan GPs.[42] GPs in more remote areas worked longer hours, fewer worked part-time and, in remote areas, were in small practices (less than 1.9 GPs).[43]

1.4. POLICY INITIATIVES ADDRESSING GEOGRAPHIC MALDISTRIBUTION

1.4.1. The determinants of geographic location of medical practitioners

The development of policies and strategies that address the geographic maldistribution of the medical workforce need to take account of the factors that determine whether a GP chooses rural practice and what will keep her or him in that location. These determinants can then inform the range of strategies that can be implemented to address the problem. The determinants for geographic location of general practitioners can be categorised into six main areas: personal background factors; professional education factors; professional practice factors; personal and family factors; community factors; and economic factors.[13] These categories are summarised below:

Personal background factors: this category includes where the medical practitioner or their spouse spent their childhood, as a rural background is strongly associated with the decision to practise in a rural area.[45-47]

Professional education factors: this category includes the extent of exposure to rural settings during medical and residency training; curricular emphasis on rural problems; location of medical school; and location of postgraduate training.[48-51]

Professional practice factors: this category includes issues associated with location and retention, including the availability of professional support and backup (access to specialists and on-call relief); the availability of facilities; and continuing education opportunities. While autonomy and an interesting workload are important in attracting GPs to rural practice, over time, the heavy workload and after-hours responsibilities can also be a reason to leave.[52, 53]

Personal/family factors: this category includes the preferences of spouse; the size of the professional/social peer group; educational and extracurricular opportunities for children; and proximity to family and friends.[49, 54]

Community factors: this category includes climate; recreational and cultural opportunities; socioeconomic status of the community; and the match between community and what it offers and the practitioner's preferred lifestyle. Population size and density are major determinants for GP distribution. In some rural and remote areas the population is too small or too dispersed to sustain a resident GP. Other communities may have a sufficient population to sustain a solo GP, but this adds extra obligations such as on-call and after hours.[22, 53, 55, 56]

Economic factors: this category includes relative gross income opportunities; practice costs; financial risks; and employment opportunities for the spouse.[57, 58]

1.4.2. Policies to influence the decision

Governments have the opportunity to implement a range of policies to address the determinants outlined above, although with differing degrees of ease. However, in reviewing the policies utilised to address geographic maldistribution, there are a number of common policy solutions based on addressing one or many of the problems identified. This section will outline these policies, identifying limitations of the approaches and highlighting those used in Australia, and providing a context for purpose of this study.

1.4.2.1. Regulatory /administrative approaches

A number of policies aim to direct or influence where medical practitioners can establish a practice through regulations, acts or administrative guidelines. These do not only include billing number type policies which impose restrictions on where individuals may practise, but also medical board conditional registrations/licensing, medical college licences and immigration laws, which restrict the entry conditions of OTDs.[13, 22, 59]

This is quite a common approach and often the regulatory approaches are combined. For example, immigration laws are used to control entry into a country and then medical billing acts are used to restrict their location of practice.

Australia has utilised changes to the *Health Insurance Act* to limit access to Medicare services and allowed for exemptions which direct medical practitioners to areas of workforce shortage, such as rural and remote communities. Canada attempted a more direct approach by introducing location-based provider numbers to restrict the number of practitioners in well served areas and to redirect them to rural and remote locations.

A number of countries utilise immigration laws to influence the location of OTDs. For example in the US, OTDs can receive a waiver of visa restrictions in return for practising in under-served areas.[60] In Australia, the 5 Year OTD Scheme (see Chapter Two) allows OTDs to reduce the ten year moratorium requirements to five years if they work in areas of designated need for five years.

A variation in the use of provider numbers to influence location is found in the UK. Organisations such as the Medical Practices Committee in England and Wales have

responsibility for the distribution of GPs. Rather than direct practitioners to areas of need, they achieve as even a distribution as possible through negative direction – restrictions determined by average list size are placed on the ability of practices or health authorities to attract additional practitioners.[61] The process also takes into account deprivation, rurality, morbidity, age distribution and workload.

Not all these policies are successful. Canada's attempt to implement geographic provider numbers was overruled by constitutional issues related to freedom to practise.[59] While the visa restrictions appear successful in placing OTDs in rural areas, questions must be raised about the retention of these doctors beyond their service commitments.[60] Like local graduates, OTDs are likely to prefer less rural locations to practise in the long term, requiring a continual supply to replace those who leave after their period of commitment.[59]

1.4.2.2. Funding/payment approach

This is one of the most common policies implemented to redistribute the medical workforce. A range of financial incentives can be applied to this workforce issue, including subsidised or guaranteed minimum income contracts, differential fees in over-serviced and under-serviced areas, special salaries, grants or bonuses tied to return of service commitments, special travel allowances, assistance with establishment costs, paid vacation time, special on-call payments for emergency coverage, special funding for skill development and/or travel to vacation placements, financial support for continuing medical education and isolation allowances.

While these strategies have a financial base, they focus on different groups within the medical continuum and are designed to encourage medical students to gain exposure to rural practice, to recruit new medical practitioners to locate in rural or remote areas and to retain those who already reside there.

Examples of financially based policies include:

- northern/isolation allowances and income guarantees provided in Canada[59]
- relocation grants, continuing medical education (CME) grants and locum support grants provided under the General Practice Rural Incentives Program in Australia, aimed to recruit and retain doctors in rural and remote areas[62]
- rural retention payments for GPs providing long service in rural and remote Australia[22] and the Northern Physician Retention Initiative in Ontario Canada[63]

- rural loading to compensate Australian rural GPs for the limitations of the fee-for service arranges in these areas given their lower population numbers as well as those GPs provider procedural services[22]

- assistance with indemnity insurance costs[22]

- medical incentive payments in the US which provide bonus payments to physicians willing to practise in under-served areas (rural and urban)[5]

- 'golden hellos', used in the UK to provide additional payments of up to £7000 to induce GPs to work in areas with low GP-to-population ratios.[64, 65]

Although many of these have been used widely for a long time and had some effect, they have not been successful in solving the problem.[59] They are chosen by governments because their implementation is relatively easy.

One limitation of these policies is that the size of financial support has not been substantial and it is possible that if larger amounts were provided, the impact may be greater. If incomes in urban areas are commensurate with rural and remote practice, there is little incentive to relocate to a rural location.

1.4.2.3. Return of service approach

Return of service arrangements have been popular in the US and Canada as an approach to address medical workforce shortages and, more recently, have been utilised in Australia. Medical students or residents receive grants, loans or bursaries in exchange for agreeing to locate to a designated geographic area for a specific period upon completion of their training.

Examples of the return to service policies include:

- the National Health Service Corps in the US, which provides scholarships and loan repayments in exchange for services in an area of workforce shortage[60]

- the Rural Cadetship Scheme in New South Wales and Queensland, where financial support is provided to medical students in return for a commitment to several years in a rural community[66, 67]

- the Medical Rural Bonded Scheme in Australia, which provides an annual grant to support students during their undergraduate medical degree and which requires them

work in a rural or remote area for six years upon completion of their vocational training programs[22]

- the Bonded Medical Places Scheme (Australia), in which students receive a subsidised medical school place and are required to work in a district of workforce shortage for a period of six years[22]

- in Ontario, Canada, funding of $10 000 per year of medical school is offered in exchange for a three to four year return of service commitment to an under-served area.[63]

This approach may provide a medical service for a designated period of time but, as with provider number restrictions, the retention of these practitioners beyond their period of commitment may not be high. Experience in Canada has also indicated that participants often prefer to buy out of the service commitment.[59] This approach also needs administrative resources to ensure the monitoring of participants, particularly difficult with the long lead time before the return of service component is required.

1.4.2.4. Education/training approach

Following financial incentives, policies based around education and training form the second largest group of strategies utilised by developed countries to address geographic maldistribution. Opportunities for influencing practice location for medical practitioners can occur at various points on the medical training pipeline (that is, the training continuum from medical school through to pre-vocational training and finally vocational training), and act as recruitment or retention drivers. The strategies under this category often use less direct methods than funding and often result in unclear outcomes[60], but they also provide the most opportunity for innovation.

At the medical school level, the focus is on recruiting, and strategies used nationally and internationally include:

- special entry schemes, which assist the recruitment of students likely to work in under-served areas, such as students from similar backgrounds (that is, rural)[68-70]

- exposure of medical students to rural and remote practice during their training[71]

- positive promotion of rural practice within medical schools, including changes to the curriculum[67]

- the placement of medical schools in rural and regional settings; this strategy has also been used in Canada, the US and Australia. In Australia, the Commonwealth Government has funded rural clinical schools which require 25% of the medical students to spend a period of their training in a rural location.[72] Locating medical schools in regional areas is another option that was used first in 2000 with the establishment of the James Cook Medical School[73] and followed by Griffith, Wollongong and Deakin universities. The Washing, Wyoming, Alaska, Montana and Idaho (WWAMI) program in the US is another example of this approach, with medical students rotating throughout the rural areas of five states in north-west US[74]

- postgraduate training opportunities in rural and remote areas.[68] The Rural Pathway component of GP vocational training in Australia encourages doctors with an interest in rural practice to spend a large component of their training in a rural area. In addition, general pathway registrars are required to undertake six-month placements in rural and outer-metropolitan placements as part of their training.[72]

Education-based strategies are also used to retain medical practitioners in areas of workforce shortage. Examples of such strategies include opportunities for rural and remote medical practitioners to upgrade skills.

1.4.2.5. Market-based approach/supply expansion approach

An approach not used widely is the market-based or supply expansion approach. Underpinning this approach is the belief that market forces will lead to a balance in the distribution of medical practitioners.[13, 75] For example, increasing the number of medical school places will lead to an increased number of medical practitioners in rural and remote areas, as urban areas will become overcrowded and competition will force medical practitioners to move into more regional and rural areas for work. The US has used this approach for many years.[60, 75] It is an expensive and inefficient approach to workforce planning and does not necessarily have the intended effect. Increasing supply can lead to higher use of services, rather than a redistribution of those services.[13]

1.4.2.6. Other approaches

A number of strategies can be grouped under professional support programs and include policies to provide: relief from unreasonable on-call schedules; leave (locum services); access to support staff, including specialists; support for families; new models of funding and information technology.

What becomes clear from this section, as identified by Barer and Stoddart[76] in their 1999 Canadian report, is that the problem of geographic maldistribution is one of the most difficult for the medical workforce to solve and that no optimal 'solution' is possible. The focus therefore is to take an integrated approach to the strategies most likely to reduce the problem, an approach adopted by most countries where this problem exists.

In Australia, the Commonwealth Government has, as suggested by Barer and Stoddart[76], implemented a range of policies that target different aspects of the medical workforce but which broadly cover the recruitment and retention of rural general practitioners. These policies are summarised on Table 6. The only policy it has not implemented is geographic registration, although this strategy is periodically raised when discussing geographic maldistribution.

One of the policies in the regulatory/administrative category that has been increasingly used in the last decade is the use of overseas trained doctors. This type of policy and its success in addressing geographic maldistribution will be discussed in detail in the next section.

Table 6: Summary of policies and strategies used to address geographic maldistribution and those utilised in Australia

Policy category	Strategies	Utilised in Australia 1990–2003
Regulatory and administrative	Medicare provider number allocations/regulatory approaches tied to return of service in rural area	19AA & 19AB *Health Insurance Act*
		Rural Locum Relief Program
	Geographic registration	Not undertaken
	Recruitment/entry of overseas trained doctors restrictions on practice location	Rural workforce agencies OTD recruitment
Funding/payment-practice related	Financial incentives	General Practice Rural Incentives Program
		Rural Retention Program
		Practice incentives payment
	Professional support programs	Rural workforce agencies
		Continuing medical education & locum support
		Rural Locum Relief Program
		Divisions of General Practice
		Training grants
	Differential fees	Procedural skills grant
	Subsidised income	Remote area grants
Funding/payment-education-related	Bonded schemes/return of service	2000–01 Budget – $20 000 bonded scholarships for medical students
Education and training	Educational initiatives	Undergraduate level – Rural Undergraduate Support Program, John Flynn Scholarships, Rural Australia Medical Undergraduate Scholarship Scheme (RAMUS),
		Prevocational GP Placements Programs/Rural and Remote Area Placement Program
		Regional training providers – rural pathway
		University departments of rural health
		University rural clinical schools

Policy category	Strategies	Utilised in Australia 1990–2003
Other	Family/spousal support initiatives	Rural Medical Family Network
		Dr DOC (Duty of Care) Program
		Rural Women's GP Service

1.5. USE OF OVERSEAS TRAINED DOCTORS AS A WORKFORCE SOLUTION – AN INTERNATIONAL PERSPECTIVE

A phenomenon found in all the developed countries discussed is the use of doctors who were trained overseas to address a workforce shortage, particularly the problem of maldistribution. In some countries such as Canada, recruiting overseas doctors was a policy decision to address the physician shortage. In other countries, OTDs enter by other means and remain by addressing a workforce shortage (US) or, as in Australia, are specifically recruited to work in rural and remote areas. Reliance on OTDs has resulted from the limited success of domestic policy approaches, and OTDs have a long history as a reliable way of providing services in hard-to-service areas. The most recent data available for the US, the UK, Australia, Canada and New Zealand indicated that OTDs form between 23% and 34.5% of the medical workforce (**Error! Reference source not found.**).

Table 7: Number of medical practitioners and percentage of OTDs in workforce for selected countries

Country	Number of medical practitioners	Percentage of OTDs	Year
Canada	68 096	23.1	2002
United States of America	796 013	26.8	2004
New Zealand	8 615	34.5	2000
United Kingdom	136 536	28.3	2004
Australia	50 221	20.6	1999

Source: Mullan (2004)[77] and New Zealand Health Information Service (2001)[16]

While OTDs may be seen as a solution to some workforce problems, they in turn create a number of problems for host countries. For example, OTDs can add to the medical workforce supply and possibly exacerbate geographic and speciality maldistribution[78, 79]; the quality of the medical training they received may be different to that of the host country[80] and may require evaluation and upgrading clinical skills; and there are the growing ethical concerns about developed countries recruiting from less developed countries.[81]

In this section, I outline the use of OTDs in the countries of Canada, the US, New Zealand and the UK to illustrate their impact on medical supply and geographic maldistribution. This outline is also indicative, from an international perspective, of the type and breadth of

research that has been undertaken in the area of OTDs and some of the issues facing countries that utilise this policy, and sets the scene for the Australian context in Chapter Two.

1.5.1. Canada

Historically, OTDs have represented an important solution to Canadian physician resource supply problems.[80] In 1998, OTDs made up 23.55% of all Canadian physicians[82], with 22% of family physicians being OTDs.[82] The major source of OTDs for Canada has been the UK but, in more recent years, there has been a growth in OTDs from South Africa and India, particularly among family physicians.[82]

The ebb and flow of OTDs in the Canadian medical workforce matches the over- or undersupply of doctors. Until the mid-1970s, Canada had a relatively open immigration policy for graduates of foreign medical schools. This, combined with a major expansion in Canadian medical schools in the 1960s, resulted in the physician supply increasing more rapidly than the population.[82] Workforce planning policies in the 1980s saw a reduction in medical school enrolments and increased number of physicians leaving the country in the 1990s, resulting in a relatively stable physician-to-population ratio.[82] During this period, OTDs were discouraged from entering Canada, as the supply of physicians was deemed adequate.[83] However, a number of changes in the mid-1990s resulted in a reassessment of supply and a number of programs was initiated to increase supply, including increasing medical school places, residency training places and OTD intake.[83] The reliance by Canada on OTDs is validated by substantial government funding ($74 million Canadian) in 2004 to support OTDs gaining licensure over the next five years. The initiative includes standardisation of licensure requirements, assessment of OTDs, orientation programs.[84]

OTDs have been used in Canada as elsewhere to fill areas of workforce shortage. This includes training programs and under-served communities.

OTDs are unevenly distributed across Canada, with more OTDs found in some provinces such as Saskatchewan (50%) and fewer in the more urban provinces such as Quebec (12%). Just over half are GPs (54%).[85] The common belief is that OTDs are filling areas of need, such as rural and remote areas where physicians are in short supply. However, in 1998 only 26% of those practising outside metropolitan areas were OTDs.[86] The National Physician Survey in 2004 found that, although OTDs commenced their practice in rural areas, the majority are servicing urban (63%) or small town (14.5%) populations. It also concluded that

OTDs were found in a higher proportion in inner city practices compared with Canadian graduates (16% versus 10%).[85]

OTDs are able to enter Canada through a number of routes, some of which are targeted at particular areas of undersupply.[82] These include:

- recruited for practice, primarily in rural, remote and isolated communities; they are given conditional registration which allows them to practise only in certain locations for specified periods of time. For example, in the Province of Alberta, OTDs with partial licensure can be recruited to an under-served location. After working five years in this setting and obtaining Canadian medical exams and College of Family Practice certification, the OTD is no longer subject to location restrictions[13]

- academic recruits by agencies such as medical schools, teaching hospitals and research institutes, where it has been established that no suitably qualified Canadian is available

- recruited into post-medical school training to fill positions to which no Canadians have been attracted

- clinical fellows entering Canada to complete non-programmatic additional specialty training.

In addition to these routes, OTDs can enter Canada through training, refugee or family reunification visas, although it is less likely they will find employment as physicians.[86]

The primary motivation for OTDs has been the opportunity to emigrate to Canada. However, what Canada has found is that, once they gain permanent residency, provinces are no more able to control where they practise than they have been with Canadian graduates.[80] OTDs are no more likely to stay in hard-to-service places than Canadian graduates. As a result, regions with chronic difficulties attracting or retaining physicians see a steady stream of OTDs as the only reliable solution to their problems.[86]

Canada lacks a coordinated approach to physician immigration policies. There is little control over interprovincial and intraprovincial migration, allowing OTDs who were recruited to service under-serviced provinces or regions to resettle in adequately serviced regions.[86] Physician organisations such as the Canadian Medical Association believe increasing medical school enrolments and residency positions are more appropriate medical workforce solutions than reliance on recruiting doctors from outside Canada.[87]

1.5.2. United States of America

OTDs are a significant component of the US medical practitioner workforce, forming approximately 26.8% of US medical practitioners in that country in 2004.[77] OTDs in the US comprise two main groups – those who are US citizens but trained outside the US, and those who are both overseas born and trained. This makes the US situation different from other countries discussed in this section.

The vast majority of OTDs in the US have entered with temporary visas, known as J-1 visa for postgraduate training (or residency programs).[88] OTDs are required to be certified by the Educational Commission for Foreign Medical Graduates before being allowed entry into training posts. Certification includes successful completion of the Test of English as a Foreign Language, steps 1 and 2 of the three-step US Medical Licensing Examination and a Clinical Skills Assessment. OTD Trainees with J-1 visas are required to return to their home countries upon completion of their postgraduate training. However, an estimated 80% to 90% of OTDs remain in the US upon completion of their training.[89, 90]

OTDs on training visas can remain in the US by obtaining a waiver from a federal or state government agency, known as the J-1 Waiver. These waivers require them to practise in a federally designated area of health profession shortage. There has been a steady annual increase number of J-1 Waivers sought, from 70 in 1980 to 1746 in 1996.[91]

The aim of the J-1 waiver program is to provide medical practitioners for under-served areas such as rural and remote communities, inner city hospitals and community health centres. The 1996 survey of J-1 waiver physicians, found that all medical practitioners practising were practising in primary care specialties – internal medicine (55%), paediatrics (24%) family practice (11%), obstetrics and gynaecology (1%).[92]

In 1992, the Council on Graduate Medical Education concluded that OTDs positively affect access to health care in poor and rural under-served areas.[93] Inner city hospitals[5], community health centres[94] and some residency programs[95] are reliant on OTDs to fill workforce shortages.

A number of studies have been undertaken in the US to determine the role of OTDs in under-served rural communities, although the results are conflicting and muddied by analysis by speciality areas, definitions of under-served areas and level of analysis.

Mick and Sutnick's 1996[96] analysis of OTDs and US medical graduates in rural US and provides conflicting results. They found that OTD numbers varied from region to region, but that there were greater proportions in the non-metropolitan West North Central and East South Central census divisions, supporting the concept of OTDs as 'gap fillers'. However, when analysed at a non-metropolitan versus metropolitan level, a higher percentage of US graduates was found serving rural population than OTDs. Mick and Sutnick suggested that determining whether OTDs were more likely to work in rural areas of the US was not clear cut and that the answer to the question depended on what geographic area was used in the analysis (census versus county region). Mullan et al.'s[88] study of OTDs and US graduates found that geographic distributions of both groups were similar, although a larger proportion of OTDs was found in metropolitan counties and a slight under-representation in non-metropolitan counties.

A number of studies found more conclusive evidence supporting the role of OTDs in rural communities. In 1996, using designated Health Professional Shortage Areas to analyse OTD locations, Baer et al.[97]concluded that OTDs do constitute a greater percentage of US primary care physicians in rural areas with physician shortages. But, as with Mick and Sutnick's study, they found substantial interstate variation, although there was consistency in the results at national, census region and state level.

In a series of papers Mick and colleagues analysed the rural location of OTDs and US medical graduates according to geographical measures of need.[79, 98, 99] In the 1997 study, Mick and Lee[98] investigated state differences in practice location between OTDs and US medical graduates. They found that OTDs were frequently represented in counties where high infant mortality existed or where the physician-to-population ratio was well below average. In the 1999 study Mick and Lee[99] continued to investigate differences in practice location of OTDs and US medical graduates, but also looked at speciality choice (primary care versus speciality care). They concluded that a disproportionate number of OTDs were located in the needy rural counties of more states than US medical graduates, although the disproportion was not universal. However, OTDs were disproportionately practising in speciality areas rather than in primary care. In the 2000 study, Mick et al.[79] found that, on the one hand, OTDs were located disproportionately in areas of need, but at the same time the bulk of OTDs were located in the same non-needy counties as US medical graduates.

The uncertainty of results of the above studies is confirmed by a number of recent studies revisiting the topic. Using the 2000 American Medical Association Masterfile and Areas

Resource File Fink et al.[100] calculated the percentage of primary care OTDs relative to US medical graduates working in rural under-served areas. They found that overall OTDs were more likely than US graduates to be practising in a primary care speciality, although there was variation across the primary care specialities, with more US graduates as family physicians than OTDs (13% versus 7.7%). In terms of rural location, they found OTDs were no more likely than US graduates to locate in rural under-served areas and that US graduates were more likely to be family physicians working in rural under-served areas. This suggests that the use of OTDs to solve shortages in rural areas is not validated.

The results of these studies suggest that, while OTDs play an important role in servicing rural communities, the extent varies with different criteria and location.

1.5.3. New Zealand

Among Organisation for Economic Co-operation and Development (OECD) countries, New Zealand has the highest percentage of OTDs in the medical workforce (see Table 7**Error! Reference source not found.**). As with other countries, OTDs in New Zealand have been used to work in areas where New Zealand graduates are reluctant to locate – rural and poor urban locations.[101] But the use of OTDs in the New Zealand workforce has changed with the need for additional medical practitioners. In the 1970s OTDs formed the bulk of new doctors in New Zealand, but by the 1980s the numbers of OTDs entering the country were restricted, as the shortage of doctors experienced in the 1970s was reversed as a result of the expansion of the number of medical schools. The 1980s saw new restrictions placed on OTDs entering New Zealand; these targeted OTDs toward areas of need.

In a series of papers in the late 1980s and early 1990s, Barnett examined the impact of the changes in government policies on the distribution of OTDs in New Zealand.[78, 101-103]

In analysing the distribution of OTDs in New Zealand from 1973 to 1979, Barnett concluded that OTDs tended to work in primary care and in areas avoided by local graduates, such as rural areas, although their distribution was not even. OTDs tended to be concentrated closer to large metropolitan areas and on the North Island.[78] Of the OTDs practising in urban locations, it was found they had a greater propensity to locate to more disadvantaged neighbourhoods than New Zealand graduates (35% versus 48.8%). In his follow-up paper, Barnett[103] again reviewed the distribution of OTDs in light of the implementation of restrictions on immigration that occurred in 1980; he also examined the permanence of the distribution. As in his previous research, OTDs were over-represented in areas of

disadvantage, but in a smaller proportion before the introduction of immigration controls.[103] Thus the increased control over the location of OTDs which was brought in 1980 did not solve the maldistribution issues. Barnett also found that the redistributive effect of using OTDs was only temporary.

Barnett's final study[101] found that, while restrictions were placed on OTDs entering New Zealand, New Zealand graduates were not locating to areas of need. New Zealand graduates tended to practise in metropolitan and regional cities rather than in rural communities. Also the number of OTDs working in small rural towns declined as a result of fewer OTDs entering the country and established OTDs migrating to less rural areas.[101] Since 1990, the immigration control on location of OTDs has been discontinued.

Since 1980 the number of OTDs working in New Zealand has been increasing at the same rate as the total number of medical practitioners and in 2000 comprised 34.5% of all medical practitioners.[16, 104] The majority of OTDs come from the UK and South Africa. Overall, however, the number of temporary resident doctors staying between three and 18 months is increasing, while there are fewer medical practitioners coming to New Zealand on a permanent basis.[3] Temporary resident OTDs have become an important feature of the New Zealand medical workforce.

OTDs form a large part of the GP workforce in New Zealand – 34% in 2005[105], particularly in rural areas (50% of GPs in rural North Island and 41% of rural GPs in South Island and make up the backbone of rural GPs in New Zealand, a trend evident from the 1990s.[15]

1.5.4. United Kingdom

The United Kingdom has a long history of accepting OTDs in the medical workforce. In the 1960s and 1970s a large number of doctors from the Asian sub-continent came to the UK to work and became an important part of health care provision in inner-city areas. More recently, a large number of doctors from the Sub-Sahara have emigrated to the UK, although OTDs from South Asia and the European Union are the predominant source of doctors, particularly from countries with an oversupply, such as Italy.[106, 107]

In 2004, more than 26 000 OTDs entered the National Health Service, an increase of 6000 since 1994, although the proportion of OTDs in the UK workforce has remained constant at 25% over this period.[108] OTDs enter the UK either for work or for postgraduate training. To

be able to work, they are required to pass the Professional and Linguistic Assessment Board (PLAB) test.

The UK has a different approach to its use of OTDs in filling workforce shortages. It does not limit the positions available for OTDs or restrict their location of practice.[106]

1.5.5. Other research areas related to OTDs

The discussion above has highlighted the significant amount of research that has described the distribution of OTDs in various countries. The amount or the focus on this area is not surprising, as government and medical workforce planners are interested in determining the success of the policy – that is, are OTDs filling the areas of medical workforce shortage?

However, beyond a description of the distribution of OTDs, the amount of research into other aspects of the use of OTDs in medical workforce policy is limited. This body of research can be placed into two topic areas – quality of care provided by OTDs and the issue of globalisation of the medical workforce. The work that has been undertaken in these areas is described below.

1.5.5.1. Quality of care

Any discussion of OTDs often involves a particular interest in the quality of clinical care they provide. Countries such as Australia have invested heavily in the provision of high-quality training that moves participants through sequential stages of education and training to produce medical practitioners of a high standard. OTDs on the other hand may not have progressed through a similar education program, something which leads to debate on the quality of their clinical care.

While quality of clinical care is extremely important, to date limited research has been undertaken to determine whether OTDs practise differently from 'home grown' medical graduates, or whether the quality of care provided differs from that of non-OTD graduates. A few studies have been undertaken in the US comparing OTDs with US graduates. The key study in this area was by Mick and Comfort in 1997, who undertook a systematic review of US literature on OTDs and their quality of care.[109] They classified the studies according to measures of quality based on structure (test scores, board certification), process (procedures and guidelines followed) and outcome (mortality rates, complication rates, re-hospitalisation rates and malpractice experience).[109] Following their review of 88 articles they concluded that only various structural measures (such as test scores) showed a consistent pattern of

lower OTD performance. However, they could not show conclusively that the OTD quality of care was lower than that of US medical graduates.

Hagopian et al.'s[90] review of OTDs in the US provided an updated review of quality subsequent to Mick and Comfort's study for the period 1997–2003. They concluded that the more recent studies provided contrary evidence to the earlier review, in that OTDs were achieving higher test scores than US medical graduates. They suggest that this may reflect improved screening processes.

A small amount of work on the quality of OTDs has been undertaken in the UK. In the interests of preserving standards, the UK has set high barriers to entry for overseas doctors. One study undertaken by the General Medical Council (GMC) in 2001 suggests that overseas doctors have been over-represented in referrals to the GMC's performance procedures.[110]

In Australia, little published research on the quality of care of OTDs has been undertaken, although OTDs sitting the FRACGP examination have consistently performed the least well of the categories of practitioners sitting the exam.[111]

1.5.5.2. Globalisation

There is an increasing interest in the impact of globalisation on health and, in particular, globalisation of the medical workforce. One of the key themes for the 6th International Medical Workforce Conference was globalisation. The increasing mobility of doctors is having significant impacts on workforce supply in both developed and developing countries.[112] This mobility has great benefits in terms of education and research, but has implications for workforce planning and associated issues such as licensing, mutual recognition and training.

While many countries have goals of self-sufficiency in workforce supply, there is a continued and increasing reliance on OTDs from developing countries to fill shortages in many developed countries. This has raised a number of ethical concerns that need to be addressed. Bundred and Levitt described in 2000 this process as 'the active pillage by governments of physicians from other countries'.[81] This was a view already taken in Canada – 'morally and ethically wrong for Canada to rob other countries of their physicians and research scientists. We would be promoting the same brain drain we're fighting here'.[87]

This issue has become of increasing concern in this decade as the source of OTDs for developed countries had changed. In the 1970s and 1980s countries such as Australia, New

Zealand, Canada and, to a lesser extent, the US mainly recruited OTDs from UK/Ireland and India. However, more recently the increasing source of doctors has been South Africa, with over 1500 South African doctors working in Canada in 2001.[82, 113] South Africa in turn is recruiting from poorer African nations such as Zambia and Uganda.[114] The medical school at Lusaka in Zambia has trained over 600 medical graduates in its 23-year history, and of these, only 50 now work in Zambia's public-sector health service.[81]

Recruiting OTDs is seen as a cheaper and more flexible workforce for many developed countries and has significant advantages over home-grown graduates.[114] Through regulatory means, they are the only medical group that many governments can force to work in under-served areas – unlike their own graduates. This workforce is also more immediate, without the lag time of training. The estimated cost to South Africa of the loss to of the 600 South African doctors registered to practise in New Zealand is around US$37 million.[81]

While we see the end of the international recruitment pipeline when OTDs are recruited to Australia, Canada or the US, there are also pipelines in developing countries. Couper reports the movement of doctors from sub-Saharan Africa (such as Zambia and Uganda) to South Africa.[114] Thus doctors are recruited from countries with low salaries and poor living conditions to countries that can provide richer rewards and better living conditions. This is described as a 'medical carousel', in which doctors seem to be continually moving to countries with a perceived higher standard of living.

The ethical issues surrounding international recruiting are two edged. Firstly, there is the principle of autonomy, the right of the individual doctor to freedom of choice. The other is the issue of justice, particularly distributive justice, which includes the fair distribution of resources for the common good.[114]

A number of strategies have been offered as a solution to the reliance on overseas recruitment. Firstly, an alternative to foreign recruitment for developed countries is to train more medical practitioners. Canada and the UK have recently increased their medical school intakes and in 2002 Australia followed.[115] Many of these places are linked directly to the rural workforce through bonded scholarships, which require students to work in rural areas after completing their postgraduate training.[116] However, this strategy does not work in isolation. As seen by the US experience, where there is no limitation on the number of doctors trained, the graduates do not necessarily work in under-served areas such as rural communities. Couper

and Worley suggest that, to overcome this difficulty, the strategy needs to be targeted to students of rural origin and to providing rural exposure during their training.[114]

Providing appropriate financial incentives to potential OTDs to remain in their own countries is another strategy to address foreign recruitment. If doctors in developing countries are provided with appropriate remuneration for their services, then the number of doctors choosing to emigrate may be reduced.

Another strategy offered and endorsed at the 4th WONCA (World Organization of Family Doctors) World Rural Health Conference in Calgary, Canada, in 2000 involves developed countries recruiting from developing countries to pay compensation to the country from which the doctor is recruited. This funding would take account of the cost of training and loss of service for these developing countries. A framework for this process would need to be developed, defining which countries would be compensated and which would pay, the amount of compensation, and whether the compensation applies for locum work or only long-term stays.

The idea of an international code for ethical recruitment to protect the poorest countries losing valuable health professionals has been floated by Bundred and Levitt.[81] The 2nd Rural Health Conference in Durban in 1997 also raised this issue. The World Organisation of Family Doctors' policy paper on rural practice and rural health supports the mobility of health professionals, conditional on its not resulting in a drain of professionals from less developed countries.[117] The South African Government has taken this approach. Since 1995, it has banned the recruitment of doctors from other Organisation of African Unity countries in an attempt to reduce inflow from poorer countries.[81] The paper also calls on those countries recruiting doctors from overseas to review their policy. The 5th World Rural Health Conference held in Melbourne in 2002 developed a code of practice for international recruitment of health professionals. This code of practice called for countries that benefit from recruitment to develop a memorandum of understanding between countries from which they wish to recruit and for evaluation and monitoring of their recruitment and its impact on countries.[118] These policies could also include agreements by developed countries not to advertise or visit developing countries to recruit medical practitioners. Promoting exchanges instead of long-term recruitment would allow doctors from developing countries to gain skills and experiences from more developed countries rather than their country losing these skills forever.

1.6. SUMMARY

It is clear that geographic maldistribution of the medical workforce is a major feature for countries such as Australia, Canada, the US, New Zealand and the UK. For most of these countries, providing services in rural and remote regions is the main focus of concern, although disparity in inner-city and outer-metropolitan areas is growing. All these countries have reported some increases in the number of practitioners in rural areas as a result of policies and strategies specifically implemented to address this issue. But these increases tend to be limited to larger rural centres and smaller rural and remote areas continue to have medical workforce shortages.

At the same time, the pattern of work is also changing. New medical graduates are working fewer hours and a greater number are working part-time, so that increases in the overall supply are offset by the change in working hours. This has a particular impact on rural general practice, whose features includes long hours, smaller practices and access to fewer support services, making work here less attractive to the new generation of doctors. All this suggests that the geographic maldistribution of the medical workforce will continue to persist in Australia and requires appropriate policies and, furthermore, that it occurs across all types of health care systems and health financing arrangements.[13]

A number of policies have been developed to address the issue of geographic maldistribution and have been utilised in various forms by a number of countries. The types of solutions range from coercive options (regulatory/administrative approaches) to options designed to influence choices (educational approaches). They also range from relatively quick solutions to measures that take several years before an outcome may be achieved. All have used OTDs as one solution.

However, the impact of OTDs on geographic maldistribution is varied. The majority of research on OTDs undertaken in Canada, the US, New Zealand and the UK focuses on describing the distribution and source of the OTD workforce. Limited research has been undertaken on the issues of retention of OTDs in rural and remote areas, and OTD service provision and quality of care. A great deal of information is based on anecdotal data[112] and there is a need for more in-depth research into doctors' work practices and the extent to which communities access services.[11] Barer and Stoddart[80] in one of series of policy papers on the Canadian medical workforce sees the reliance on OTDs as cop-out policy, in that governments

do not have to directly deal with the fundamental reasons for their recruitment – the reluctance of a country's own graduates to work in areas of need.

This chapter has provided the context in which this study sits and has outlined the medical workforce planning challenge of geographic maldistribution of the workforce, its international applicability, the reasons why it occurs and the possible policies for addressing it. As we have seen, one of the policies most commonly used in developed countries is the use of OTDs, although the issues of quality and ethical recruitment are challenging this policy. The following chapter will now look at the use of OTDs in Australian medical workforce policy and planning.

CHAPTER TWO: THE USE OF OVERSEAS TRAINED DOCTORS AS A MEDICAL WORKFORCE SOLUTION – THE AUSTRALIAN PERSPECTIVE

2.1. INTRODUCTION

In the previous chapter, the use of OTDs for addressing medical workforce shortages, particularly for resolving the lack of medical practitioners in rural and remote areas, was discussed from an international perspective. In this chapter, the focus is on the Australian context, outlining the profile of the OTDs in this country, the various avenues of entry and the role of OTDs in workforce policy. The final section of this chapter describes the 5 Year OTD Scheme, a key policy introduced in 1999 to address the rural and remote medical workforce shortage and which forms the focus of this study.

Australia has experienced waves of medical practitioner migration over the last 30 years and these waves reflected changes in medical workforce supply, with limitations placed on migration when there were oversupplies and easing of limitations at times of shortages. As with Canada, the US and New Zealand, Australia has relied on OTDs to fill areas of workforce shortage.[112] Since 1990, the role of OTDs has changed from one in which they were contributing to the oversupply of medical practitioners to one where they have become an important and integral part of the workforce in areas of need or workforce shortage. The government policies associated with these phases of changing reliance on OTDs will be discussed in detail in this section. The key areas of debate over the reliance on OTDs as part of Australia's medical workforce will also be discussed.

2.2. ROLE OF OTDS IN MEDICAL SUPPLY IN AUSTRALIA

In the last decade, the Australian Government has introduced a number of policies or strategies which focus on addressing particular areas of medical workforce supply or shortage; the use of OTDs is one component of these policies. Over this period, the policies flourished, as Australian graduates were either insufficient or were unlikely to practise in specific areas of need. This section outlines the policies related to OTDs since 1990, their areas of focus and the current concerns about the role of OTDs.

Until the late 1990s, government policy limited the role of OTDs in the medical workforce. This came from a perceived oversupply of medical practitioners in Australia, which led to a

number of policies designed to reduce the number of practitioners. The introduction of the 5 Year OTD Scheme in 1999 saw the beginning of a change in and the proliferation of policies aimed at reducing the number of OTDs immigrating to Australia. What distinguishes this group of policies from those in previous decades is the focus on targeting areas of workforce shortage and directing OTDs to these areas.

2.3. OTD WORKFORCE POLICIES, 1990–98

In the period 1990–99 the thrust of medical workforce policies was to reduce the supply of doctors.[119] This included reducing the perceived oversupply through migration, as well as reducing Australian trained doctors by capping medical places.[120 121] In relation to OTDs, the policies were concerned with reducing their number as well as limiting the numbers of those with permanent residency who wished to practise in Australia. A summary of the key policies during this period is provided on Table 8.

2.3.1. Limitations on numbers sitting the AMC exams

In the early 1990s, there were two key policies affecting OTDs. The first, introduced in 1992, limited to 200 the number of OTDs able to sit part one (multiple choice question test) of the Australian Medical Council (AMC) exams each year. This reduced the number of OTDs able to proceed to the second part of the AMC exams. The AMC exams are a requirement for permanent resident OTDs who wish to gain registration as a medical practitioner in Australia. Limiting the number of OTDs sitting the exam slowed the progression of OTDs already residing in Australia to commencing work as a medical practitioner. However, this quota was eventually removed in 1996 following challenges to the Human Rights and Equal Opportunity Commission[122] and as a consequence the number of OTDs sitting the exam rose from 200 to 392 in 1996.

2.3.2. Immigration changes

The second group of policies focused on reducing the number of OTDs migrating to Australia. In 1992 under the Labour Government, doctors who were applying for permanent residency had a ten-point penalty applied against their migration criteria; these penalty points were increased to 25 points in 1995. Doctors were also unable to apply to emigrate under the skilled migration category.[121, 122] This policy meant that it was unlikely that OTDs migrating to Australia could accrue the required points to be eligible to migrate to Australia.

Table 8: Summary of key Australian workforce policies related to OTDs, 1990–2005

Year of introduction	Target group	Key policies and strategies	Description	Effect on supply of OTDs
1992	Permanent resident OTDs	Points penalties to doctors applying to immigrate	Deduction of 10 points from applicants with medical practitioner qualifications applying for permanent residency under the Independent and Concessional Categories	Reduction
1992	Permanent resident OTDs	Limit to 200 the number of OTDs sitting AMC exam	The number of OTDs able to sit part 1 of the AMC exam process was limited to 200 per year	Reduction
1993	Temporary resident OTDs	Labour market agreement with Queensland and Northern Territory	This was an agreement between the Commonwealth, Queensland and Northern Territory to reduce the number of temporary medical visas issued to OTDs in this state and territory	Reduction
1996	Permanent resident OTDs	Points penalties to doctors applying to immigrate	Increase to deduction of 25 points from applicants with medical practitioner qualifications applying for permanent residency under the Independent and Concessional Categories	Reduction
December 1996	Permanent resident OTDS and TRDs	Part of 1995 budget Provider Number Legislation (Sections 3GA, 3GC, 19AA, 19AB *Health Insurance Act*)	Implemented in 1997, this policy restricts ATDs' billing rights to Medicare unless obtained RACGP Fellowship Restricts OTDs' (with AMC accreditation) billing rights to Medicare 10-year moratorium – prevention of OTDs from billing Medicare until 10 years after registration in Australia (passed AMC) Restriction on rights of New Zealand trained doctors to bill Medicare from 1997	Reduction

Year of introduction	Target group	Key policies and strategies	Description	Effect on supply of OTDs
1998	Permanent resident OTDS	Rural Locum Relief Program Deputizing Service Program	Supervised placements to non-vocationally registered doctors and OTDs in rural and remote areas Supervised placements to non- vocationally registered and OTDs to work in locum services in metropolitan areas	Increase
August 1999	Permanent resident OTDS and Temporary resident doctors (TRDs)	Rural and Remote General practice Program 5 Year OTD Scheme – approved by Australian Health Ministers' Advisory Committee	Rural and remote Australia Not required to sit AMC exam, only RACGP exam	Increase
1999	TRDs	Department of Immigration and Indigenous Affairs inclusion of OTDs in Regional Sponsored Migration Program	Applicants eligible if medical qualification equivalent to RACGP	Increase
December 2002	TRDs	Arrangements enabling Australian trained international medical students to participate in the Australian medical workforce	Australian trained international medical students – stay in Australian as interns	Increase
2002/2003	Permanent resident OTDs	More doctors for outer-metro measure Outer-metro Other Medical Practitioners (OMPs) Program	OTDs can work in vacant medical positions within districts of workforce shortage in outer metropolitan locations Relocation incentive provided to OMPs	Increase
July 2003	Australian trained international medical students	Extension of arrangements enabling Australian trained international medical students to participate in the Australian medical workforce	Long-term stay – vocational training	Increase
December 2003	TRDs and permanent resident OTDs	Medicare Plus, later known as Strengthening Medicare[123], had a number of strategies related to OTDs:		Increase

Year of introduction	Target group	Key policies and strategies	Description	Effect on supply of OTDs
		a) OTD International recruitment strategies	Medical recruitment agencies contracted to recruit OTDs to work in areas of 'district workforce shortage'	
			GP or hospital vacancies	
			725 OTDs working in Australia by 2007	
		b) OTD reduced 'red tape' in approval process	Common assessment process for 'areas of need' (state) and districts of workforce shortage (Commonwealth)	
		c) Assistance for employers and OTDs in arranging placements – OTD national information referral service	1800 number	
			Vacancy website	
	Permanent resident OTDs	d) OTD Improved training arrangements and additional support programs	Funding to RACGP to assess qualifications and training needs, develop learning plans and assist them to gain medical registration	
	TRDs	e) OTD new immigration arrangements for doctors	Medical practitioners listed on the Skilled Occupations List which allows OTDs to immigrate under the General Skilled Migration program. Required to have recognised qualification of Australian specialist college or completed AMC exams	
			Medical practitioners now included on Migration Occupations Demand list	
			Priority processing by the Department of Immigration and Multicultural and Indigenous Affairs (DIMIA)	

2.3.3. Labour market agreement with Queensland and Northern Territory

During this period, the main focus of government policies was the reduction in the permanent migration of OTDs. However, some states and territories in Australia were relying heavily on temporary resident doctors to fill hospital vacancies, particularly vacancies in rural and regional hospitals. To address this addition to the supply of doctors, in 1993 the Labour government signed a labour market agreement with Queensland and the Northern Territory to reduce the number of temporary medical visas issued to OTDs.[122] This agreement did not last long and had collapsed by 1996.

2.3.4. Changes to the Health Insurance Act

The most significant policy of this decade covered the changes to the Health Insurance Commission legislation in December 1996. While this policy was not wholly aimed at OTDs, it did have a major impact on OTD eligibility to practise. The *Health Insurance Act 1973* was amended to restrict access to Medicare benefits for medical practitioners who did not hold postgraduate qualifications or who were overseas-trained. The 19AA amendments focused on medical practitioners trained in Australia and restricted their access to Medicare benefits if they did not hold a recognised postgraduate qualification after 1 November 1996. Section 19AB amendments restricted access to Medicare benefits for OTDs or former overseas medical students who were permanent residents or Australian citizens who did not have medical registration prior to 1 January 1997. The Act also set a minimum of ten years, commencing on the date they were recognised as a medical practitioner, before they were eligible to provide services that attracted Medicare benefits. This became known as the '10 year moratorium'. The changes to the Act also affected New Zealand trained doctors for the first time, treating them as other OTDs, a result of the increasing number of OTDs entering Australia through New Zealand.

This policy was introduced after the failed attempt by the Howard Government to review the quota on the number of OTDs who could practise in Australia, which had been abandoned previously when ruled discriminatory by the Human Rights and Equal Opportunity Commission. Although overruled by the federal court, the quota was not re-introduced and the focus shifted to restricting access to Medicare provider numbers for new graduates and OTDs.

In terms of assisting rural and remote communities, the changes to sections 19AA and 19AB of the *Health Insurance Act* did allow exemptions which benefited rural and remote

communities. The 3GA exemptions allowed permanent resident overseas trained doctors to gain access to Medicare benefits through the Rural Locum Relief Program. Similarly in metropolitan areas, permanent resident OTDs could gain access to Medicare benefits through the Approved Deputizing Service program.

This strategy was important for two reasons. Firstly, it heralded the beginning of a change in attitude in OTDs and, secondly, it acknowledged the role of OTDs in addressing areas of workforce shortage, in this case, rural and remote communities and locum services. It is important to note that this strategy only affected OTDs wanting to work outside the hospital system.

2.4. OTD WORKFORCE POLICIES 1999–2003

By the end of the 1990s, efforts placed on recruiting and retaining GPs in rural and remote Australia had been in place for eight years. While some improvements had been made, access to GP services in rural and remote Australia still remained an unresolved problem.[119] Many of the key strategies developed under the GP Rural Incentives Program were directed at undergraduate and postgraduate training levels. This meant a time lag before these policies were realised, but in the meantime, rural and remote communities were still facing problems with recruitment and retention of their GPs. At the same time, AMWAC estimation of oversupply of medical practitioners was being questioned, as training places remained unfilled in many of the speciality training programs.[124-126] At the same time, policies to address workforce shortages in rural and remote Australia had yet to reach fruition, leaving these communities without access to GP services.

One relatively quick solution for these problems was the use of OTDs to fill these shortages. Thus began the turnaround in the Australian Government's attitude to the position of OTDs in the medical workforce. However, what the next six years illustrate is that, in this period, the Australian Government used this workforce in a more targeted way – limiting the location of practice for this group of doctors to enable the maldistribution issues to be addressed.

2.4.1. 5 Year OTD Scheme

In 1999 a change in attitude towards OTDs by the Australian Government led to a number of new policies which acknowledged Australia's reliance on OTDs. This policy is known as the 5 Year OTD Scheme (later the 5 Year OTD Recruitment Scheme) and was approved by at the Australian Health Ministers' Conference in August 1999. This program allowed RWAs to

recruit suitably qualified OTDs for hard-to-fill rural and remote locations for a period of five years. During this period these OTDs are required to gain Fellowship of the Royal Australian College of General Practitioners (RACGP) and can gain permanent residency. After five years, they are eligible for an unrestricted provided number. Details of this scheme are provided later in this chapter. This program also resulted in policy changes in immigration, with the inclusion of OTDs in the Skilled Migration program.

2.4.2. More doctors for outer metro measure

While the 5 Year OTD Scheme was primarily targeted at recruiting suitably skilled OTDs from overseas, this period also saw a focus on OTDs already residing in Australia. The success of the 5 Year OTD Scheme in resolving the problem of GPs in rural and remote areas indicated that this group of doctors could also be used to solve other maldistribution issues – the growing problem of GP services in the outer region of cities. The *More Doctors for Outer Metro Measure* introduced in 2002–03 provided incentives for other medical practitioners (OMPs), including OTDs, to relocate to identified districts of workforce shortage in outer-metropolitan regions of Australia's cities.

This policy focused on permanent resident OTDs and in a sense competed with the 5 Year OTD Scheme for qualified GPs, in that this program provided a pathway for OTDs recruited to rural and remote areas to move from rural and remote areas to areas of need in metropolitan areas.

2.4.3. Australian trained international medical students

An increasing workforce shortage was also occurring in the teaching hospitals in Australia during this period. The effect of the capping of medical school places meant that the number of graduating doctors had been reduced, while at the same time the demand for interns by the teaching hospitals had increased[115], resulting in a shortfall of interns.

As a solution, the government turned to another group of doctors, who, although not strictly overseas trained, had been treated as if they were in previous legislation (changes to the *Health Insurance Act*). This group of doctors are the overseas students who were trained in Australian medical schools – Australian trained international medical students.

In December 2002, the government announced changes to visa arrangements that allowed Australian trained international medical students to remain in Australia for intern training. The initiative effectively meant that international fee-paying students were able to remain in

Australia for their intern training on a medical practitioner (subclass 422) temporary visa. In 2003 this initiative was extended to 2004 and beyond. The Commonwealth Government also made it possible for these graduates to undertake specialist vocational training in Australia (if the positions could not be filled by suitably qualified Australian citizens or permanent residents). To be eligible, they either had to have permanent residency or in be in the process of applying for it.

2.4.4. Strengthening Medicare initiatives

By 2003, OTDs were an integral part of the Australian Government's solution to the medical workforce issues. The initiatives outlined under the *Strengthening Medicare* policy (formerly known as *Medicare Plus*) in December 2003 focused on recruiting more OTDs to all areas of medical workforce shortage as well as dealing with some of the issues arising for using OTDs.

Strengthening Medicare outlined five OTD initiatives: international recruitment strategies; reduced 'red tape' in approval process; an OTD national referral service; improved training arrangements; and new immigration arrangements for doctors (Table 8). The goal was to recruit 725 OTDs by the year 2007 to work in Australia.

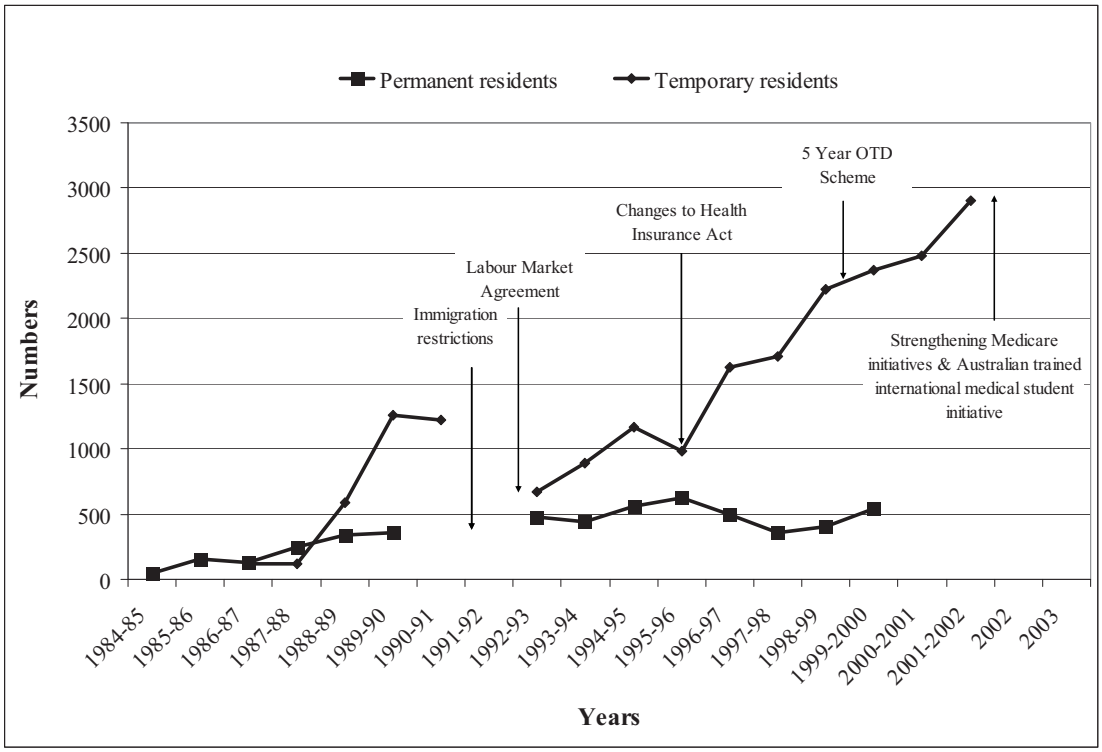
In terms of addressing the maldistribution of the medical workforce, OTDs were not key strategies for the Australian Government in the period 1990–98. The focus was on policies directed to Australian trained doctors under the Rural Incentive Program (later referred to the GP Rural Incentives Program). However, by 1996 the changes to the *Health Insurance Act* saw a policy change, with the government using this legislation to influence where OTDs could practise outside the hospital system.

The policies initiated between 1999 and 2003 saw an increasing reliance on OTDs to solve, not only workforce shortages in rural and remote areas, as well as the outer metropolitan areas, but also shortages within the hospital systems and vocational training.

This period also saw a growing debate over the role of OTDs in the medical workforce, particularly in relation to issues of quality of care, qualifications and the support provided to OTDs. OTDs themselves were becoming more vocal as the importance of their role increased. The *Strengthening Medicare* initiatives largely dealt with problems associated with orientation, training, assessment of skills as well as administrative processes involved in migration and placements.

The effect of the various policies discussed above on the number of OTDs permanently or temporarily migrating to Australia is shown in Figure 1. It is likely that in the next ten years, the gap between the permanent and temporary resident OTDs will be reduced, as the OTDs recruited on a temporary basis move through the system and gain permanent residency and the number of Australian graduates increases, potentially reducing the reliance on temporary resident OTDs.

Figure 1: Temporary and permanent migration levels, 1984–2003 and effect of different policies



The National Health Workforce Strategic Framework released in April 2004 by the Australian Health Ministers has adopted the principle of national self-sufficiency in health workforce supply.[127]

2.5. CURRENT DEBATE ON ROLE OF OTDS

The debate on OTDs in workforce planning focuses on three areas: overall supply of medical practitioners in Australia and whether there is an excess or deficit; whether they offer the same quality of medical care as Australian graduates; and whether OTDs fill areas of shortage – geographic or speciality.

2.5.1. Supply of medical practitioners

The discussion on OTDs in the Australian medical workforce goes hand in hand with the debate about the overall supply of medical practitioners. The reliance on OTDs has been generated by a decade of predictions of an oversupply of practitioners and government policies were aimed at reducing the supply. What is now accepted by most is that this prediction over an oversupply of Australian graduates has not occurred.[115]

Contributing factors to this undersupply include the changing characteristics of the medical workforce, different attitudes to medical practice and the capping of medical school places. Current practitioners are working fewer hours than their previous generation and this is likely to continue in the foreseeable future. An increasing number of females undertaking medical courses has resulted in less work hours and less work years.[128]

The programs aimed at recruiting Australian graduates to rural and remote medicine has not resulted in an adequate number of doctors to replace those leaving rural and remote practice. At the same time, the type of rural practice acceptable to Australian graduates is also changing – they prefer larger group practices in larger rural communities.

So while the recruitment of OTDs has been seen as a stop-gap measure, it is likely that OTDs will become a permanent fixture in the Australian medical workforce until the numbers of local graduates are increased. Joyce et al.'s modelling of workforce supply until 2012 indicates that under various scenarios no real growth in the GP workforce will occur suggesting an entrenched long term shortage in this workforce.[129]

2.5.2. Distribution of OTDs

As outlined earlier, OTDs have been recruited to work in areas of workforce shortage and these can either be geographical locations, such as rural and remote areas, or according to speciality.

In Australia, the distribution of the OTD workforce is governed by identified 'districts of workforce shortage' or 'areas of need'.

'Area of need' is a state/territory-based definition and varies from state to state in terms of definition and is used for medical registration and immigration purposes. It is not based on a geographical area but can be determined by service provider needs, as well as the needs of the public hospital system. This means these areas can be in rural areas but also apply to metropolitan areas. For example, hospital medical posts can be deemed 'areas of need' if

positions cannot be filled by local graduates and for particular period of time. These doctors are often referred to as 'area of need TRDs' (ANTRDs).

By contrast a 'district of workforce shortage' is an area where the community has significantly less access to medical professional services than the national average; this definition is used for the purpose of granting exemptions to 19AB and Section 3J of the *Health Insurance Act* – the sections which impose restrictions on access to Medicare rebates to temporary resident doctors, permanent resident overseas trained doctors and former overseas medical students. These are areas where a range of workforce and Medicare Australia data, as well as specific demographic factors are taken into account when assessing applications for exemption. Therefore the definition applies to specific policies such as the 5 Year OTD Scheme and the outer-metro program. 'Area of need' and 'district of workforce shortages' can overlap, but instances also occur where a state or territory has approved an area of need status to a location, allowing an OTD to gain a visa, but where the Commonwealth has refused access to Medicare benefits for the OTD, as the location is not regarded to be a district of workforce shortage.

While these districts or areas are assessed at a national level, the number of districts applied for by a state or territory is dependent to some extent on the determination by local Departments of Health and RWAs to submit applications for areas to be designated in either category. Therefore, the distribution of the OTDs is dependent on how aggressively a RWA or Department of Health applies for 'districts of workforce shortage' and do not necessarily reflect the same degree of need. Examples of this are Queensland and the Northern Territory in the early 1990s discussed in Section 2.3.3 above. The influence of local approaches to recruiting OTDs and the effect on distribution of OTDs has also been found in the US.[97, 130]

Towns listed in these categories also vary, ranging from locations within two hours of a metropolitan centre to remote locations. The more isolated and small the communities are, the more difficult it is to recruit OTDs or to retain them.

While the government can influence the location of practice by linking areas of workforce shortage with access to Medicare billing, how effective these are in the long term is not known. The work undertaken in this area from the US, Canada and New Zealand suggest that OTDs may work in rural and remote areas, but like local graduates many eventually relocate to less rural or regional areas or to where a cluster of other OTDs with similar cultural

backgrounds work. A proportion of OTDs also returns to urban centres when restrictions are removed.

What is difficult to assess is the role of OTDs in filling vacancies in specialities other than general practice. The national workforce data set from the annual labour force surveys provided limited information, in that, while providing data by specialities, they do not provide this by OTD status. However, there is some evidence of the role of OTDs in addressing workforce shortages in particular specialities. A report into the psychiatric workforce in Australia has found that 41.4% of the psychiatric workforce in Australia was born overseas[131] and that public mental health services were reliant on OTD psychiatrists.[132]

The distribution of the OTD workforce is difficult to assess in Australia due to the limitations of the data sources available and so their 'safety net'[79] role in some areas is still debatable.

2.5.3. Quality of OTDs

Australia has established systems to ensure that its doctors receive high-quality training and provide a high quality of services to the Australian population. Medical schools, hospitals and vocational training programs are accredited to ensure that the high standards are maintained and meet the goal of workforce planning to produce doctors 'with the right skills to competently and proficiently perform the tasks expected of them in accordance with world's best practice'.[1]

OTDs however, have not been trained under this same system and this calls into question the quality of the service provided by them. For many years, the process in place to ensure quality of services to the standard expected has been success in the AMC examinations. Every permanent resident OTD was required to sit these exams in order to gain medical registration. However, with the increasing number of OTDs entering Australia under various schemes, this process is no longer the norm and has become somewhat blurred. For example, OTDs recruited through the 5 Year OTD Scheme can bypass the AMC process and apply immediately for FRACGP. Permanent resident OTDs are able to gain provisional registration as interns before they have completed the AMC process.

In a series of articles, Hawthorne and Birrell and various colleagues[121, 125, 132-134] discussed the implications of using OTDs to fill workforce shortages, particularly the issue of quality of care. They argue that the increasing reliance on OTDs has allowed the standard, whereby quality and skills are assessed, to be compromised. OTDs can bypass the AMC process and

gain provisional registration following assessment by local medical boards.[121] The urgent need for doctors to work in public hospitals, rural and remote areas or specialities such as psychiatry and emergency medicine[132] has resulted in OTDs working without screening. To deal with these issues, they suggest a national standard for assessing OTDs[126], as well as support for training OTDs to meet the required standards in Australia.[135]

The Confederation of Postgraduate Medical Education Council's National Scoping Study[136] identified a number of issues relating to OTDs, including orientation, communication, assessment, and education and training support. Currently there are plans to introduce a national system of assessment.

2.6. PROFILE OF OTDS IN AUSTRALIA

Obtaining a profile of OTDs in the Australian medial workforce was extremely difficult and limited. Medical workforce planning research is hampered by a lack of common definitions, and good-quality data obtained at a national level.

Furthermore, the various types of OTDs increase the complexity of this process, as no one organisation maintains an overview of OTDs classed by the various definitions. While the Department of Immigration and Multicultural and Indigenous Affairs has responsibility for the allocation of visas, this does not distinguish OTDs recruited through the various programs. It is limited to temporary resident definitions (occupational trainee or temporary resident) or permanent migration.

Rural workforce agencies maintain databases on the rural GP workforce in their state or territory. However, many do not distinguish between the various types of OTDs or what program they are recruited under.

In 1999, AMWAC undertook a comprehensive survey of temporary resident doctors, which provides the most detailed information on this group of medical practitioners.[137] While this is now eight years old, it forms the most detailed examination of the number, distribution and characteristics of TRDs.

While the Australian Institute of Health and Welfare (AIHW) provides important data on the medical labour force in its annual surveys, the data are limited, in that the temporary resident OTDs are not included in the survey (that is, medical practitioners with conditional registration)[21] and some surveys did not include OTDs who remained in Australia less than one year. Up until 2000, the Australian Institute of Health and Welfare incorporated data

from the Department of Immigration and Multicultural and Indigenous Affairs in its annual reports and this will be used in describing the OTD workforce in 1999.

In this section, I have utilised a number of sources to gain a profile of the OTD medical workforce in Australia, noting the limitations of the data available and its comprehensiveness.

2.6.1. Types of OTDs

OTDs entering Australia can be divided into two main types – those migrating permanently to Australia (permanent resident OTDs) and those who enter Australia for a short stay (TRDs) (Table 9). Those most impacting on the medical workforce in Australia are the temporary resident doctors, as they enter the workforce upon arrival in Australia.

These options of entry also give some indication of the diversity of OTDs in Australia, in terms of their cultural backgrounds, training and skills levels and ability to practise in the Australian health care system. The pathway to general practice for these two types of OTDs is shown in Figure 2.

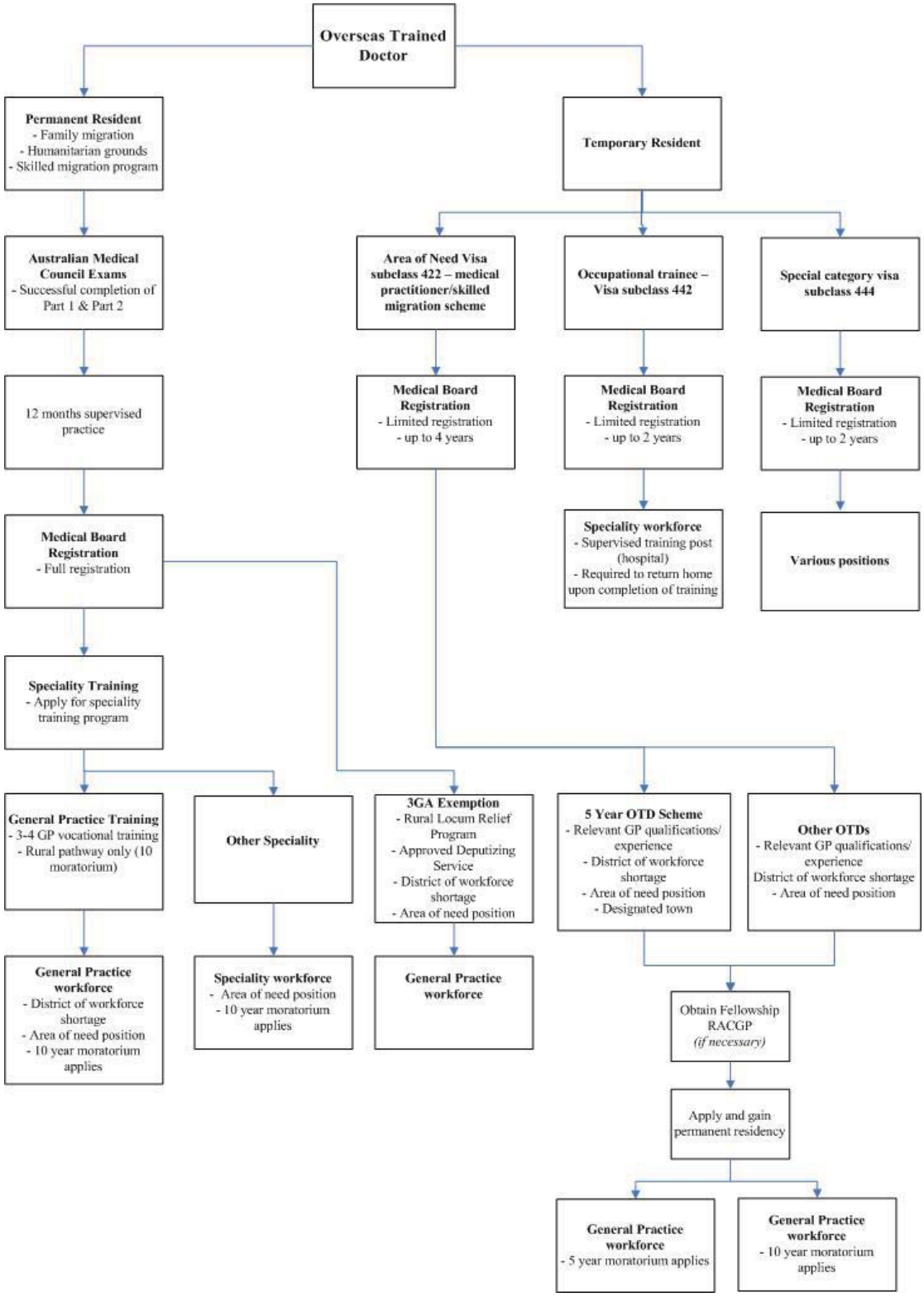
It must be remembered that while OTDs may enter Australia, not all will be eligible to practise medicine. This is of particular importance to those migrating permanently to Australia through humanitarian, family migration or special visa classes. TRDs, on the other hand, are recruited specifically for their medical skills and role in the Australian medical workforce and may subsequently apply for permanent residency. As a result, this group will have a larger impact on medical workforce planning and will be the focus when describing the OTD profile.

Table 9: Entry processes for overseas trained doctors to Australia by visa type

NOTE:
This table is included on page 54 of the print copy of the thesis held in the University of Adelaide Library.

Source: Department of Immigration and Multicultural and Indigenous Affairs

Figure 2: Main pathways to general practice for OTDs in Australia



2.6.2. OTD migration rates

Up until the 1990s Australia had less restrictive policies towards both permanent resident and TRD OTDs. For the period 1984–85 to 2003, the numbers of OTDs gaining permanent residency and temporary visas in Australia rose, particularly temporary resident visas (Table 10).

Table 10: Number of OTDs granted permanent residency and temporary visas, Australia 1984–85 to 2003

Year	Permanent resident OTDs	Temporary resident OTDs
1984–85	46	n.a.
1985–86	153	n.a.
1986–87	128	116
1987–88	252	122
1988–89	340	589
1989–90	360	1255
1990–91	n.a.	1226
1991–92	n.a.	n.a.
1992–93	480	667
1993–94	445	893
1994–95	558	1171
1995–96	626	980
1996–97	500	1626
1997–98	358	1713
1998–99	408	2224
1999–2000[a]	544	2372

a. Data not available for 2000 onwards due to changes in AIHW reporting processes

Sources: AIHW medical labour force surveys (1998, 2000, 2004 and 2005)[21, 138-140]

The large increases in TRD visas in the late 1980s resulted mainly from large numbers of OTDs being recruited by both the New South Wales and Queensland Departments of Health to fill resident medical officer vacancies in public hospitals.[141] As discussed earlier, with a perceived oversupply of doctors in the 1990s, the government policy towards OTDs changed. As discussed earlier, the number of doctors permanently migrating to Australia fluctuated in the 1990s as restrictions on visas were introduced (Table 10).

This was a result of the government's response to the oversupply of GPs and was combined with limitations on medical school placements and incentives to encourage doctors to practise in areas of shortage. In the mid-1990s, through rules governing both migration of practitioners and their access to government rebates for medical services, further changes were also made to prevent medical immigration from adding to the urban workforce. In the same period, the number of OTDs entering Australia for temporary periods increased at a faster rate, as state health departments used TRDs to fill positions in hospitals, general practice and locum services.[112] In 1999–2000, 2372 TRDs arrived in Australia to work as medical practitioners compared with 667 in 1992–93, an increase of 256% over seven years (Table 10).

During the 12 months 1999–2000, the estimates for medical practitioners temporarily migrating to Australia for employment were 2198, with 51.7% entering under visa subclass 422 and 33% entering as occupational trainees (visa subclass 442) (Table 11).

Table 11: TRDs by visa class, 1999–2000

NOTE:
This table is included on page 57 of the print copy of the thesis held in the University of Adelaide Library.

2.6.2.1. Source of OTDs

The source of TRDs working in Australia has changed over the last 15 years. In the early 1990s the majority of TRDs were from the UK/Ireland (72.3%) and New Zealand (15.3%) as shown on Table 12. By the mid-1990s and thereafter, this had changed significantly. There has been an increasing number of TRDs from Asia, South Africa and the US/Canada, with a decreasing number from New Zealand and the UK/Ireland.

This change in source countries reflects change to the immigration processes (such as those affecting New Zealanders) and the recruitment strategies of various organisations such as RWAs who focused on countries such as South Africa and Canada.

Table 12: Percentage of medical practitioners migrating temporarily to Australia by country of previous residence, 1992–93 to 1999–2000

NOTE:
This table is included on page 58 of the print copy of the thesis held in the University of Adelaide Library.

2.6.2.2. Speciality

The majority of TRDs entering Australia in 1999–2000 were non-specialists, as shown in Table 13. Two key points arise from this table. Firstly, the vast majority of OTDs in the 422 visa class are non-specialists. This is not surprising, as the central aim of government policy at this time was to recruit OTDs to fill medical workforce vacancies in rural and remote Australia, the majority of which were in general practice. The second point is that the high percentage of non-specialists in the occupational trainee visa class is misleading. The intent of occupational trainee visas is to enable holders to spend time in Australian hospitals to gain specialist qualifications and it is unlikely that this group will be working as general practitioners. It should be noted, that the definition of speciality is based on a qualification recognisable in Australia.

Table 13: Number of TRDs entering Australia in 1999-2000

NOTE:
This table is included on page 59 of the print copy of the thesis held in the University of Adelaide Library.

2.6.2.3. Geographic distribution

The most recent workforce figures (2002 and 2003) indicate that a larger percentage of TRDs work in rural and remote centres (24.7% in 2002 and 29.4% in 2003) compared with permanent resident OTDs (8.3% in 2002 and 8.8% in 2003) (Table 14).

Table 14: Region of main job for permanent and temporary resident overseas trained medical practitioners, 2002 and 2003

Location of main job[a]	2002		2003	
	Permanent frequency (%)	Temporary[b] frequency (%)	Permanent[c] frequency (%)	Temporary[b c] frequency (%)
Major cities	2551 (76.8)	528 (67.0)	2381 (75.1)	433 (62.3)
Inner regional	492 (14.8)	64 (8.2)	513 (16.2)	58 (8.3)
Outer regional	219 (6.6)	108 (13.7)	202 (6.4)	110 (15.8)
Remote	34 (1.0)	58 (7.3)	58 (1.8)	68 (9.8)
Very remote	24 (0.7)	29 (37.)	18 (0.6)	26 (3.7)
Total	**3320 (100.0)**	**787 (100.0)**	**3172 (100.0)**	**695 (100.0)**

a. ASGC definition of geographic areas[30]

b. Refers to temporary resident doctors staying longer than 12 months and so included in survey

c. Missing data from South Australia

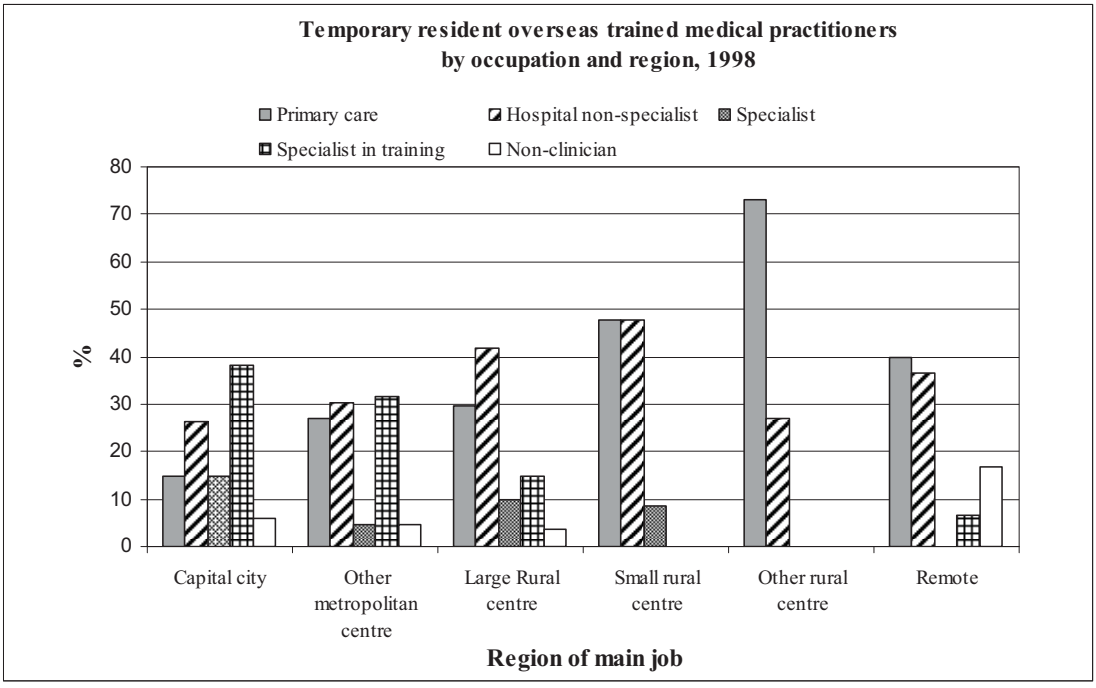
Source: AIHW Medical Labour Force surveys (2004, 2005)[21, 140]

As at December 1997, TRDs represented 3.6% of the total clinical medical workforce, 3.1% of metropolitan clinicians and 6.3% of rural clinicians. TRDs contribute most to the hospital sector, representing 12% of the total hospital workforce. In 1997–98 most TRDs (78.8%) were employed in metropolitan locations (Figure 3).

In total in 1998, 52.1% of ANTRDs were located in a metropolitan area, with 47.9% located in rural or remote areas.[137] Queensland (52.8%), Western Australia (20.2%) and Victoria (16.1%) employed the majority of ANTRDs; 28.6% of ANTRDs were employed to provide general practice services.

As expected, in 1998, nearly all occupational trainee TRDs (92.1%) were employed in metropolitan areas, where the majority of large teaching hospitals are based, with 66.7% of these TRDs employed to work solely in public hospitals.[137]

Figure 3: Temporary resident overseas trained medical practitioners by occupation and region, 1998



2.7. 5 YEAR OTD SCHEME

In response to the difficulties many communities experience in attracting doctors on a long-term basis, the Commonwealth Government in 1999 provided a process to streamline the recruiting of overseas trained doctors to work in rural areas.

On 4 August 1999, the Australian Health Ministers' Conference recommended a national framework to facilitate the recruitment of overseas trained doctors to work in rural areas. The basic model for recruitment of new overseas trained doctors to address rural general practice shortages in the long term include:

- Overseas trained doctors with formal postgraduate qualifications in general practice may be assessed for registration by medical boards upon advice, as an alternative to completing the AMC examination.

- Doctors registered on this basis be conditionally registered to practise as general practitioners and restricted by registration to work in rural areas for a minimum of five years.

- Assessment processes for overseas trained GPs must be consistent with processes in specialist colleges.

- The Commonwealth will develop processes to facilitate consideration of onshore applicants before new overseas recruitment commences.

In return for agreeing to practise in a district of workforce shortage for five years, OTDs will be eligible for permanent residency and a provider number restricted to the agreed rural or remote location. At the end of five years the Commonwealth will waive the balance of the ten-year moratorium and allow them to practise anywhere in Australia as a GP and to access Medicare. Another important aspect of the program is that OTDs do not have to sit the Australian Medical Council exam if they have equivalent postgraduate qualifications, allowing automatic membership of the RACGP, or relevant experience as a GP that will allow them to obtain FRACGP within two years (Figure 2).

2.7.1. National guidelines

The national guidelines for the 5 Year OTD Scheme provides guidance for the recruitment of OTDs to the 5 Year OTD Scheme by the RWAs.

2.7.1.1. Rural areas only

The OTD scheme was designed specifically to assist rural and remote areas of Australia, which are experiencing difficulty in attracting Australian resident general practitioners. As such, the scheme will not apply to any metropolitan areas or regional cities in excess of a population of 50 000.

2.7.1.2. District of workforce shortage

Exemptions for doctors subject to provider number restrictions under the *Health Insurance Act 1973* are granted by the Australian Government. These decisions are made on the basis of 'district of workforce shortage' (see Section 2.5.2). A range of workforce and Medicare Australia data as well as demographic factors are taken into account when determining a district of workforce shortage.

2.7.1.3. Provider number arrangements

Upon the OTD obtaining and maintaining Fellowship of the Royal Australian College of General Practice (FRACGP) and the completion of five years service, the Commonwealth undertakes to waive the balance of the ten-year moratorium (see Appendix 2 for a summary of the changes to *Health Insurance Act*, 19AA and 19AB).

Upon commencement in the program the Department of Health and Ageing (formerly Health and Aged Care) will issue a written undertaking to the doctor regarding the above provider number arrangements.

2.7.1.4. Access to Medicare rebates

Doctors without FRACGP will access Medicare rebates at the A2 level (non-recognised GP) under the Medicare Benefits Schedule. Once the doctor obtains FRACGP, they can gain vocational registration (recognised GP), which allows them to attract a higher rate of Medicare benefits (known as A1 level benefits). In other words, until an OTD gains his/her Fellowship, they receive lower rebate from Medicare.

2.7.1.5. Permanent residency

Doctors who enter the scheme and obtain FRACGP will be supported by the Department of Health and Ageing in their application to the Department of Immigration and Citizenship (previously the Department of Immigration and Multicultural and Indigenous Affairs) for permanent residency status. Normal requirements for gaining residency will still apply but, upon meeting them, the Department of Immigration and Citizenship has agreed to expedite granting of permanent residency. Permanent residency will only be granted after the doctor obtains FRACGP.

After gaining vocational registration status doctors are free to leave paid employment and establish their own practice, purchase real estate and are eligible for government services and benefits. There are some restrictions on benefits within the first two years but, importantly for OTDs and their families, they will be able to access a number of services and benefits which are not available to those on temporary resident visa, such as Medicare benefits, obtaining loans, and eligibility of their children for Higher Education Contribution Scheme university places (that is non-fee paying places). It is expected that doctors will apply for permanent residency within three months of being granted a Fellowship of the College.

Immigration requirements also place limits on the types of applicants for this program. A requirement of permanent residency is that the applicant is aged 45 years or less and must be prepared to work full-time.[143, 144]

2.7.1.6. Moving to another state

If a doctor enters the program and then elects to move to another state, they will be expected to re-qualify in the new state and start the five years again. Time spent in the former state or territory will not be offset against the five-year term in the new state or territory. The only exception to this is OTDs moving from an external territory administered by Australia to the mainland.

2.7.1.7. Assessment of skills

The National Reference Panel (NRP) on Overseas Trained Doctors was established to oversee the development of standards for assessment of general practice skills. The NRP developed a five-category classification, based on the postgraduate general practice qualifications and general practice experience which applies to doctors who may wish to contract to the state/territory 5 Year OTD Scheme (Table 15). Most RWAs recruit OTDs from categories 1–3 only.

2.7.2. Outcomes of 5 Year OTD Scheme

The 5 Year OTD Scheme program is implemented by RWAs in each state and territory. While the details vary from state to state, their role includes:

- identification with state Departments of Health communities eligible to meet the Department of Health and Ageing definition of 'district of workforce shortage'
- the recruitment of doctors

Table 15: Classification of assessment of GP skills

NOTE:
This table is included on page 64 of the print copy of the thesis held in the University of Adelaide Library.

Source: Department of Health and Ageing[145]

- assessment of knowledge, skills and competence.
- orientation program
- supervision
- assistance with obtaining Fellowship of RACGP.

In recruiting OTDs for this program, the states and RWAs have taken different approaches. For example Western Australia and South Australia focus their recruitment on overseas countries, while New South Wales has focused on placing permanent resident OTDs residing in the state, while Victoria uses a combination of both. Similarly, the RWAs use various methods of defining districts of workforce shortage.

2.7.2.1. Enrolment and distribution of OTDs in the program

Although the 5 Year OTD Scheme commenced in 1999, it took some years before it became fully implemented and this was reflected by the number of doctors recruited during this period. Public data on the numbers of OTDs recruited are limited and the information reported in this section relies on data from RWA publications and the AMWAC survey of OTDs in the 5 Year OTD Scheme. The total number of OTDs participating in the program has increased steadily from 2000 to 2003 (Table 16).

Table 16: OTDs participating in the 5 Year OTD Scheme 2000–03

State/territory	2000[a]	2002[b]	2003[c]	% change 2000–03
NSW	17	n.a.	32	88.2
Vic.	62	67	80	29.0
Qld	16	n.a.	20	25.0
SA	4	16	21	425.0
WA	33	60	78	136.4
Tas.	11	6	10	-9.1
NT	4	n.a.	9	125.0
Total	**147**	**84**	**250**	**70.1**

a. Unpublished Department of Health and Ageing data

b. RWA reports

c. AMWAC survey (2004)[146]

The number of participants is somewhat determined by the number of districts of workforce shortage identified as eligible for this program. As places fill, the requirement for OTDs reduces. The uptake of the program and the number of OTDs recruited differs across the states and the Northern Territory. Since the beginning of the program Western Australia (31.2%) and Victoria (32%) have had the largest number of participants (Table 16). New South Wales was slow to recruit OTDs, although in 2003 this state had 12.8% of the program participants. The low numbers in New South Wales are likely to reflect the Rural Doctors Network (the New South Wales Rural Medical Workforce Agency) policy of recruiting permanent resident OTDs as a priority for the program, rather than the number of districts of workforce shortage.

These differences across states also reflect population distributions, geography and history. Historically, Western Australia has relied on OTDs to fill its remote locations and therefore the state's experience in recruiting and placing OTDs explains early uptake of the program. Interestingly, in 2003 Queensland and South Australia had 8% of the OTD participants, although they are very different states and therefore it is likely their figures reflect the recruitment strategies and support services provided by the RWAs.

2.7.2.2. Characteristics of OTDs enrolled in the program

As part of the 2003 review of the 5 Year OTD Scheme, the National Review Steering Committee and the National Health Workforce Secretariat from the then Department of Health and Ageing, commissioned AMWAC to undertake a survey of the OTD participants in the scheme. It forms the most comprehensive profile of the doctors enrolled in the scheme at a national level.[146] The results of the survey of 145 OTDs will be summarised here to provide a description of the OTDs enrolled in the scheme. Unfortunately, the survey did not collect data on the source of OTDs.

Demographics

OTDs recruited for the scheme tend to be male (77.8%), aged 35–54 years (79.1%), married or in a partnership (89.6%) and have dependent children (79.2%) (Table 17). A small percentage of OTDs in the scheme are aged over 54 years and, while the scheme was three years old at time of this report, this is significant, given the age restrictions on permanent residence applications (45 years). This is likely to reflect the recruitment approach adopted by various RWAs. For example, New South Wales recruited only permanent resident OTDs to its scheme, which would account for the older age group.

Compared with the rural and remote GP population, the OTDs in the scheme are older and male (Table 17).

Table 17: Summary of demographic characteristics of OTDs in the 5 Year OTD Scheme and all rural GPs, 2003

Demographic characteristic		OTDs		All rural GPs
		Freq	%	%
Sex	Male	112	77.8	60.7
	Female	32	22.2	39.3
Age	<35 years	20	14.0	17.4
	35–44	70	49.0	33.3
	45–54	43	30.1	30.8
	55–64	10	7.0	12.2
Marital status	Single	7	4.9	n.a.
	Married/partner	129	89.6	n.a.
	Widowed	8	5.5	n.a.
Dependent children	None	30	20.8	n.a.
	1–2	86	59.7	n.a.
	3 or more	28	19.5	n.a.

Sources: AMWAC survey (2004)[146] and AIHW Labour Force Survey (2005)[21]

Previous work locations

More than half of the OTDs (54.9%) in the scheme in 2003 had worked in another Australian location prior to working in their present location (Table 18). Queensland (71.4%), Western Australia (66.0%) and the Northern Territory (60.0%) had the highest number of doctors who had worked in previous locations in Australia, suggesting that a percentage of recruitment for these states comes from OTDs in other locations in Australia, rather than directly from overseas. In contrast, South Australia (20%) and Tasmania (12.5%) had very few doctors who had worked elsewhere, suggesting that they rely more on direct recruitment from overseas.

Table 18: Percentage of OTDs who had worked in a previous work location in Australia by state/territory, 2003

NOTE:
This table is included on page 68 of the print copy of the thesis held in the University of Adelaide Library.

2.7.2.3. Completion of scheme requirements

In 2003, 12.9% of OTDs were expected to complete their five-year commitment in 2004, indicating that they had entered the scheme in its first year in 1999 (Table 19). Those entering the scheme in 2002 form the largest group of OTDs (25.9%).

Table 19: Commencement year and expected completion year of OTDs in scheme, 2003

NOTE:
This table is included on page 68 of the print copy of the thesis held in the University of Adelaide Library.

Source: Adapted from AMWAC survey (2004)[146]

As outlined earlier, achieving Fellowship status from the RACGP is a requirement of the scheme and is necessary for gaining permanent residency status. While some OTDs gain Fellowship through recognition of prior qualifications, the majority of OTDs are required to sit the Fellowship exams. As at 2003, 64.1% of OTDs had achieved Fellowship status, while 35.9% of OTDs were still working towards it.[146]

As stated previously, permanent residency and Fellowship of FRACGP are linked. Therefore, it is not surprising that there is a relationship between the number of years in current location and visa status. In 2003, 61.1% of OTDs with permanent residency status have been in their present position longer than two years, while 73.6% of OTDs on temporary visa status have been in their present location for fewer than two years.[146]

2.7.3. Other research relating to the 5 Year OTD Scheme

A number of RWA have undertaken research into OTDs working in their state or territory, although the quality, inclusion criteria and extent of the research varies greatly. However, there is a lack of consistency in the definitions used for OTDs, making comparisons between the states and territories difficult. These reports add to the picture of OTDs in the scheme by providing additional information not included in the AMWAC report, notably source of the OTDs in this scheme.

- In 2003 Rural Workforce Agency Victoria (RWAV) contracted the University of Melbourne to undertake an analysis of the OTDs working in rural and remote Victoria under the 5 Year OTD Scheme and the locum program. They were particularly interested in assessing the retention of these doctors in rural and remote Victoria.[134]

- In 2002, the Western Australian Centre for Rural and Remote Medicine (WACRRM) undertook a survey of the 5 Year OTD Scheme in Western Australia from 1999 to 2002.[147] This survey included demographic information on OTDs recruited, satisfaction with the WACRRM program and future intentions.

- In 2005, Health Workforce Queensland (RWA) undertook a survey of OTDs working in rural and remote Queensland to identify areas of concern for OTDs, as well as their retention.[148]

The surveys by WACRRM and the Health Workforce Queensland included information on the country of medical training. Although the surveys covered different periods, they do provide some information on the location of training for OTDs and thus the diversity of their

training. When the data from both states are combined (Table 20), they show that nearly one-quarter of the OTDs working in rural and remote Australia were trained in South Africa (24.8%). This was followed by the United Kingdom (11.3%), India (9.9%) and Nigeria (7.8%).

Table 20: Source of OTDs recruited by RWAs in Queensland and Western Australia

Country of training	No.	%
South Africa	35	24.8
UK	16	11.3
India	14	9.9
Nigeria	11	7.8
Pakistan	8	5.7
Myanmar	6	4.3
Ireland	4	2.8
Netherlands	4	2.8
Unknown	4	2.8
Bangladesh	3	2.1
Belgium	3	2.1
Germany	3	2.1
Poland	3	2.1
Egypt	2	1.4
Fiji	2	1.4
Philippines	2	1.4
Switzerland	2	1.4
Yugoslavia	2	1.4
Zimbabwe	2	1.4
Scotland	2	1.4
Argentina	1	0.7
Austria	1	0.7
Bulgaria	1	0.7
China	1	0.7
Macedonia	1	0.7
Romania	1	0.7
Spain	1	0.7
Sri Lanka	1	0.7
Zaire	1	0.7
Sweden	1	0.7
Singapore	1	0.7
Zambia	1	0.7
New Zealand	1	0.7
Total	**141**	**100.0**

Source: WACRRM (2002)[147] and Health Workforce Queensland (2005)[148]

2.8. SUMMARY

This chapter has shown that Australia, as with other countries, has become increasingly reliant on OTDs to resolve medical workforce shortages. The policies implemented from the 1990s to 2003 reflect this changing reliance on OTDs and many of the policies directly relate to solving the issue geographic maldistribution. The 5 Year OTD Scheme marked a change in attitude by the Australian Government and as such is an important policy requiring further study.

Since its introduction in 1999, the 5 Year OTD Scheme has contributed to reducing geographic maldistribution by placing OTDs in hard-to-fill rural and remote GP positions. As at 2003, 250 OTDs were enrolled in the scheme, with a quarter of them completing their scheme requirements by 2007. However, the long-term consequences of this policy have not yet been analysed and it is not known whether, after gaining permanent residency and an unrestricted provider number, OTDs return to urban areas and add to the perceived oversupply of urban GPs, as has occurred in the US.[92]

It is clear from the work relating to OTDs, and particularly the 5 Year OTD Scheme, that the focus of research has been on reporting the number of OTDs; their distribution, both geographically and according to speciality; and their integration into the medical workforce, specifically, orientation, training and support provided to OTDs. As such, this research reflects the international trend.

While the outcomes of this research provide some evidence to support the policy of utilising OTDs in rural and remote communities, the research only focuses on a small number of outcomes of the policy. What is currently missing is evidence on the provision of services of OTDs and the quality of that service. In order to address this gap in the evidence, this study will focus on this aspect of the 5 Year OTD Scheme.

This chapter has also emphasised two key issues facing medical workforce research in Australia and elsewhere. Firstly, there is a lack of common definitions of the terms which are consistently used across all government sectors, as illustrated by the term ‘OTDs’. This term covers a large range of doctors, from those who have permanently emigrated, to those who are working on a temporary basis in Australia, to those enrolled in various government programs such as the 5 Year OTD Scheme or vocational training schemes. These definitions are not used systematically, making comparisons or aggregation of data difficult and hindering the ability to gain a national perspective on this section of the medical workforce. Secondly,

there is no national database that consistently collects data on the OTDs in all categories. The annual Labour Force Surveys do not include temporary resident doctors in their annual surveys and since 2001 have not included immigration data on this group. As a result, this study has had to collate a number of sources of information to try to build a national picture of the OTD population, particularly the OTDs enrolled in the 5 Year OTD Scheme.

CHAPTER THREE: THE STUDY DESIGN

This chapter describes the study design, its rationale and the methodologies used for data collection. Lastly, the chapter outlines the ethical considerations in the study.

3.1. RATIONALE FOR MIXED METHOD DESIGNS

This study, like many in health care evaluation, has sought to use a number of methods in order to help understand a complex social phenomena. To answer the research question, the best approach was found to be the use of both qualitative and quantitative methods, rather than selecting a method from either a quantitative or qualitative paradigm.[149] This philosophy – pragmatism – is a very practical and applicable one.

Pragmatists believe that the values of the researcher play a large role in the selection of research topics and the interpretation of results. A pragmatist will select topics that are of special interest to him or her but that quite often also involve aspects of social relevance.[150] For example, this study arose from an interest in the policy of OTDs in rural and remote Australia and its effectiveness.[150]

While mixed methods design had been used since the beginning of the 19th century, it came into its own in the 1950s and 1960s with the emergence of studies explicitly using mixed method designs.[149] By the 1990s a number of a number of paradigms were emerging, including pragmatism. This paradigm was developed to counter the arguments that quantitative and qualitative approaches were not compatible. The pragmatist paradigm argues that these methods are compatible and researchers could make use of them in research.[149]

Some values found in a pragmatic approach are:

- the ability of mixed methods to be useful in applied settings where practical decisions stress the use of multiple data sources for decision-making purposes, such as health
- the emphasis on the research question, rather than the method used or paradigm that underlies the method.

The pragmatism paradigm has allowed me to mix approaches in this study in a way that offers the best opportunities for answering important research questions.[151]

Choosing either a quantitative or qualitative approach and their associated methods tends to be a trade-off between breadth and depth and between generalisability and targeting to specific populations.[152] Each can be used to answer different research questions and provide a different perspective on that question. The goal of any social science research is to gain an understanding of complex human behaviours and experience, and the researcher attempts to understand, describe and explain the reality of this complexity.[153] How well this is achieved is dependent on the methods chosen. The use of one method, either quantitative or qualitative, is unlikely 'to capture all the trends and details of the situation'.[154]

An alternative to selecting either one approach or the other is a mixed method design. There are various approaches tof mixed method designs, such as linking qualitative and quantitative data, integrating qualitative or quantitative approaches and methodological triangulation. However, common to all these approaches is the concept of combining or integrating different methods. Creswell et al.'s[155] definition captures the key features of the approach:

> *A mixed method study involves the collection or analysis of both quantitative and/or qualitative data in a single study in which the data are collected concurrently or sequentially, are given a priority, and involve the integration of the data at one or more stages in the process of research.* (p.212)

A mixed method allows data to be collected that may not be obtainable if a study relies on one method.[153] Thus the use of a combination of quantitative and qualitative methods in a single study can yield a more complete analysis, increasing the scope and comprehensiveness of a study and providing better inferences. In addition, a mixed methods approach has the capacity to neutralise or cancel out the disadvantages of a particular method and so strengthen a study.[155] A number of reasons have been identified by researchers for the superiority of a mixed methods approach over a single approach design and can be summarised as follows:

- Mixed methods can answer research questions that the other methods cannot.
- Mixed methods research provides better (stronger) inferences.

- Mixed methods provide the opportunity for presenting a greater diversity of divergent views.[149 156-158]

Mixed methods are particularly suitable for the complexity of primary care research.[159] In this study, the rationale for using a mixed methods design is that the use of a supplemental method (qualitative method) will assist the interpretation of the data obtained through the quantitative method, providing explanations for unexpected findings or for supporting the results.[153] Thus it is addressing the three areas described by Teddlie and Taskhakkori above.

3.2. MIXED METHOD DESIGNS

There are a number of mixed methods designs available to the researcher.[153, 155, 160] In selecting a design which combines methods, the researcher must consider priority, implementation and integration.[161]

Priority refers to the emphasis the researcher places on the quantitative data or qualitative data or whether they are of equal priority.[154] This priority is determined at the beginning of the study when developing the question and purpose of the study. If one method is given priority over another, it is sometimes referred to as the 'dominant-less dominant' model. Implementation refers to whether the quantitative or qualitative data are collected in sequential phases or gathered concurrently. In a sequential approach quantitative or qualitative data collection serves as a basis for the next data collection and analysis stage.[154] In a concurrent approach, quantitative and qualitative data are collected at the same time and are brought together in the results or interpretation. Integration refers to the point in the process of research where the researcher mixes or integrates the quantitative and qualitative data collection and analysis. This can occur at a number of places – at data collection, data analysis or interpretation stages.

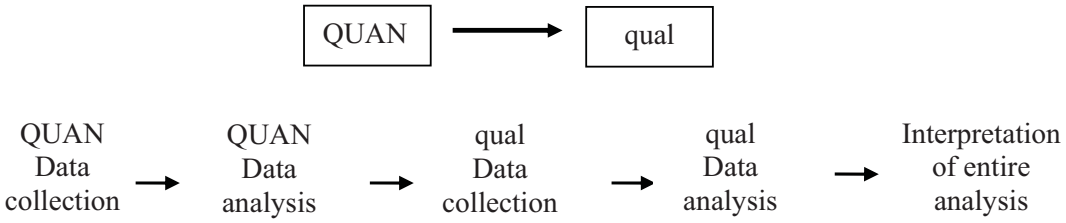
Once these decisions have been made, a number of mixed method designs are available, ranging from concurrent triangulation to sequential explanatory design.[155]

3.2.1. Sequential explanatory design

After reviewing the various approaches, I believe that Creswell's 'sequential explanatory design' is best suited this study.[154, 155] The characteristics of this design include collection and analysis of quantitative (QUAN) data followed by the collection and analysis of qualitative (qual) data; priority is given to the quantitative data and the integration of the two

methods during the interpretation phase of the study. The purpose of the design is to use the qualitative results to help explain or elaborate the primary (or dominant) quantitative results.[154, 160] This is shown schematically in Figure 4.

Figure 4: Sequential explanatory design



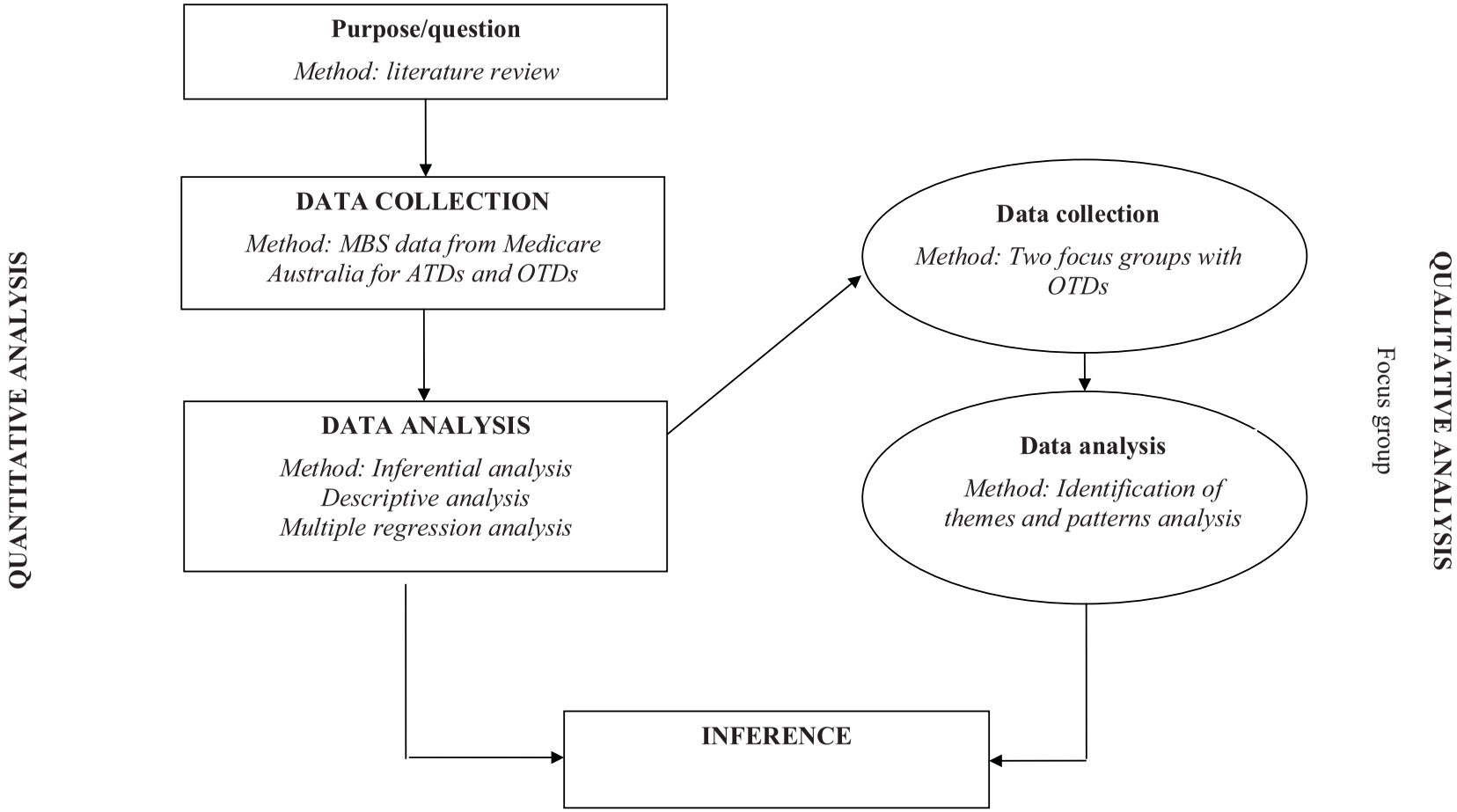
The dominant or priority method is quantitative, with the qualitative method seen as supplementary. The supplementary data are seen as mutually interdependent, that is, the data are interpretable only if linked to the quantitative data and therefore may be incomplete by qualitative standards.[153]

3.3. THE STUDY DESIGN

Using the sequential explanatory design outlined above, the quantitative data (MBS service data) and analysis were given priority and form the core part of this study. Once the results were obtained, a series of focus groups with OTDs were used to help explain and interpret the relationships between the variables. This forms the qualitative part of the study. The results were then interpreted as a whole in the inference phase. In addition to the quantitative and qualitative parts of the study, a review of the literature was undertaken. The review was undertaken to develop the research question, provide context for the study and inform the discussion. The study design is shown schematically in Figure 5.

The following sections of this chapter commence with a summary of the approach to the literature review. It is followed by a detailed outline of the data collection process for the quantitative and qualitative parts of the study, including selection of data sets and sample and methods of analysis.

Figure 5: The study design



3.4. QUANTITATIVE DATA

As outlined above, the quantitative data and analysis form the core component of this study; consequently, some consideration was given to identifying the appropriate sources of data to answer the research question, what definitions would be used, identification of the study group, the variables used in the analysis and the most appropriate statistical model. The steps undertaken and decisions made justifying these are described below.

3.4.1. Sources of data

In order to analyse patterns of services of OTDs and ATDs in rural and remote Australia, it is important to define what is meant by 'services' and identify the availability of data to measure services. General practice in Australia provides a useful outline for the services provided by GPs.[72] These include:

- consultation-based services in the surgery, house calls and nursing home visits
- enhanced primary care (EPC) items such as health assessments, care plans and case conferences
- services falling within the practice incentive payments (PIP) and service incentive payments (SIP)
- teaching and research
- workers' compensation and insurance services
- hospital-based care for public and private patients
- non-face-to-face work, such as phone calls, liaison and report-writing
- practice management
- administration, such as Divisions of General Practice.[72]

These services reflect the organisational and structural context of general practice. However, while GPs deliver these services, the data on these services are variable or non-existent, as the following section explains. It also emphasises the difficulties of undertaking medical workforce research as described in Chapter One.

In Australia, there exist a number of data sets available that provide information on GPs and general practitioner services. Each data set has advantages and limitations, and their usefulness is dependent on the research question being asked. These data sources include the National Health Survey, Medicare Australia (formerly the Health Insurance Commission) data sets (Medicare Benefit Schedule and Pharmaceutical Benefits Schedule), Bettering the Evaluation And Care of Health (BEACH) data set, National Mental Health Survey, Australian Medical Publishing Company, General Practice Research Network and data directly from GP desktops and disease registers. A summary of these data sources, data collection methods and advantages and disadvantages is provided on Table 21.

For this study, it was necessary for the database used to encompass as many of the services outlined above as being part of general practice, as well as information on GP and patient characteristics and practice locations – and to allow distinction of the specific groups of GPs being studied, that is, OTDs working in rural and remote Australia. It is clear from the summary of data sets available (see Table 21) that none provided all this information and for this study a compromise would be required. The two data sets closest to the requirements were the Medicare Australia and BEACH Study data sets. Both data sets provide information on the work undertaken by GP in-patient encounters in the community, but both have limitations, such as failing to describe other work undertaken by GPs, such as preventative and administrative work outside the direct consultation or work undertaken in other settings such as hospitals.[162] In addition, both the BEACH and Medicare Australia data sets cannot represent the complexities of general practice or the psychosocial or holistic aspects of care provided in general practice.[163]

The largest data set on GPs and their behaviours in Australia is from Medicare Australia, but it does not pick up the increasingly diverse range of services that GPs provide under other financing systems, whether government or private. As noted above, it also does not describe the non-clinical work or the content of a consultation or hospital services. When using the data sets for analysing rural and remote GP practice activity, the lack of hospital data is a major impediment. Unlike urban GPs, rural GPs undertake a large component of hospital work for public patients, as they are the only medical practitioners in these areas.

Table 21: Summary of data sources on GP services in Australia

Source	Population	Key features	Advantages	Disadvantages
Census	Population	Records professions Undertaken every 5 years Completed by the total population	Includes the entire population Validated methods and processes	Restricted to type of profession and location of work No clinical data
Medicare Australia – Medicare Benefits Schedule (MBS)	Population	Administrative data sets and data collected routinely on provider service claims for payment purposes Consists of claims made by patients for services provided by registered providers Data available on all medical practitioners who rendered at least one fee-for-service item	For active medical providers, there is complete coverage of the workforce since 1984–85, including their demographics and Medicare patient care activity Data on number of volume of activity for doctors who are not recognised as well as those who are recognised Medicare data are good indicator of annual growth Data can be easily linked from one financial year to the next, allowing measure of duration of stay and turnover rates of medical practitioners Outreach services can be identified through postcodes of secondary locations Patient data for specialist fields of practice can determine the rates of services being provided and location Reliable data available soon after end of reference period Only relates to general practitioners	Administrative data not designed for research purposes Lack of clinical detail Programming and coding errors occur Does not collect hours worked and Medicare income is used as proxy to determine full- or part-time practice Attendances cannot be classified by medical condition or treatment Provider and patient characteristics are limited. Provider data includes age, sex, and year of graduation while patient data are limited to age and sex Not include non fee-for-service activity e.g. salaried practitioners, services to patients in public hospitals, insurance service or service qualified under the Department of Veteran Affairs National Treatment Account Item numbers do not describe non-clinical work undertaken by GP
Medicare Australia – Pharmaceutical Benefits Schedule (PBS)	Population (selective)	Provides subsidised pharmaceuticals to Australian residents in the community Scheme has two levels of payments – general patients (max contribution $23.10 May 2003) and concessional patients (max contribution $3.70 May 2003)		Data provides incomplete drug utilisation history as only scripts priced over $23.10 are recorded so no record of the majority of drugs for general patients. This means around 70% of prescriptions for concessional patients are not recorded

Source	Population	Key features	Advantages	Disadvantages
Medicare Australia Benefits – Pharmaceutical Schedule (PBS) cont.		Families with large pharmaceutical expenditures in a year are protected by the PBS safety net		Items supplied under the Repatriation PBS are not included in the PBS data Family-based records only for patients reaching the safety net No information on age or sex of patient Patients can move between categories during reporting year PBS reflects patients in lower socioeconomic status group No information on dosage or quantity associated with each script
Bettering the Evaluation of Care and Health (BEACH) databases	Random cluster sample	Contemporary source of national data on morbidity in general practice First survey undertaken in 1998 and provides a detailed snapshot of the activities of GPs A random sample of 1000 recognised GPs per year each records details about doctor patient encounters of all types Participating GPs earn audit points towards their quality assurance requirements and receive analysis of own results with a group of other GPs Data includes: encounter data (date of consultation, type of consultation, Medicare and Department of Veteran Affairs item numbers, patient information, such as date of birth, gender, postcode of residence, ethnicity and reason for encounter Content encounter – problems managed and management techniques	Records hours worked Attendances can be classified by medical condition or treatment	Relies on self-report information on encounters by GP and may not include hospital data Participation skewed to vocationally registered GPs wanting to undertake quality assurance activities Cannot distinguish between particular groups of GPs Sample size issues forced collapsing of Rural, Remote Metropolitan Area (RRMA) classifications (see section 3.4 for explanation of RRMA) Low response rate – 34.7% response rate and participant skewed to older age group and GPs from Eastern states Voluntary participation by GPs

Source	Population	Key features	Advantages	Disadvantages
Bettering the Evaluation of Care and Health (BEACH) databases cont.		Management data such as medications prescribed, name, dosage, non-pharmacological management, such counselling and therapeutic procedures, new referral and pathology and imaging ordered GP characteristics – age, gender, years in practice, number of sessions worked per week, size of practice, country of graduation, postgraduate GP training, use of computer and after hours Data related to patient wellbeing, alcohol consumption, smoking status and Body Mass Index Data coded using ICPC2 and RRMA (see section 3.4 for explanation of RRMA)		
General Practice Research Network (GPRN)	Convenience sample	Established 2000 Data through Health Communications network from 297 GPs using Medical Director (computer software) Patient data includes: age, sex, medications prescribed, conditions treated, history, date of death, pathology ordered and measurements taken	Provides a longitudinal view of patient data Constant sample using sentinel practices	Represents only Medical Director use Data limited by software i.e. no free text searching Lack of published methodology and lack of validity to determine completeness of data capture Under-recording of data, as no data are recorded if no script provided Data do not describe non-clinical work undertaken by GPs
Australian Medical Publishing Company (AMPCo)	Population	National database of all doctors in Australia based on publication of Medical Directory of Australia Utilises multiple sources of information such as medical boards, colleges, AMA, postgraduate medical councils Changes verified by telephone Database used commercially as a mailing list	Medical practitioner and location data relatively up to date Data available by discipline and cover 99.5% of medical practitioner population Data can be rented to individuals and organisations Trend analysis can occur as data is available for last 10 years	Data on junior doctors less accurate due to their mobility Data copyrighted Minimal information on services provided Data do not describe non-clinical work undertaken by medical practitioners

Source	Population	Key features	Advantages	Disadvantages
Australian Medical Publishing Company (AMPCo) cont.		Includes demographic information on medical practitioners (name, practice address, year and place of qualification, speciality, age, gender, rural/urban indictor, interests (medical and non-medical) Limited service provision data on drug classes prescribed and number of patients seen per day	Records retirements and deaths of practitioners	
Workforce and Skills Minimum Data Sets (MDS)	Population (selective)	Established to provide the Australian Government and RWAs with consistent base for measuring workforce issues in rural and remote Australia RWAs collect a minimum, specified data set on rural and remote GP workforce Commenced in 2001 and updated 6-monthly by RWAs through an annual survey and updates of new GPs Data on number of GPs, age, gender, length of stay, information on procedural services, hours of work and types of practice	Data updated regularly Provides information on rural and remote GPs, as well as services provided such as hospital workload National comparison is possible through core questions used by each RWA	Self-reported data Unknown response rate Variations in definitions used by each RWAs Data not amalgamated into one data set Limited definition of provider Limited trend data as new source of information Access to data currently limited to RWAs and Australian Government
National Health Survey	Stratified sample	Survey undertaken every 4 years with a sample of population Patient-based	National survey	Reliability of self-reported patient data Length between surveys Does not provide data on GP workload or scope of service provided
National Mental Health Survey	Stratified sample	Survey undertaken once		Reliability of self-reported patient data Only undertaken once Concentrates on specific health area – psychological problems

Therefore the Medicare Australia data will reflect only one aspect of the rural GP work. Medicare data are also limited for those doctors working in salaried positions. For example, for GPs in the Northern Territory, where a large percentage of the work comprises salaried medical positions with Aboriginal Medical Services, the Medicare Australia data will not provide information on work patterns. Some of these gaps could be filled by linking sources of data from a number of data sets. For example, the Workforce and Skills Minimum Data set collected by the rural workforce agencies in Australia could be a source of hospital data. But the complexity of linking data sets and the data set's inability to distinguish between GP subgroups makes it unfeasible for this study.

However, despite its limitations, Medicare Australia MBS service data were the logical choice for this study. Firstly, while not covering all types of GP activities, it is the primary source of information on out-of-pocket costs for non-hospital medical services in Australia.[164] It is possible to obtain a description of general practice patterns of service from the data set and it has been used in several studies for this purpose.[72, 163, 165, 166] The data set will allow GP service characteristics of the subject and comparison group to be described and differences between the groups identified. Secondly, it was possible to obtain the data for the subject group being analysed – OTDs in the 5 Year OTD Scheme and ATDS working in rural and remote Australia. The drawbacks associated with the Pharmaceutical Benefits Schedule (PBS) data, such as in providing a limited and biased indication of drug prescriptions did not warrant its inclusion in the study.[167, 168]

3.4.2. Definition of rurality utilised in this study

As this study is concerned with rural and remote general practice in Australia, it is important to identify a suitable definition of rurality. As outlined earlier, a number of categories can be utilised to define rurality in Australia (see 0). Some of these definitions have been developed for specific purposes and particular groups (for example GP Accessibility/Remoteness Index of Australia classification[169]), while others are broader and are applicable to a number of purposes or groups (Australian Bureau of Statistics). This study will utilise the RRMA classification in the definition of rural location, as it is the most widely accepted for medical workforce planning and is used by the Australian Government in defining the districts of workforce shortage for the 5 Year OTD Scheme. The classification has seven categories, five of which are defined as rural (Categories 3–7) (Table 22).

Table 22: RRMA classification

NOTE:
This table is included on page 85 of the print copy of the thesis held in the University of Adelaide Library.

In this study, the categories have been collapsed to two categories to ensure sufficient data in each cell. The two categories are covered by RRMA 3–5 and termed 'rural' in the study, and RRMA 6–7 termed 'remote' in the study.

3.4.3. Identification of the study groups and their description

The main study group was defined as all GPs who were enrolled in the 5 Year OTD Scheme during the 2002 calendar year (hereafter referred to as OTDs). The Health Services Improvement Division, Commonwealth Department of Health and Ageing, which at the time was responsible for this program, identified this group for me. Identifying details on these OTDs were then forwarded to Medicare Australia and used to generate the data requested.

The population from which the comparison group was drawn is defined as all practising recognised general practitioners whose country of graduation is Australia and whose main practice location is rural or remote (RRMA 3–7). They are hereafter referred to as Australian trained doctors (ATDs).

The definition for recognised general practitioners was based on that used by Medicare Australia, but excluded GP registrars in training. The definition used is:

> *recognised general practitioner that is either vocationally registered (VR GP), a Fellow of the Royal Australian College of GPs (FRACGP GP) who have at least half of the schedule fee value of his/her Medicare billing from 'non-referred attendance items'.*[162]

Practising GPs was defined as the GP having a claim of $1000 or more from Medicare in the data collection year.

Data collection period

Data from the MBS was collected for a calendar year, commencing 1 January 2002 and ending on the 31 December 2002 for both study groups. This collection period was chosen as the first year in which the 5 Year OTD Scheme was fully operational in all states and territories in Australia.

3.4.4. Study variables

A select number of service items were chosen from the Medicare Benefits Schedule for the analysis and were specifically chosen to reflect the complexity of rural general practice. These items were divided into two groups – GP service items and quality items. The demographic variables available for the study were limited to those collected by Medicare Australia.

GP service items

These items were selected as they reflected the most common items used in general practice and are listed in the Table 23. Most of these items relate to consultations (Items 1–8). A selection of procedural services was included for analysis (Items 9–12). These items consisted of services undertaken in GP surgeries, as well as hospital-based services such as obstetrics, anaesthetics or surgery. These items were selected on the basis of being the most common procedures undertaken by GPs in RRMA 3–7 as identified in general practice in Australia 2004.[72] The remaining items were chosen to cover other aspects of GP care, including diagnostic and imaging services such as ECGs (Electrocardiogram) (Items 13–15) and pathology services (Item 16).

Quality indicators

An additional group of items were selected for analysis as a surrogate for quality. Quality indicators can be a statement about the structure (physical characteristics and staff characteristics), process (interpersonal or clinical) or outcomes of care.[170, 171] Quality indicators infer a judgement about the quality of care provided and do not provide a definitive answer but indicate potential problems that might need addressing.[171] Many quality indicators focus on process indicators – what is done in giving and receiving care. Process

indicators describe actual medical care such as diagnoses, treatment, referral and prescribing.[171]

Table 23: GP service items (MBS) selected for multivariate analysis

	GP service items (MBS)	Description
1.	Short consultations	Surgery-based consultations
2.	Standard consultations	
3.	Long standard consultations in the surgery	
4.	Prolonged consultations in the surgery	
5.	Emergency/after-hours consultations	Non-surgery-based consultations
6.	Hospital consultations	
7.	Other institution/nursing home consultations	
8.	Total Group A consultations	
9.	Total Category 3 – therapeutic procedures	Procedural services
10.	Antenatal care	
11.	Labour and delivery	
12.	Group T8 – surgical operations all types	
13.	ECGs	Diagnostic services
14.	Total Category 2 – diagnostic procedures and investigations	
15.	Total Category 5 – diagnostic and imaging services	Imaging services
16.	Total Category 6 – pathology services	Pathology services

The items selected for this analysis reflect both structure indictors and clinical care indicators (process) and are outlined in Table 24, along with the justification for selection. Some of the literature indicated that longer consultations were an indicator of quality. Shorter consultations would lead to a lower proportion of co-morbidity being recognised and dealt with, while longer consultations were significantly associated with better outcomes than shorter consultations.[172] This was an item that could be included in either the service item list or the quality indicator list. However, the decision was made to include it in the service item group, as it complemented the other items related to length of consultation.

Table 24: GP quality items selected for analysis

	Item	Description	Justification
1.	Group A14 health assessments	EPC Items	EPC package focuses on opportunities for GPs to engage with other health care providers and provide integrated and coordinated care[162]
2.	Group A15 multidisciplinary care plans		
3.	Group A15 – case conferences		
4.	Group A17 domiciliary care medical reviews		
5.	Group A18 – PIP incentive payments	PIP Items	Rewards aspects of practice considered to be of high quality[162, 173] – use of IT, provision of after-hours care, teaching and quality of prescribing
6.	Group A19 PIP incentive payments		
7.	Pap smears	Pathology item	Quality of clinical care – preventative health Regular pap smears indicate GP attention to preventative care[166]
8.	No. of basal cell carcinoma or squamous cell carcinoma	Therapeutic procedure	Quality of clinical care – preventative health
9.	HbA1c (glycated haemoglobin)	Pathology item	Quality of clinical care – chronic disease management High rates of HbA1c could reflect better monitoring of cases[166] HbA1c is a marker for longer-term control of diabetes. Better control leads to fewer complications in both dependent and non-dependent diabetes[174]
10.	Spirometry	Diagnostic item	Quality of clinical care – chronic disease management Chronic Obstructive Pulmonary Disease (COPD) – confirmation of COPD by spirometry[174]

GP characteristics

The demographic variables selected for the study were limited to those maintained by Medicare Australia. These were:

- sex: male, female
- age: defined as three groups less than or equal to 34 years, 35 to 54 years and 55 years and greater
- experience: based on years since graduation – defined as two groups: 5–9 years since graduation (termed less experienced); 10 years or more (termed as experienced)
- location of main practice: based on the RRMA classification[28] – defined as two groups RRMA 3–5 (termed rural) and RRMA 6–7 (termed remote)
- work status: defined as full-time or part-time, based on the Medicare Australia definition. A full-time equivalent GP is a service provider who bills more than the equivalent of 2800 standard consultations in a year.

3.4.5. Statistical model

The aim of the study was to determine whether there were differences in the patterns of service between ATDs and OTDs, and if these differences were determined by GP demographics. To remove the influence of patient characteristics on service patterns, the model for the analysis needed to adjust for the patient characteristics.

A log Poisson regression model was used to assess the interactive effect of various GP demographics (such as age, gender, RRMA) with OTD/ATD status on the rate of particular service items per patient, adjusted for the interaction between patient age and gender. Where no significant interaction between GP demographic and OTD/ATD was seen, a main effect of OTD/ATD was assessed. Where significant effects were seen, *post hoc* comparisons of adjusted rates between OTD and ATD were used to interpret the interactive effect, if any.

To summarise, the model obtained an outcome rate – the number of services – which was based on the service item being examined, which had been adjusted for the patient age and gender (to remove differences associated with this aspect of general practice). It then incorporated the demographic characteristic of interest, such as GP age or gender, and the

type of practitioner (OTD versus ATD), allowing the outcome rate to be generated. The model used is shown below:

Outcome rate (number of services) = patient age x patient gender + GP OTD/ATD x GP age, GP Full-time equivalent (FTE), GP gender, GP RRMA or GP experience

This model allowed me to compare OTD/ATD within the other GP demographics. It did not allow me to compare OTD/ATD within patient demographics, but this was not the focus of the research question. The log Poisson regression model was selected for this because: it is appropriate, when the dependent variable is a count of events in a fixed time period (that is, service items); it is suitable for rate data (ATDs versus OTDs rate of services); and it is suitable when it is not known if the dependent variable is normally distributed.[175]

For the descriptive analysis, Chi-squared analysis was undertaken to identify associations between the demographic variables and the type of GP. When numbers were too small (more than a quarter of the cells had a value of less than 5), Fisher's exact test was used.

Statistical significance was set at 5%. No adjustments for repeated testing were made because this analysis was viewed as exploratory and not inferential. All statistical analyses were performed using SAS Version 9.1.[176]

3.5. QUALITATIVE DATA

For the collection of the qualitative data component, a number of options were available, including interviews or the use of focus groups. This section describes the reasons for selecting the focus group and method undertaken.

3.5.1. Rationale for the focus groups

While focus groups were initially used in market research, they have been increasingly utilised in health research, where there is a need to gain a deeper insight into behaviour or attitudes.[177] The main uses of focus groups are in hypothesis generation, developing questionnaires, designing complex intervention programs, the evaluation of health services and the interpretation of quantitative studies. It is for this last reason that focus groups have been included in this study's design.

Focus groups were selected as the preferred method over interviews for a number of reasons. The group interaction in a focus group may stimulate a richer response or new thoughts and ideas. Group pressure can also challenge the thinking of respondents and illuminate

conflicting opinions. This technique also reduced data collector fatigue and overcame the logistics of undertaking interviews across large geographic areas in the time available and was more cost-effective.[152]

3.5.2. Number of focus groups

The key purpose of this component of the study was to help explain and/or validate the relationships between variables from the analysis undertaken on the GP service data set. Therefore the focus group is the less dominant part of this study and as outlined earlier in this chapter, the usual methodological approaches may not apply. The goal with this part of the study is not to reach saturation, as would be expected with a single method approach, but to add values to the quantitative results. Therefore the number of focus groups will be limited to two, rather than more as would be usual case.

3.5.3. Selection of focus group sample

As the focus of the study is OTDs' patterns of service, the participants for the focus group needed to be recruited from the OTD population working in rural and remote Australia. A convenience approach was taken in selecting the focus group participants. I utilised existing networks and organised the focus group around meetings involving the target group. The first focus group was held during the Rural Doctors Workforce Agency's workshop for OTDs entitled 'A response to common concerns'. This was held with South Australian OTDs in Adelaide on 14–15 October 2006 and was targeted at OTDs who have commenced work in rural and remote South Australia within the last two years.

The second focus group was held during the Adelaide to Outback GP Training Program's (A2O) OTD examination workshop 1–2 December 2006. This was targeted at OTDs who were preparing for their RACGP examinations, which are required to be sat within two to three years of commencement of work in rural and remote Australia.

This approach also ensured maximum participation of the target group, who are extremely busy general practitioners.

Ideally, the focus group participants should have been those whose Medicare data were being analysed. However, this was not possible because of two main reasons. The first reason was the long delay in obtaining the Medicare data from Medicare Australia which took two years. This then needed to be analysed before it could be used in the focus groups. Secondly, the data were only provided in a de-identified form and so recruitment of focus group participants

could not be targeted to those included in the Medicare data. However, participants in the focus groups in 2006 included participants who were recruited through the 5 Year OTD Scheme. A more detailed discussion of the focus group limitations is provided in Section 6.4.3.

3.5.4. Recruitment and consent and confidentiality

A letter was sent on behalf of the researcher by the Rural Doctors Workforce Agency (RDWA) and A2O to all OTDs who had confirmed their attendance at either organisation's workshop. These letters described the aims and objectives of the study, the process of the focus group and asked the OTDs to register their interest by completing a registration/consent form (see Appendix 3).

For those who did not return the registration/consent form in the post, consent was obtained at the workshops prior to the commencement of the focus group.

All focus groups were audio-taped and transcribed. A summary of the transcripts were sent to each participant to confirm its accuracy.

At the commencement of the focus groups, participants were also asked to complete a brief questionnaire to gain background information on the participants such as age, sex, practice location, years in Australia, country of birth and experience.

3.5.5. Development of focus group questions

The questions were developed in order to obtain from participants possible reasons or explanations for the relationships found in the analysis of the Medicare Australia data. The researcher developed a list of seven questions. As suggested by Krueger[178], four categories of questions were included – introductory questions, transition questions, key questions and ending. This approach allowed the researcher to gradually introduce the topic area and provide time for longer discussions for the more important questions.

Questions were used instead of a topic guide for a number of reasons. The focus group had a specific objective, that is, to help explain quantitative results. Secondly, there was limited time available for the focus group. Lastly, specific questions allowed for consistency between the groups. A copy of the question guide used for the focus groups is provided in Appendix 4. In addition to the question guide, a summary of the quantitative analysis was provided to the participants to assist with the discussion. This summary is provided in Appendix 5.

3.5.6. Approach to the analysis of the focus groups

For an analysis of the focus groups, I used a form of thematic analysis known as template analysis.[179-181] Template analysis is a particular way of thematically analysing qualitative data. It involves the development of a coding 'template' which summarises themes identified by the researcher as important in a data set and organises them in a meaningful and useful manner. Hierarchical coding emphasises and often begins with some *a priori* codes which identify themes expected to be relevant to the analysis.[182] As the focus groups in this study were used in quite structured way – with the goal of assisting with the interpretation of the quantitative analysis and making use of very specific questions – the template analysis approach was deemed appropriate. The results will present the key themes identified, using illustrative examples from the transcripts.[181]

Template analysis involves a number of steps including[182]:

- identification of *a priori* themes
- transcription of interviews or focus groups and familiarisation with the transcripts by the researcher
- initial coding of data that uses the *a priori* themes and develops new codes and/or modification of existing codes
- production of initial template, which results from grouping smaller themes into higher-order codes which describe the broader themes in the data. This template is further refined during the analysis of the transcripts
- interpretation of the final template.

Once the interviews were transcribed they were entered into NVivo program for analysis.[183] The approach to analysis of the interviews undertaken in this study was to identify themes and patterns. A coding scheme was developed, based on the question used in the focus groups and the final coding template used in the analysis is shown in Table 25. Checking the quality of the analysis was undertaken in two ways. The first method was to use respondent feedback. I asked the respondents to give feedback on the analysis of the focus group. This was done by providing them with a copy of the analysis and asking for feedback. Secondly, an audit trail of the analytical process was undertaken, which records the steps taking in moving through the transcripts to the final interpretation of the results.

Table 25: Final coding template used for the analysis of the focus group data

Key code/themes	Subcodes	Themes	
Adaptation	Negative publicity OTDs		
	Differentiating ATDs and OTDs		
	Attitudes to OTDs		
	Trained to be like Australian doctors		
Comparison of practice in Australia with previous location	Technology		
	Culture	Culture of practice in Australia	
	Environment		
	Lack of support		
	Community	Community support	
		Community attitudes	
	Skills required	Emergency medicine	Fear
	Social isolation		
	Access to funding		
	Health care structure	Isolation	
	Patients	Patient awareness of illness	
		Patient attitudes	
		Patient responsibility	
Patterns of service	Availability of investigations		
	Culture	Culture of practice in Australia	
	Health care system	Medicare	
		Billing system	
		Time factor	
	Individual consultation style	Phone consultations	
	Knowledge of patients		
	Lack of resources		
	Language		
	Litigation fears		
	Similarities		
	Training		
Time	Exams		
Assistance and support	Positive support	Support from organisations such as RWAs	
		Support from other OTDs	
		Support from colleagues	
		Educational support	
		Site visit	
		Family support programs	
		Orientation program	
	Negative support	Acknowledgement of skills	
		Attitudes of other doctors	
		Staff attitudes	
		Stress	
Improvements to support	Health system orientation		
	Regular contact with family		
	Family support		
	Link with other OTDs		

3.6. ETHICS APPROVAL

Ethical clearance to undertake this study was granted by the University of Adelaide Human Research Ethics Committee (see Appendix 6).

Data provided to the researcher by Medicare Australia were not identifiable as it was not provided at a provider unit level but as aggregated data for the group. As per Medicare Australia policy, where the cell size count for any variable requested was too small, that is less than five, data were either excluded or categories collapsed. In addition, data on the state or territory where the GPs were practising were not provided as Medicare Australia deemed it possible to identify a GP from this level data.

Participation in focus group for the study was voluntary. At all times confidentiality was maintained and participants were assured that, although the results would be published, neither participants nor their responses would be personally identified. All data reported were de-identified and references to practice location removed from the results.

The participants were free to withdraw from the study at any time before, during or after the focus group. All digital recordings obtained from the focus were destroyed once the focus group had been transcribed. The digital recordings and hard copies of the data collected were stored in a locked cabinet, with electronic copies entered into a password-protected file on a server that was fire-walled.

CHAPTER FOUR: QUANTITATIVE RESULTS

The results of the quantitative analysis are divided into components: the descriptive analysis; the analysis of service data; and the analysis of quality service items. The descriptive analysis covers summaries of GP characteristics, service characteristics and patient characteristics. Only a summary of the key results of the analysis of the service and the quality item is presented in this chapter, with the detailed results of the logistic regression analysis provided in Appendix 7.

4.1. DESCRIPTIVE ANALYSIS

4.1.1. GP characteristics

The section describes the demographics of the two groups of interest – ATDs and OTDs by various demographics characteristics. The data set includes all OTDs enrolled in the 5 Year OTD Scheme in 2002 and practising in rural and remote Australia and all Australian trained doctors practising in rural and remote Australian in 2002 (Table 26).

Table 26: Summary of comparison groups of ATDs and OTDs, 2002

Type of GP	Total number for analysis
ATD	6899
OTDs	123
Total	**7022**

Source: Unpublished Medicare Australia data

4.1.1.1. Sex

A significant association was found between sex and type of practitioner (p=0.0006). There was a higher proportion of male OTDs compared with male ATDs, but a much lower proportion of OTDs was female, compared with ATDs (32.4%) (Table 27). For both ATDs and OTDs, the largest proportion of GPs was male (67.8%).

Table 27: Sex of GPs by type of practitioner, 2002

Sex	ATDs		OTDs		Total	
	Frequency	%	Frequency	%	Frequency	%
Males	4662	67.6	101	82.1	4763	67.8
Females	2237	32.4	22	17.9	2259	32.2
Total	**6899**	**100.0**	**123**	**100.0**	**7022**	**100.0**

Source: Unpublished Medicare Australia data

4.1.1.2. Age groups

There was a significant association between the age of the GP and type of practitioner (p=0.0168). Across both groups, the largest proportion of GPs was found in the age group 35–45 years (59%), although a greater proportion of OTDs was aged in this group (70.8%) compared with ATDs (58.7%). The smallest proportion of GPs for both groups was aged less than 35 years. By contrast, in the age group 55 years or more, OTDs only formed 12.2% of this age group, compared with 21.3% for ATDs (Table 28).

This pattern of distribution is also similar for both males and females, although a larger proportion of male ATDs was aged 55 years or more (27%) than male OTDs (12.9%).

Table 28: Age of GPs by sex and type of practitioner, 2002

(Age Group (years)	ATDs		OTDs		Total	
	Frequency	**%**	**Frequency**	**%**	**Frequency**	**%**
Males						
<35	665	14.5	16	15.8	681	14.6
35–54	2673	58.4	72	71.3	2745	58.7
55+	1237	27.0	13	12.9	1250	26.7
Total males	*4575*	*100.0*	*101*	*100.0*	*4676*	*100.0*
Females						
<35	690	31.3	5	22.7	695	31.2
35–54	1309	59.4	15	68.2	1324	59.5
55+	205	9.3	2	9.1	207	9.3
Total females	*2204*	*100.0*	*22*	*100.0*	*2226*	*100.0*
Persons						
<35	1355	20.0	21	17.1	1376	19.9
35–54	3982	58.7	87	70.7	4069	59.0
55+	1442	21.3	15	12.2	1457	21.1
Total persons	**6779**	**100.0**	**123**	**100.0**	**6902**	**100.0**
Missing data	120				120	

Source: Unpublished Medicare Australia data

4.1.1.3. Years since graduation

There was a significant association between years since graduation and type of practitioner (p=0.0058). Over three-quarters of the total proportion of GPs graduated from medical school ten or more years previously (Table 29), with GPs graduated four or less years ago making up the smallest proportion of GPs (7.5%). This distribution was also similar for both ATDs and OTDs, and by sex, although no male or female OTDs had graduated within the last four years (Table 29).

Table 29: Years since graduation by sex and type of GP, 2002

Years since graduation	ATDs		OTDs		Total	
	Frequency	%	Frequency	%	Frequency	%
Males						
0–4	259	5.6	0	0	259	5.4
5–9	468	10.0	14	14	482	10.1
10+	3935	84.4	87	86	4022	84.4
Total males	*4662*	*100.0*	*101*	*100*	*4763*	*100.0*
Females						
0–4	271	12.1	0	0.0	271	12.0
5–9	460	20.6	5	22.7	465	20.6
10+	1506	67.3	17	77.3	1523	67.4
Total females	*2237*	*100.0*	*22*	*100.0*	*2259*	*100.0*
Persons						
0–4	530	7.7	0	0.0	530	7.5
5–9	928	13.5	19	15.4	947	13.5
10+	5441	78.9	104	84.6	5545	79.0
Total persons	**6899**	**100.0**	**123**	**100.0**	**7022**	**100.0**

Source: Unpublished Medicare Australia data

4.1.1.4. Work status

More than three-quarters of the GPs are working part-time as defined by Medicare billing class, with a larger proportion of female GPs working full-time (91.0%) (Table 30). The distribution between part-time and full-time work is similar for both ATDs and OTDs, although a larger proportion female OTDs are working part-time (13.6%) compared with female ATDs (8.9%). There was no significant association between work status and type of practitioner (p=0.1067).

Table 30: Work status by sex and type of GP

Workload	ATDs		OTDs		Total	
	Frequency	%	Frequency	%	Frequency	%
Males						
Full-time	3270	70.1	68	67.3	3338	70.1
Part-time	1392	29.9	33	32.7	1425	29.9
Total males	*4662*	*100.0*	*101*	*100.0*	*4763*	*100.0*
Females						
Full-time	2037	91.1	19	86.4	2056	91.0
Part-time	200	8.9	3	13.6	203	9.0
Total females	*2237*	*100.0*	*22*	*100.0*	*2259*	*100.0*
Persons						
Full-time	5307	76.9	87	70.7	5394	76.8
Part-time	1592	23.1	36	29.3	1628	23.2
Total persons	**6899**	**100.0**	**123**	**100.0**	**7022**	**100.0**

Source: Unpublished Medicare Australia data

4.1.1.5. Location of practice

There was a significant association between location of practice and type of practitioner (<0.0001). A larger percentage of OTDs have a practice located in a remote location (21.6%), compared with ATDs (7.2%), although the majority of both groups practise in a rural location (RRMA 3–5) (Table 31). Nearly a quarter of male OTDs (24.7%) compared with male ATDs (7.2%) practise in a remote location. However, a slightly larger proportion of female ATDs practise in a remote location (7.3%) compared with OTDs (6.3%).

Table 31: Location of practice by sex and type of GP, 2002

Location of practice (defined by RRMA)	ATDs		OTDs		Total	
	Frequency	%	Frequency	%	Frequency	%
Males						
RRMA 3,4,5	3353	92.8	61	75.3	3414	92.4
RRMA 6&7	261	7.2	20	24.7	281	7.6
Total males	*3614*	*100.0*	*81*	*100.0*	*3695*	*100.0*
Females						
RRMA 3,4,5	1403	92.7	15	93.8	1418	27.1
RRMA 6&7	110	7.3	1	6.3	111	2.1
Total females	*1513*	*100.0*	*16*	*100.0*	*1529*	*29.3*
Persons						
RRMA 3,4,5	4756	92.8	76	78.4	4832	92.5
RRMA 6&7	371	7.2	21	21.6	392	7.5
Total persons	**5127**	**100.0**	**97**	**100.0**	**5224**	**100.0**
Missing data	1772		26		1798	

Source: Unpublished Medicare Australia data

4.1.2. Service characteristics

A summary of the Medicare services used in the analysis by type of practitioner for the study period (2002) is shown in Table 32. Most services provided by both ATDs and OTDs consist of standard consultations (80%) and long consultations in the surgery (10.3 % for ATDs and 11.2% for OTDs). Significant numbers of claims were processed in decreasing order of frequency for short consultations, other institution/nursing home consultations, hospital consultations (ATDs) and emergency consultations (OTDs).

In comparing ATDs and OTDs in the services provided, OTDs provided proportionally less spirometry, basal cell carcinoma, HbA1cs, and assistance in operations than ATDs (Table 32). However, OTDs provided proportionally more ECGs and labour and delivery services than ATDs.

Table 32: Selected Medicare services provided by GPs by service and type of practitioner, 2002

Medicare items[a]	ATDs No. of services	OTDs No. of services	ATDs % of services in category	OTDs % of services in category
CATEGORY 1 – PROFESSIONAL ATTENDANCES				
Short consultations	552 437	10 841	2.6	2.2
Standard consultations	17 359 943	401 219	80.1	80.5
Long consultations in the surgery	2 223 140	55 705	10.3	11.2
Prolonged consultations in the surgery	210 112	4 795	1.0	1.0
Home visits consultations	202 496	2 335	0.9	0.5
Emergency consultation (after hours)	171 499	6 707	0.8	1.3
Hospital consultation	303 558	5 338	1.4	1.1
Other institutional/nursing home	444 123	9 184	2.1	1.8
Group A14 – health assessments	49 788	644	0.2	0.1
Group A15 – multidisciplinary care plan	69 079	1 100	0.3	0.2
Group A15 – case conferences	4 089	128	0.0	0.0
Group A17 – domiciliary care medical reviews	2 490	75	0.0	0.0
Group A18 – PIP incentive items	49 904	535	0.2	0.1
Group A19 – PIP incentive items	1 192	3	0.0	0.0
Total no. of Group A	*21 661 831*	*498 381*	*100.0*	*100.0*
CATEGORY 2 – DIAGNOSTIC PROCEDURES AND INVESTIGATIONS				
Spirometry	44 770	622	18.3	13.2
ECGs	176 952	3 787	72.4	80.4
Total no. of Category 2	*244 308*	*4 711*	*100.0*	*100.0*
CATEGORY 3 – THERAPEUTIC PROCEDURES				
Antenatal care	225 358	5 173	21.4	24.9
Labour and delivery	2 561	57	0.2	0.3
Group T7 – regional or field block nerve all types	2 360	106	0.2	0.5
No. of basal cell carcinoma or squamous cell carcinoma	102 869	1 337	9.8	6.4
Group T8 – Surgical operations all types	676 791	13 430	64.2	64.7
Group T9 – Assistance at operations	15 614	60	1.5	0.3
Total no. of Category 3 (therapeutic)	*1 054 904*	*20 759*	*100.0*	*100.0*
CATEGORY 5 – DIAGNOSTIC IMAGING SERVICES				
Total no. of Category 5 (radiology)	*54 947*	*2 937*		
CATEGORY 6 – PATHOLOGY SERVICES				
No. of HbA1cs	2 380	0	2.0	0.0
Total no. of Category 6	*121 328*	*3 209*	*100.0*	*100.0*
Total number of visits/claims	**23 137 318**	**529 997**		

a. Not all items listed were used in the multivariate analysis as there were insufficient data for inclusion.

Source: Unpublished Medicare Australia data

A summary of the rates generated for ATDs and OTDs are provided in Table 33 and include total number of consultations (Group A), total number of individual patients seen, total

number of visits claimed, rates per consultation and rates per 100 patients for diagnostic and procedural services, diagnostic imaging services and pathology services. Cost items include total MBS benefits, total non-referred benefits and costs per patient and per GP for all items. This table provides a simple description of rates of events and is not adjusted for patient mix.

On average, the OTDs claimed 4051.9 Group A consultation items during 2002 (Table 33). They saw an average of 1688.5 patients at a rate of 240 consultations per 100 patients. ATDs, by comparison, claimed on average 3139.9 Group A consultation items, saw an average of 1256 patients at a rate of 250 consultations per 100 patients (Table 33). That is OTDs were seeing more patients less often.

The average Medicare benefit paid per consultation for OTDs was $29.32 and the average annual cost per patient was $74.81. This was similar to that of ATDs (Table 33). This pattern was repeated when analysed by sex (Table 33), except that for male OTDs, the average annual cost per patient was $76.64, compared with $81.43 for male ATDs.

The average Medicare benefit paid for total Group A consultations for OTDs was $28.70 and for ATDs was $28.26 and was repeated when analysed by sex (Table 33). The average Medicare benefit paid per consultation for total diagnostic and procedural services and total diagnostic imaging was similar for both ATDs and OTDs (Table 33).

However, there were marked differences in the average benefit paid per total therapeutic service items for ATDs ($53.20) and OTDs ($49.81) and pathology item ($8.17 for ATDs and $6.80 for OTDs). For female OTDs the average Medicare benefit paid for pathology services was $5.53, which was much lower than female ATDs, whose average Medicare benefit paid for pathology services was $8.36.

The mean earnings per OTD were $126 325.06 in 2002, with ATDs' mean earnings being $97 980.28. This pattern was repeated across sexes (Table 33).

Table 33: Summary of rates generated from raw data for OTDs and ATDs, 2002

Services	Type of GP					
	ATD			OTD		
	Male	Female	Total	Male	Female	Total
No. of GPs	4 662	2 237	6 899	101	22	123
Total no. of patients	6 535 367	2 130 026	8 665 393	171 933	35 757	207 690
Total no. of Group A consultations claimed	17 021 872	4 639 959	21 661 831	421 190	77 191	498 381
Total number of visits claimed on items selected	18 232 883	4 904 435	23 137 318	449 227	80 770	529 997
Patients/GP	1 401.8	952.2	1 256.0	1 702.3	1 625.3	1 688.5
Group A consults per GP	3 651.2	2 074.2	3 139.9	4 170.2	3 508.7	4 051.9
Group A consults per 100 patients	260.5	217.8	250.0	245.0	215.9	240.0
Total consults per GP	3 911.0	2 192.4	3 353.7	4 447.8	3 671.4	4 308.9
Total consults per 100 patients	279.0	230.3	267.0	261.3	225.9	255.2
Diagnostics and procedural service per 100 consultations	1.09	0.9	1.1	1.0	0.5	0.9
Diagnostics and procedural service per 100 patients	3.05	2.1	2.8	2.5	1.1	2.3
Therapeutic procedures per 100 consultations	4.8	3.5	4.6	4.1	3.0	3.9
Therapeutic procedures per 100 patients	13.5	8.1	12.2	10.7	6.8	10.0
Diagnostics imaging per 100 consultations	0.3	0.2	0.2	0.6	0.1	0.6
Diagnostics imaging per 100 patients	0.7	0.0	0.6	1.7	0.2	1.4
Pathology per 100 consultations	0.4	0.8	0.5	0.6	0.8	0.6
Pathology per 100 patients	1.3	1.9	1.4	1.5	1.9	1.5
Costs						
Total MBS benefits of items obtained from HIC	$532 159 718.20	$143 806 200.33	$675 965 918.53	$13 176 313.01	$2 361 669.75	$15 537 982.76
Total non-referred benefits	$460 127 368.70	$130 491 944.60	$590 619 313.30	$11 769 484.10	$2 168 056.50	$13 937 540.60
MBS items claimed/GP	$114 148.37	$64 285.29	$97 980.28	$130 458.54	$107 348.63	$126 325.06
Total non-referred benefits/GP	$98 697.42	$58 333.46	$85 609.41	$116 529.55	$98 548.02	$113 313.34
Total MBS items claimed per consultations	$29.19	$29.32	$29.22	$29.33	$29.24	$29.32

Table 33 cont.

Services	Type of GP					
	ATD			OTD		
	Male	Female	Total	Male	Female	Total
Total MBS items claimed per patient	$81.43	$67.51	$78.01	$76.64	$66.05	$74.81
Total cost Group A consultations	$477 637 080.90	$134 488 534.20	$612 125 615.10	$12 055 247.30	$2 246 441.45	$14 301 688.75
Total cost Group A consults/GP	$102 453.26	$60 120.04	$88 726.72	$119 358.88	$102 110.98	$116 273.89
Total cost Group A items claimed per consultation	$28.06	$28.98	$28.26	$28.62	$29.10	$28.70
Total cost Group A items claimed per patient	$73.08	$63.14	$70.64	$70.12	$62.83	$68.86
Total cost Diagnostic & procedural services	$4 205 009.02	$897 247.20	$5 102 256.22	$87 036.11	$8 600.95	$95 637.06
Total cost Diagnostic & procedural services/GP	$901.98	$401.09	$739.56	$861.74	$390.95	$777.54
Total diagnostic and procedural services claimed per consultation	$21.08	$20.02	$20.88	$20.14	$22.05	$20.30
Total diagnostic and procedural services claimed per patient	$0.64	$0.42	$0.59	$0.51	$0.24	$0.46
Total cost therapeutic services	$48 253 758.05	$7 870 676.33	$56 124 434.38	$933 264.90	$100 731.10	$1 033 996.00
Total cost therapeutic services/GP	$10 350.44	$3 518.41	$8 135.16	$9 240.25	$4 578.69	$8 406.47
Total therapeutic service items claimed per consultation	$54.69	$45.60	$53.20	$50.90	$41.54	$49.81
Total therapeutic service items claimed per patient	$7.38	$3.70	$6.48	$5.43	$2.82	$4.98
Total cost diagnostic imaging	$1 403 009.33	$219 269.13	$1 622 278.46	$82 711.85	$2 113.35	$84 825.20
Total cost diagnostics imaging/GP	$300.95	$98.02	$235.15	$818.93	$96.06	$689.64
Total diagnostic imaging items claimed per consultation	$29.57	$29.24	$29.52	$28.95	$26.42	$28.88
Total diagnostic imaging items claimed per patient	$0.21	$0.10	$0.19	$0.48	$0.06	$0.41
Total cost pathology	$660 860.90	$330 473.47	$991 334.37	$18 052.85	$3 782.90	$21 835.75
Total cost pathology/GP	$141.75	$147.73	$143.69	$178.74	$171.95	$177.53
Total pathology service items claimed per consultation	$8.08	$8.36	$8.17	$7.15	$5.53	$6.80
Total pathology service items claimed per patient	$0.10	$0.16	$0.11	$0.10	$0.11	$0.11

Source: Unpublished Medicare Australia data

4.1.3. Patient characteristics

Female patients represented 54.3% of the patients seen by OTDs in 2002, a slightly lower proportion than seen by ATDs (56.5%) (Table 34).

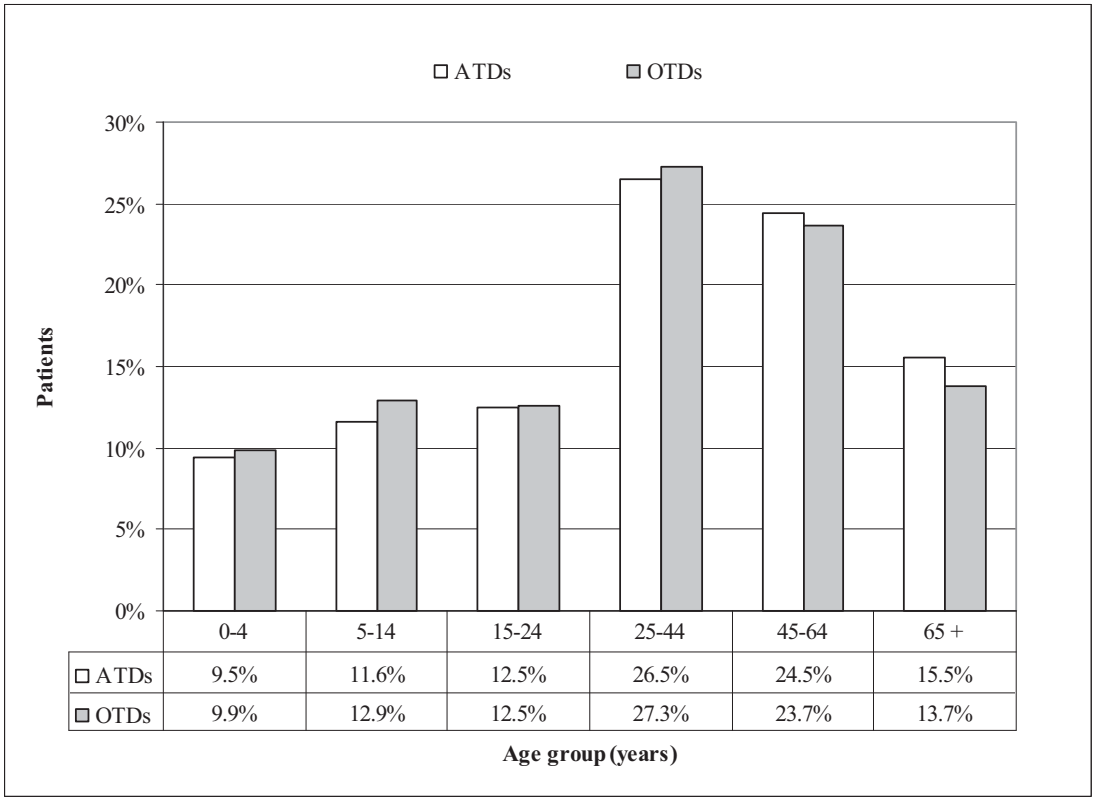
Table 34: Patients of ATDs and OTDs by sex, 2002

	ATD		OTD	
Patients	**Frequency**	**%**	**Frequency**	**%**
Male	3 772 855	43.5	94 820	45.7
Female	4 892 538	56.5	112 870	54.3
Total	**8 665 393**	**100.0**	**207 690**	**100.0**

Source: Unpublished Medicare Australia data

The age distribution of patients seen by OTDs and ATDs is shown in Figure 6. There is very little different in the patients across age groups for either OTDs or ATDs, but the influence of the patients' age and sex were controlled for in the multivariate comparison.

Figure 6: Age distribution of patients of ATDs and OTDs, 2002



4.2. SERVICE ITEM RESULTS

4.2.1. Main effect interactions between type of practitioner, GP characteristics and service items

The first set of analysis undertaken was to determine if a relationship existed between the service items selected, GP characteristics and type of practitioner (OTD versus ATD). The results are summarised in Table 35. Where a significant interaction was found between the service items and the GP characteristics, this was further investigated by analysing by categories within the GP characteristics.

For surgery-based services, interactions were found for all items and GP characteristics, except for experience and work status for short and prolonged consultations (Table 35). For non-surgery-based consultations, interactions existed for all GP characteristics for other institution/nursing home service, total Group A consultations and most hospital consultations. No interactions existed between GP type and sex, rural location and work status and emergency and after-hours consultations. For diagnostics services, rural location or work status were the only characteristics that were found to have an interaction (Table 35).

For procedural services, interactions were found for: age, rural location and work status and antenatal care; and for experience, age and rural location for all types of surgical operations. No interactions were found between labour and delivery for any GP characteristics and types of practitioner. For therapeutic procedures (total Category 3) interactions were found for all GP characteristics except sex (Table 35).

For imaging services there were no interactions between GP characteristics, service items and type of practitioner. For pathology services, interactions were found between types of practitioner and rural location and work status (Table 35).

Table 35: Interactions between GP characteristics, service items and types of practitioner (OTD/ATD)

Service item	GP characteristic				
	Sex	**Experience**	**Age**	**Rural location**	**Work status**
Surgery-based services	*P*	*P*	*P*	*P*	*P*
Short consultations	<.0001	0.0370	<.0001	0.0005	0.2216
Standard consultations	<.0001	<.0001	<.0001	<.0001	<.0001
Long standard consultations	<.0001	<.0001	<.0001	<.0001	<.0001
Prolonged consultations	0.7085	<.0001	<.0001	<.0001	0.0329
Non-surgery-based services					
Emergency and after-hours consultations	0.2780	0.0018	0.0003	0.7863	0.7511
Hospital consultations	0.0456	<.0001	<.0001	<.0001	<.0001
Other institution/nursing home	<.0001	<.0001	<.0001	<.0001	<.0001
Total Group A consultations	<.0001	<.0001	<.0001	<.0001	<.0001
Diagnostic services					
ECGs	0.2189	0.3561	0.1916	<.0001	0.0831
Total Category 2 – diagnostic procedures and investigations	0.2722	0.0821	0.0768	<.0001	0.4033
Procedural services					
Antenatal care	0.0731	0.5358	<.0001	<.0001	<.0001
Labour and delivery	0.9304	0.8624	0.8412	0.9683	0.8920
Surgical operations all types (Group T8)	0.8614	<.0001	<.0001	<.0001	0.1262
Therapeutic procedures (total category 3)	0.8072	<.0001	<.0001	<.0001	<.0001
Imaging services					
Total Category 5 – diagnostic imaging services	0.9189	0.6473	0.9178	0.6318	0.4220
Pathology services					
Total Category 6 – pathology services	0.0627	0.8683	0.0006	<.0001	<.0001

Source: Unpublished Medicare data

The interactions between GP characteristics, quality items and type of practitioners are summarised in Table 36.

Interactions were found for multidisciplinary care plans for sex, experience and age. No interaction was found between GP characteristics, types of practitioners and rates of case conferencing, domiciliary care medical reviews, practice incentive payments (Group A18 and A19), basal cell carcinoma and spirometry (Table 36). For HbA1c service there was no OTD data available for the analysis.

Table 36: Interactions between GP characteristics, quality items and types of practitioner (OTD/ATD)

Quality items	GP characteristic				
	Sex	**Experience**	**Age**	**Rural location**	**Work status**
	P	*P*	*P*	*P*	*P*
Health assessments (Group A14)	0.9991	0.9967	1.0000	0.9978	0.9987
Multidisciplinary care plans (Group A15)	0.0576	<.0001	<.0001	0.7709	0.0949
Case conferences (Group A15)	0.8994	0.8998	0.7678	0.6352	0.7382
Domiciliary care medical reviews (Group A17)	0.9974	0.9976	0.9982	0.9987	0.9952
Practice incentive payments (Group A18)	0.8833	0.9946	0.9823	0.9121	0.9223
Practice incentive payments (Group A19)	0.0627	0.9915	0.9827	0.9941	Not enough data
Spirometry	0.6995	0.9597	0.8703	0.0693	0.9710
Basal cell carcinoma	0.1344	0.4233	0.5647	0.0737	0.9318
HbA1c	No OTD data	No OTD data	No OTD data	No OTD data	No OTD data

Source: Unpublished Medicare

4.2.2. *Post hoc* comparison of adjusted rates

Where a significant main effect was found, *post hoc* comparison of adjusted rates between OTD and ATD was undertaken. The key results of this logistic regression analysis are summarised in Table 37. The detailed results of this analysis are provided in Appendix 7.

OTDs are shown to have made more claims for Group A consultations than ATDs and have consulted their patients less frequently on average. They saw more patients on average than ATDs and their total claim of MBS items and non-refereed benefits was higher than ATDs. This pattern was repeated when analysed by sex.

Overall, sex produced fewer differences in practice patterns between ATDs and OTDs than other demographics. When reviewing the main consultation items (short consultations, standard consultations, long standard consultations and prolonged consultations), OTDs overall utilised a broader range of items than ATDs (Table 37). Male OTDs have similar practice patterns to male ATDs, except in the provision of long consultations, standard consultations and other institutional/nursing home consultations per patient. Overall, male OTDs had fewer total Group A consultations than male ATDs. Female OTDs have similar practice patterns to female ATDs, except in the provision of standard consultations and short consultations per patient. Both male and female OTDs provided fewer standard consultations per patient than their ATD equivalents.

There was virtually no difference in the emergency and after-hours services provided by OTDs and ATDs. The only GP characteristic that showed a difference was experience – fewer experienced OTDs and younger OTDs provided more after-hours and emergency services.

OTDs who are experienced, older, practising in remote locations and working full-time generated more hospital consultations than ATDs with the same characteristics. OTDs who worked part-time and practised in a rural area (RRMA 3–5) generated fewer hospital consultations than ATDs with the same characteristics.

A wide variation in the practice patterns relating to visits to other institutions and nursing homes for OTDs compared with ATDs was found across all the GP characteristics. OTDs who are either female, more experienced, older, working part-time and practising in a remote location generated more other institution/nursing home consultations per patient than ATDs with the same characteristics. Conversely, OTDs who were male, less experienced, younger, working full-time and with a practice located in RRMA 3–5 generated fewer other institution/nursing home consultations per patient than ATDs with the same characteristics.

Across all therapeutic procedures (total Category 3) there were differences between OTDs and ATDs. More therapeutic procedures were undertaken by OTDs who were either experienced, older or practising in RRMA 6–7 than by ATDs with the same characteristics. Conversely, OTDs who were less experienced, younger (<55 years), working full-time and whose practice was located in RRMA 3–5 provided fewer therapeutic procedures than ATDs with similar characteristics.

Table 37: Summary of the results of the multiple logistic egress analysis – OTD/ATD characteristics and service and quality items

Category	Items analysed	Results	Examples of differences in practice patterns by GP demographics
Consultations in the surgery	Short consultations Standard consultations Long consultations Prolonged consultations	***Large differences*** between ATDs and OTDs across most demographics	Short consultations • OTDs who were either female, younger or in more remote locations provided ***more*** short consultations than ATDs with the same characteristics Standard consultations • OTDs who were either more experienced, older, working full-time or in less remote locations provided ***fewer*** standard consultations than ATDs with the same characteristics Long consultations • OTDs who were either male, younger, in less remote locations or working part-time provided ***more*** long consultations than ATDs with the same characteristics Prolonged consultations • OTDs who were either older, more experienced, in less remote locations and working part-time provided ***fewer*** prolonged consultations than ATDs with the same characteristics
Non-surgery consultations	Nursing home Hospital After hours/emergency	***Moderate differences*** between ATDs and OTDs across some demographics	Nursing home visits • OTDs who were either female, more experienced, older, working in more remote locations and working part-time provided ***more*** services than ATDs with the same characteristics • OTDs who were either male, less experienced, younger, in less remote locations or working full-time provided ***fewer*** services than ATDs with the same characteristics Hospital consultations • OTDs who were either more experienced, older, in more remote location or working part-time provided ***more*** services than ATDs with the same characteristics

Category	Items analysed	Results	Examples of differences in practice patterns by GP demographics
			• OTDs who were either in a less rural location or working part-time provide ***fewer*** services than ATDs with the same characteristics
Procedural	Antenatal care Labour and delivery All types of surgical operations Therapeutic procedures	***Moderate differences*** between ATDs and OTDs across some demographics	Antenatal care • OTDs who were either younger, working in less remote locations and working full-time provide ***fewer*** services than ATDs with the same characteristics Labour and Delivery • ***No differences*** between ATDs and OTDs
Diagnostic services	Diagnostic procedures – investigations and imaging ECGs	***Few differences*** between ATDS and OTDs across demographics	Diagnostics procedures and investigations • OTDs in less rural locations provide ***fewer*** services than ATDs with the same characteristics • OTDs in more remote locations provide ***more*** services than ATDs with the same characteristics ECGs • OTDs in remote locations provide ***more*** services than ATDs with the same characteristics
Pathology services	Pathology services	***Few differences*** between ATDS and OTDs across demographics	Total Category 6 – pathology services • OTDs who were either older, in remote location or working full-time order ***more*** services than ATDs with the same characteristics
Imaging services	Diagnostic imaging services	***Very few or no differences*** between ATDS and OTDs across demographics	Total Category 5 – diagnostic imaging services • ***No differences*** between OTDs and ATDs
Quality items	Multidisciplinary care plans Case conferences Health Assessments	***Very few or no differences*** between ATDS and OTDs across demographics	Multidisciplinary care plans • OTDs who were either female, more experienced and older provided ***fewer*** services than ATDs with the same characteristics • OTDs who were either younger or less experienced provide ***more*** services

Category	Items analysed	Results	Examples of differences in practice patterns by GP demographics
	PIP incentives		than ATDs with the same characteristics
	Spirometry		Case conferences Health assessments PIP incentives Spirometry • ***No differences*** between OTDs and ATDs

For several GP characteristics, OTDs provided a pattern of service different from ATDs for antenatal care. Younger OTDs (aged <55 years), OTDs practising in RRMA 3–5 and working full-time, provided less antenatal care than ATDs with the same characteristics.

There is a greater variation in the provision of surgical operations between OTDs and ATDs and within the demographic characteristics. Less experienced OTDs perform fewer surgical operations per patient than ATDs in the same group, while more experienced OTDs perform more surgical operations than more experienced ATDs. This pattern is repeated within the age groups. The older OTDs (>=55 years) perform more surgical operations than ATDs of the same age, and younger (35–45 years) OTDs perform fewer surgical operations than ATDs of the same age.

The provision of surgical operation is also related to practice location. OTDs in remote areas (RRMA 6–7) provide more surgical operations than ATDs in the same locations and, conversely, OTDs in RRMA 3–5 perform fewer surgical operations than ATDs in the same locations.

Significant differences are noted in the provision of pathology services between ATDs and OTDs related to age, practice location and workload. OTDs provided more pathology services per patient if they were older (aged >= 35 years), practised in a remote location (RRMA 6–7) and worked part-time compared with ATDs with the same demographics.

The number of ECGs undertaken by OTDs and ATDs did not differ, except for OTDs practising in remote locations. OTDs in RRMA 6–7 practices undertook more ECGs per patient than ATDs in similar location.

Rural location accounted for the only significant difference in practice patterns relating to diagnostic procedures and comparisons between OTDs and ATDs. OTDs practising in rural areas provided fewer diagnostic procedures and investigations than ATDs in similar locations (RRMA 3–5). However, OTDs practising in remote locations (RRMA 6–7) provided more diagnostic procedures and investigations than ATDs in the same location.

In terms of the provision of diagnostic and imaging services, no differences were found between OTDs and ATDs.

4.3. QUALITY ITEM RESULTS

There have been limitations in utilising the selected quality items in the statistical model. This results from insufficient data for producing adjusted rates for the OTD groups, because of the small sample size or insufficient data in both groups for particular characteristics, and the unavailability of the data for the OTD group due to privacy issues.

For quality items, where sufficient data were available for the model, there were no differences in the rate of items per patient between ATDs and OTDs by any GP characteristics (Table 37). The only exception is for multidisciplinary care plans. Younger and less experienced OTDs provided more multidisciplinary care plans than their Australian counterparts, while female, more experienced and older OTDs provided fewer multidisciplinary care plans than ATDs.

4.4. SUMMARY

The results of the quantitative analysis found a number of differences, many of them significant, between the OTDs and the ATDs. Those included differences in their characteristics, their raw rates of services per consultation and per patient, and the analysis of the rates of service items. These service items were grouped into six categories ranging from surgery-based services through to pathology services.

What this analysis found were: a large number of differences between ATDs and OTDs across most GP characteristics for items associated with consultations in the surgery; moderate differences for non-surgery consultations; few differences for procedural, therapeutic and diagnostic services; and very few differences in the service provision of quality items.

CHAPTER 5: QUALITATIVE RESULTS

The qualitative results arising from the focus groups are presented in this chapter, which commences with a summary of participant details before a discussion of the key themes arising from the analysis.

5.1. FOCUS GROUP PARTICIPANTS

A total of 10 OTDs participated in the two focus groups held on 14 October 2006 and 2 December 2006. The group sizes ranged from four to six participating OTDs. A summary of the characteristics of the focus group participants is provided in Table 38.

Table 38: Focus group participant characteristics

Characteristics		Focus group 1 Frequency (%)	Focus group 2 Frequency (%)	Total
No. of participants		6	4	10
Sex	Male	5 (83.3)	4 (100.0)	9 (90.0)
	Female	1 (16.7)	0	1 (10.0)
Age group	<= 35 years	1 (16.7)	2 (50.0)	3 (30.0)
	35–54 years	5 (83.3)	2 (50.0)	7 (70.0)
	> 54 years	0	0	0
Practice location	RRMA 3–5	5 (83.3)	3 (75.0)	8 (80.0)
	RRMA 6–7	1 (16.7)	1 (25.0)	2 (20.0)
Work status	Full-time	5 (83.3)	4 (100.0)	9 (0.0)
	Part-time	1 (16.7)	0	1 (10.0)
Experience (years since graduation)	5–9 years	1 (16.7)	1 (25.0)	2 (20.0)
	> 10 years	5 (83.3)	3 (75.0)	8 (80.0)
Length of time in Australia	< 6 months	1 (16.7)	1 (25.0)	2 (20.0)
	6 months – 2 years	3 (50.0)	2 (50.0)	5 (50.0)
	> 2 years	2 (33.3)	1 (25.0)	3 (30.0)

The demographic characteristics of the focus group participants are similar to the demographic characteristics of the OTDs from the quantitative analysis (see Table 27 to Table 31).

5.2. KEY THEMES

The focus groups discussed three key areas: comparison of Australian general practice with previous location; differences in patterns of service; and ideas for support programs. The aim of the focus groups was to gain information from the perspective of the OTDs on their practice in Australia to help identify reasons for variations in the patterns of service between OTDs and ATDs.

5.2.1. Comparison of practice between Australia and previous location

The participants were asked to compare their practice in Australia with their practice prior to arriving in Australia, specifically highlighting any differences or similarities. Their previous practice location was either their country of origin or another country.

A number of differences emerged from the discussion in the two focus groups. Some were common to both groups and others were unique to that focus group.

Both groups discussed the differences in health conditions seen in Australia compared with their previous practice location. The groups specifically highlighted mental health, chronic disease such as diabetes, hypertension and asthma and Aboriginal health.

> *The other thing I would say, because it was a little bit of a problem, was mental health, mental health especially when it comes to the violence [in] Australia.* (Focus group 1, para. 10)

They described these conditions as being less prevalent in their previous location as shown by this quote:

> *One difference is the kind of illness and conditions in our country ... very different here [Australia] to what is in our country – completely different from what is here – there are more chronic diabetes, chronic illness, hypertension. In our country we don't see asthma and so on. So the kind of illness that we see here, although we are trained in similar medical schools, what we are familiar in one country is different from here.* (Focus group 2, para. 59)

The second focus group also highlighted other types of conditions seen in Australia but less than elsewhere. This was alcoholism and drug abuse and is likely to reflect the communities from which the OTDs were based. The OTDs in the second focus group came from regional

centres or communities with a low socioeconomic status and a high number of benefit recipients.

When discussing these differences in disease patterns, the OTDs talked about them in terms of the culture of the community. In India and Africa conditions such as mental health were not identified as there were other health conditions that take precedence, such as malaria. This reflects environmental differences as well as differences between developed and developing countries.

Both focus groups also discussed the differences in patients, in terms of their attitudes, their responsibility for their own health care and their awareness of illness.

Some of the OTDs in the first focus group felt that in Australia patients were seen to have a greater awareness of their condition and expect more from their GP.

> *The second thing which I find a bit difficult is people here are well aware of their illness. They are very up-to-date with the latest technology, bringing all of the information, so you have to be really up-to-date and know your stuff very well.* (Focus group 1, para. 13)

> *Actually the culture and things are different. There's a vast difference between India and Australia and the expectations are different.* (Focus group 1, para. 63)

However, by contrast, OTDs in the second focus group felt that patients took no responsibility for their health care and expected the doctors to assist them whenever they needed this. As with the health conditions seen, these contrasting responses are likely to reflect the community in which these OTDs practised.

> *Okay, the most important thing is the responsibility. Patients don't take any responsibility in this country [Australia] for their own health.* (Focus group 2, para. 8)

> *The thing is not only that they [patients] are not taking responsibility, the society, the legal authorities, make it such a way that … they have to be spoon-fed. We have to spoon-feed them on their health issues and every basic health regarding anything … But on other issues they're quite capable of handling themselves, when your car breaks*

> *down they know how to repair it, but they leave medicines behind, they will come – you give them a six month repeat, two months later they will say, 'I've lost the script' even with restricted drugs.*
>
> (Focus group 2, para. 19)

Patient attitudes to the doctor were also discussed by the participants – both positively and negatively. Firstly, in a positive way: the OTDs described the support, friendliness and assistance provided by the community. They felt part of a community and appreciated by the community, which contrasted with their previous practice location.

> *The second thing is people are very supportive, here ... very friendly, they treat you very well and they enjoy talking to you and it's like a family. There are supportive people in the community when you go out with the family ... different from our country, nobody would bother with you, they go to the doctor [and] want to know what is the problem and what you can do and not care after that, but in this country people are very social ... still is a good relationship.*
>
> (Focus group 2, para. 94)

Secondly, the OTDs described patient attitudes in a more negative way, although they acknowledged that it was a not a big issue. They discussed this in terms of lack of respect for the doctor, such as yelling abuse, calling them out after hours and so on. This was contrasted with their previous locations such as India where doctors were treated 'as gods' (Focus group 2, para. 67).

But on the whole, the positive community attitudes outweighed the negative attitudes.

> *Like the other doctor says about abusive patients, there are a lot of patients in my community at least who really appreciate the fact that I'm here, the respect, their – how would I put it – their liking for me, which balances the other negative effects and which helps being able to continue.* (Focus group 2, para. 84)

A number of differences identified by the OTDs as different from their previous location related to the health care system. This included the administrative components of the systems such as access to services, for example, specialists, and the isolation of rural and remote practice which resulted in a greater responsibility being placed on the GP.

The OTDs described differences in terms of the hierarchy in the provision of health care services.

> *So basically there you have three levels primary, secondary and tertiary here [Australia] we practise only the primary and go straight to tertiary level. No intervening level.* (Focus group 1, para. 149)

This reflects the nature of rural health care: the lack of access to regional centres for many rural communities, which requires them to refer patients to metropolitan areas, bypassing a secondary level. This also included a difference in the service provided, in that GPs in Australia were expected to undertake more tasks than did OTDs in their previous location. In their previous locations, the OTDs had other staff to undertake more basic tasks, while in Australia they were required to do this.

The OTDs talked about the isolation of their practice in Australia and this was linked to the different skills set required, such as emergency medicine. These skills were not necessarily within their scope of practice before coming to Australia.

> *Working in general practice is something else but working on a roster call and especially handling some acute cases in an emergency where it's a matter of life and death and especially when you don't have a very good specialist support at the back. That's a major issue. That's always been a problem. You are more concerned – you are always scared in emergency especially – of an acute emergency happening in a town and especially when you don't have a good specialist support. That's what I think faces me right now.* (Focus group 1, para. 15)

This was tied with a lack of support services such specialists. In their previous location, OTDs were part of a system where access to specialists was readily available and patients were referred when needed. The situation in Australia, with limited access to rural-based specialists, placed greater responsibility on the OTDs.

> *In our country a patient comes with chest pain, there is a doctor for that … we send him to the nearest hospital and specialist. But not here, the responsibility is more. I think when you come here it takes some time for us to adjust because you didn't have so much responsibility in our country.* (Focus group 2, para. 59)

There were no specialists available so we had to do everything. Put in an IV line … You are alone there so you do everything.

(Focus group 1, para. 19)

Other differences mentioned in the focus groups included technology available in Australia compared with their previous location. They discussed this in terms of practice-based technology, such as computer software, internet access, but also at a broader level, in terms of access to services such as consultants.

For me the first thing would be getting used to the technology in the practice dealing with Medical Director, I found very difficult.

(Focus group 1, para. 8)

5.2.2. Differences in patterns of service

A number of themes were identified from discussions in both focus groups relating to the patterns of service. In discussing the differences and similarities found in the Medicare data between OTDs and ATDs, the following explanations were offered by the OTDs, which can be grouped into five broad areas: the Medicare system; language and cultural differences; training; services available; and community attitudes to OTDs.

Participants from both focus groups felt that the data indicating differences in patterns of service between OTDs and ATDs were related to the Medicare system itself. This related to learning the administrative side of the systems, such as what items to use (MBS and PBS), how billing worked and the relationship with other organisations such as Centrelink.

But the only thing is suppose … I want to prescribe this drug knowing whether it is pharmaceutical benefit, or it's an authority script, or can I use it or not, and that takes some adjustment time.

(Focus group 2, para. 60)

They emphasised that the Medicare system was a time-based system, rewarding doctors who minimised the time spent with patients. Many of the OTDs had come from a system based on a different concept – where the doctor spent as much time with the patient as necessary to deal with their problems.

Time is not too much of a factor for some OTDs especially those that are not from Europe – that is not primarily an issue, so from a

> *patient's point of view, or from the doctor's point of view he wants to get the consult through and get it resolved much more I would say … the Australian doctor probably is much more time conscious.*
>
> (Focus group 1, para. 50)

> *See most of the people working from these states [India and Africa], not from Europe … they are not based on any time based consultation, we cope with patients. The patient has come for some problem we cope with the problem, not by time, so time is really secondary there. But here it's not like that. It is time…*
>
> (Focus group 1, para. 52)

They described ATDs as knowing the Medicare system better and having a different approach to patient care, such that they took less time than the OTDs.

> *The Australian doctors, they take a more structural approach and they just do medicine like mathematics. So when a patient comes … they just dispose [of] it … I definitely take some time and definitely there will be some difference and you see differently the differences between him [pointing to other IMG [international medical graduates] who has been in Australia longer] and me. It is time.*
>
> (Focus group 1, para. 54)

> *I think this is very reflective of the system. ATDs know the system. Because I don't know about short or long consultation, my receptionists do this. So if the patient comes out after five minutes for a script it is obviously a short consultation.* (Focus group 2, para. 111)

The length of the consultation was also related to their relative newness to the community in which they were working. As new doctors, they spent time with patients, writing a comprehensive history, getting to know the patient and gaining their confidence. This would require a longer consultation than an ATD who has known the same patient over many years and is aware of the health issue with the patient.

> *Regarding consultation in my short time here what I see is I might take longer to consult than the Australian doctors because they know, they have been there for a longer and they know the patient's history quite*

> *well. For me a proper history takes time, and they know the patients for a long time and consult much shorter. That's one reason I find, controlling the consultation time.* (Focus group 1, para. 40)

> *It you take IMGs, it initially takes longer to gain the patients' confidence when compared with [sic] Australian doctor and IMG … You have to give the patient confidence then this takes time.* (Focus group 1, para. 53)

The issue of language barriers was also raised by the OTDs when discussing long consultations. Their unfamiliarity with Australian idioms and the patient's difficulties understanding their accent meant they often took a longer time with a patient than would an ATD. This was to ensure that they could understand what the patient was telling them, but also to ensure that the patient understood them as well.

> *The other side of it is – cultural difference and language difference also play a big part in that. Many overseas doctors probably empathise or probably spend a bit more time with issues than Australian trained doctors because more time factor conscious. So that might be one of the reasons.* (Focus group 1, para. 50)

More specific differences between ATDs and OTDs were raised by the focus groups. Some OTDs felt that they undertook fewer phone consultations than ATDs, preferring to see a patient before making management decisions. This was linked in part to their familiarity with the patient and their health problem. Without extensive knowledge of the patient's history, they preferred to see the patient, rather than deal with the consultation over the phone. Location of practice was also discussed in terms of explaining variations in patterns of service. Most of the OTDs were recruited to more isolated locations, which meant they had limited access to resources, such as specialists or investigations such as MRI, and therefore their treatment processes changed.

> *What I feel, I have practised in India, practised in the Middle East, here practising in remote Australia is more risky and your hands are tied. Your resources are very limited. It is a very advanced country but your services are very very limited … If you want to see someone there is a queue. In India if want to have a specialist opinion,*

tomorrow I'll get it. If I want an MRI, I can get it done.

(Focus group 1, para. 59)

Several of the OTDs discussed the stress related to working in rural practice in Australia, which was further exacerbated by the attitude to OTDs by certain groups in Australia such as the press. This in turn changed their practice patterns. Fear of litigation was expressed in both focus group discussions. OTDs discussed taking longer time in consultations and additional tests to ensure that their diagnosis was correct. This was a result of the bad publicity relating to OTDs, which made them feel they were under additional scrutiny from the medical community.

... basically you're concerned about the litigation issues all the time so that means that again it comes under the criteria of patients' attitudes. You are always thinking you haven't left something.

(Focus group 1, para. 94)

They felt that being labelled an OTD amplified any mistakes they made.

He doesn't want to take chances. If a small mistake is done by Australian doctor and the same mistake is done by an IMG, the way it has been looked is totally different. This is fact. Okay. It may be a small thing an IMG is doing something that is magnified, exaggerated so you can't expect them to afford to take chances. And in what I have seen of these things [here] you see now the senior Australian doctors and the way they practise ... they have a problem. They are totally different. (Focus group 1, para. 54)

In discussing the differences in patterns of service, the OTDs did not feel that training was important. They felt that training was universal and what the differences showed was adaptation to a new health care structure and environment. These differences were seen by the OTDs as resolving themselves over time as they adapted to the new system, such that eventually they practise more like an ATD, as summarised by one of the OTDs:

In terms of that, over time, most overseas trained doctors begin to practise like Australian trained doctors, not in terms of the pure medicine or the subject medicine itself which is the same overall, but the culture of practice. If someone walks in and starts talking about

fishing and things like that, you will be able to say 'Have you been fishing lately?' or something like that – the cultural aspect and the services available to you and [you] begin to get used to that. That's what measures are put in place to train you or to probably orientate you for what is the practice, just like in an Australian doctor. It does happen, many people wait three, four or five years.

(Focus group 1, para. 70)

5.2.3. Support programs

In the final part of the focus groups, participants were asked to suggest how programs that support OTDs could be improved to address some of the differences identified earlier in the focus groups.

The orientation programs were discussed in both focus groups. While the orientation provided by the RWAs was discussed positively, the participants felt that a longer orientation period was required to ensure that they fully grasped all aspects of the health care system.

They should have like – I think some of the most important things is [sic] the orientation. That's very important – whenever he comes he should be introduced to all the systems.

Focus group 2, para. 186)

Linking a new OTD with a more established OTD was suggested as a way to assist new OTDs to integrate into Australian general practice. They felt talking to another OTD was particularly important as they had been through the process themselves and could gauge what was more important.

I think another thing is – the question, it depends – if an overseas trained doctor comes or if an overseas doctor rings me to say 'I'm coming to Australia, what should I do?' then [the person should] look for a practice where there is a fellow overseas trained doctor because they support you. If that person and their practice has [sic] a family that person is not alone, it is good to link up with that person … For instance where I am practising, I'm the only African doctor there now. I went there because he [pointing to doctor next to him] was there and when I got there he decided to leave. Let say if there are two or three

> *of a kind. To start with, overseas trained, but better still of your kind in the same practice. Both the practice part of work, the work part of it and the social part becomes a bit easier and organising programs and functions.* (Focus group 1, para. 134)

The other area of support related to the family of OTDs. OTDs felt that their families were more isolated than they were and that this highlighted the importance of organisations such as the Rural Medical Family Network.

5.3. SUMMARY

In describing the differences in practising in Australia compared with their previous location, OTDs discussed issues that related to their integration into another culture, particularly from a work perspective. These tended to relate to their adjusting to patient attitudes, new environments and new health conditions, and how these influenced their provision of services. What also became clear was that many of the differences they described between their current practice and their previous practice reflected the differences found between urban and rural practice. They described the responsibility they felt of being the only doctor, the skills required, and the access to support services. These are all elements described as part of rural practice in Australia and which have been integrated into medical and vocational training programs. Therefore some responses of the OTDs reflect their lack of knowledge and experience of rural practice in the Australian context.

CHAPTER SIX: DISCUSSION

The aim of this study was to determine if OTDs working in rural and remote Australia practised differently from ATDs working in similar locations. The quantitative analysis undertaken using Medicare Australia data found a number of differences in the provision of services between ATDs and OTDs. The results showed that a larger number of differences in patterns of service were found for surgery-based services, moderate differences in non-surgery consultations and procedural services, few differences therapeutic, diagnostic and pathology services and very few differences in quality services and imaging services.

The results of the focus group illuminated a number of explanations for why these differences could occur. Areas that were identified by the OTDs as accounting for the differences in patterns of service included: language and cultural differences; training; community attitudes to OTDs; health conditions found in Australia; understanding of the Australian health care system; and access to services.

The aim of this chapter is to discuss the results from the quantitative and qualitative analyses and explain why these differences in the patterns of service were found between OTDs and ATDs. In this discussion I will cover four main areas. Firstly, I will present a model that has been developed from the results of the analyses; this model attempts to explain the relationship between various factors and their influence on patterns of service. In doing so it will help to explain the similarities and differences found between the patterns of services of OTDs and ATDs, although it may have wider application than this.

Secondly, using the model as a framework, I will then discuss the different categories of service, illustrating the types of influences that impact on the provision of that group of services by OTDs. As many of the influences identified are applicable to other types of service items, I will only briefly discuss them to reduce repetition, unless specific items have a unique aspect that warrants a deeper discussion. This approach will also demonstrate how the model was developed.

Thirdly, I will then take a broader approach, concentrating on the external influences on patterns of service. These will be discussed in terms of the overall influence on service patterns, rather than the specific impact on specific service items, as undertaken in the previous part. This represents the third level of the model.

Finally, I will discuss the implications of this model for initiatives utilising OTDs as a medical workforce solution.

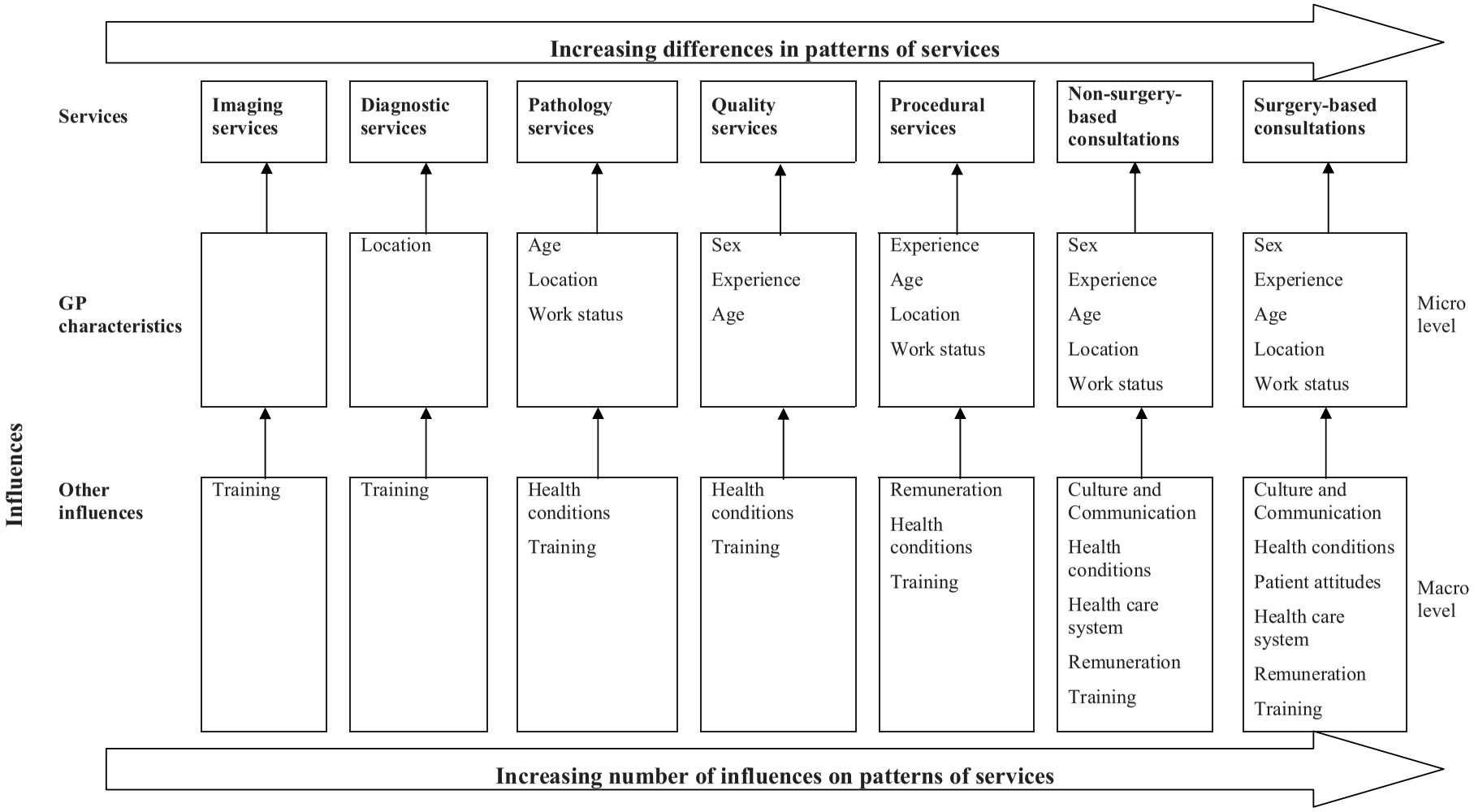
6.1. A MODEL TO EXPLAIN DIFFERENCES IN PATTERNS OF SERVICE

The results of the quantitative analysis indicated a number of differences in the patterns of service provided by OTDs compared with the patterns of service provided by ATDs. In attempting to explain the differences, it became clear that a number of factors are exerting an influence on the patterns of service of OTDs and ATDs at both a micro and macro level. The quantitative analysis indicated that some of the differences in the provision of services between the two groups could be explained by GP characteristics such as sex, age and experience. These I have termed 'micro level' influences on patterns of services and these form the first level of influence in the model as shown in Figure 7**Error! Reference source not found.**. The influence of GP characteristics on the pattern of service has been well documented.[42, 43, 165, 166, 184-206] Numerous studies have indicated that a GP's age, sex, location of practice, training, location of training, experience and qualifications, either individually or in combination, can influence various aspects of the consultation, including prescribing, preventive services, patient satisfaction, and outcomes of the patient care. A summary table of the literature is provided in Appendix 9.

However, these micro-level influences could not explain all the differences found, and it was through the analysis of the qualitative data that a number of additional influences emerged that also had some influence on patterns of service. These influences I have termed 'macro level' influences and form the second level of influence on provision of services (see Figure 7). This group of influences is more specifically related to the OTDs and refers to the influence of culture and communication, health conditions, health systems, remuneration, training and patient attitudes. These influences are less commonly reported in the literature.

The relationship between the micro and macro levels of service is complex and interrelated. The number of micro- and macro-level factors that influences the provision of a particular service differs between types of services and reflects the types of skill required to provide a particular service. Surgery-based consultations are affected by the largest number of influences at the micro and macro levels. Differences in practice patterns between OTDs and ATDs are less among imaging, diagnostics, pathology and quality services items across most of the GP characteristics.

Figure 7: Conceptual model of patterns of service differneces between OTDs and ATDs



However, differences become increasingly more substantial across more GP characteristics for items involving other types of consultations and consultations in the surgery. OTDs recruited to work in Australia under the 5 Year OTD Scheme are likely to have extensive procedural, therapeutic and diagnostic skills that are similar to ATDs and which are less influenced by cultural background or medical training. Where the variation between ATDs and OTDs is most obvious is in the consulting room and it is likely to be influenced by medical training, cultural background and interpersonal skills, such as communication. Therefore, as the skill for a type of service changes from one that is technically based to those requiring more interpersonal skills, the influence of the macro- and micro-level factors increase.

6.1.1. GP characteristics

As outlined earlier, GP characteristics have an influence on patterns of service. The analysis of the characteristics of the GPs in the study indicated differences between ATDs and OTDs, suggesting that GP characteristics could account for some of differences in patterns of service.

The OTDs in this study differed from ATDs on all demographics examined except for work status. OTDs tended to be male, aged 35–54 years, and more experienced than ATDs. This profile is similar to that found in other OTD studies conducted in Australia[134, 146, 207], suggesting that it is fairly representative of OTDs in general (see Table 17). The OTD profile is influenced by regulatory issues such as immigration requirements, eligibility requirements of programs, such as the 5 Year OTD Scheme, and the characteristics of migrants. The 5 Year OTD Scheme targets OTDs with at least five to seven years of general practice experience, so they are eligible for sitting the FRACGP exam if required. Therefore, it is not surprising that the majority of OTDs in this program have ten years or more experience. Their experience is also linked to their age. Similarly, it is not surprising that the OTDs are younger than their ATD counterparts, as permanent residency/visa status requires applicants to be less than 45 years of age.[143, 144] The greater percentage of male OTDs compared with male ATDs may reflect more general issues related to immigration – migrants tend to be male, as in Australia where 70% of primary temporary visa recipients are male and this is even higher for recipients from countries such as India, a source for OTDs.[208, 209] Also under the skilled migration scheme, it is usually one family member who applies on behalf of the whole family. The 2003 survey of OTDs in the 5 Year OTD Scheme found these doctors to be ‘mature aged, well qualified for rural general practice, married to a professionally qualified

spouse, with dependent children and seeking to make a professional career in Australia'[146] (p.2).

Location of practice is also linked to the 5 Year OTD Scheme requirements. A larger number of OTDs practise in remote locations (RRMA 6 and 7) than do ATDs. This is not surprising, given that the goal of the 5 Year OTD Scheme is to staff areas where there is difficulty in attracting Australian graduates. These locations tend to be based in more remote locations, often in solo or small group practices; Australian graduates are on the whole attracted to larger rural communities, closer to regional or metropolitan centres. Location of practice also influences service provision. The range of skills required may differ from location to location. Hutten-Czpaski et al.'s comparison of rural and urban GP patterns of service in Canada found that, as geographic isolation increases, GPs provide an increasingly broad spectrum of services.[210] Therefore, practice location may account for some of the differences between OTDs and ATDs. In turn, location of practice also influences access to services. GPs in solo practices, regardless of their skills, cannot offer the same level of services or number of procedures as GPs in larger communities and in group practices. A lack of visiting specialists, the additional staff required for procedural work and the downgrading of rural hospitals in small towns can therefore influence the provision of certain services such as obstetrics or surgery.

The only demographic characteristic that found no significant differences between the two groups was work status and again this is influenced by the program requirements. OTDs in the 5 Year OTD Scheme are required to work full-time.

It would be simple to claim that the differences found in the patterns of service were a result of the different characteristics between the groups, but it not such a simple equation. The analysis also found similarities, suggesting that patterns of service are influenced in part by an interaction between the type of service being provided and individual GP characteristics. The following section will discuss this aspect more deeply by looking at groups of service items.

6.1.2. Surgery-based consultations

Analysis of Medicare data for GPs across Australia shows that the most common services provided by GPs were standard consultations (78%) or long consultations (10%)[72] in the year 2001–02, which covers some of the study period. A similar pattern is found in the study groups. Standard consultations form 80% of services in Category A for both OTDs and ATDs and long consultations form 10.3% of services in Category A for ATDs and 11.2% of

services for OTDs. This indicates similar consultation patterns between ATDs and OTDs and matches that of all GPs in Australia.

The interpretation of the results based on an analysis of surgery-based consultations is essentially contingent upon identifying the length of the consultations, which range from short through to prolonged consultations. The multiple regression analysis found a large number of significant differences between OTD and ATDs characteristics and length of consultations as defined by the surgery-based consultations.

This study found that OTDs had a significantly higher rate of long consultation per patient across most demographics than ATDs. The higher rate of long consultations by OTDs also helps explain the higher rate of Medicare benefits claimed by OTDs compared with ATDs.

The influence of certain demographics on length of consultations is well known. In Australia Britt et al. have undertaken a number of studies describing the length of GP consultations and factors that influence it, using the BEACH data.[188, 189] In their 2002 study on describing length of consultation in Australia, Britt et al.[188] found that there were no significant differences in mean consultation length between GPs in rural areas, GPs in different age groups and practice sizes. However, a significant relationship was found between consultation length and sex – female GPs had longer consultations than male GPs; between GP age and sex and consultation length – young females (45 years) had longer consultations than their male counterparts; and between practice location and GP sex – in metropolitan areas, consultations with female GPs were longer than with male GPs.[188] In a more recent study on this same topic, Britt et al.[189] found that the GP predictors of longer consultations were being older than 64 years, being female, being an Australian graduate and being FRACGP-qualified. This confirms overseas studies that identified an association between sex and consultation length, with females GPs having longer consultations than male GPs.[211, 212] Blumenthal et al.'s US study found that age (70 years or more) was the only physician characteristic that increased the duration of a visit.[194]

What is interesting with this study is that the demographics influencing length of consultation are broader and contradict some of those identified above. Consultations were longer for OTDs who were male, who were less or more experienced, who were younger or middle-aged, who were working in remote practice and who were working part-time. This suggests that the OTD influence is greater than the sum of the parts (that is, demographic characteristics).

There are a number of reasons why OTDs had a higher rate of long consultations. Firstly, these OTDs are relatively new to the community in which they practise. OTDs from the focus groups explained that when they first arrived they needed to spend time with patients, to get to know them and their conditions to ensure they could provide good care. This often entailed a longer consultation, at which time a comprehensive history could be completed. This was unlike ATDs who knew the patients and their conditions well.

Secondly, many of the OTDs were experiencing time-based consultations for the first time, a system completely different from that found in the countries in which they had trained or previously worked. As I showed in Section 2.7.3, most OTDs in the 5 Year OTD Scheme were trained in either South Africa, other African countries, the United Kingdom, India or Pakistan. All these countries do not use a time-based health care system. Therefore, these OTDs were accustomed to taking the time required to deal effectively with a patient's problem, rather than base it on time alone. The results found in this study may be partly influenced by this. The influence of the health care system on style of practice and consultation length is reported elsewhere. Deveugele et al.'s[213] study on consultation length in general practice in six European countries found that the differences in length of consultation across the six countries could be explained by different health care structures. It was suggested that GPs working in high-demand countries such as Spain and Germany had developed a culture of short consultation times in order to cope with the patient load. Free market systems, such as Belgium and Switzerland, may promote longer consultations so that GPs satisfy patients and encourage their return. The influence of health structures on consultations is further validated by research on the consultation length of GPs working in community health centres. Montalto et al.[186] found that community health centre GPs in Victoria had significantly longer consultations compared with GPs in private practice, but in many other aspects of practice activity did not differ greatly from private GPs.

Practice location may also explain the differences in consultation length between ATDs and OTDs. Britt et al.[189] found that size of practice and location was a predictor of longer consultations. Small and large rural practices were more likely to have longer consultations. Unfortunately, data relating to size of practice were not available from Medicare Australia. However, it could be inferred that practices located in RRMA 6–7 are likely to be small practices and, as a larger proportion of OTDs were found these in locations, it is likely that size of practice may have also influenced OTD consultation lengths.

Consultations within the surgery require one-on-one interaction between the GP and patient. Cultural and communication factors may account for the variation in patterns of surgery-based consultations between OTDs and ATDs. OTDs in rural America reported spending more time with patients, particularly if English was not their first language, requiring them to be more attentive listeners and spend more time with patients.[214] The influence of these factors will be discussed in greater detail later in this chapter.

To some degree OTDs have a similar pattern of service to newly graduated RACGP GPs, that is, more long and short consultations, higher patient numbers, but seen less often.[166]

6.1.3. Non-surgery-based consultations

The non-surgery-based consultations are those consultations that occur outside the surgery and consist of emergency and after-hours services, hospital consultations (claimable through Medicare) and institution and nursing home consultations.

Across GP characteristics, only experience and age accounted for differences in the rate of emergency and after-hours services per patient between OTDs and ATDs. Younger OTDs and less experienced OTDs provided more after-hours and emergency services than their ATD counterparts. These factors are likely to be interrelated (younger and therefore less experienced).

The provision of after-hours and emergency services form an important component of rural general practice.[37, 41, 215] These services are normally provided through a rostering system within a practice or community, usually in an equitable way. Thus participation and use of these services is not influenced by GP characteristics or patient characteristics and so it is not surprising that very few significant differences were found between the rate of these services between OTDs and ATDs.

The small pattern variation that was found could be explained because these OTDs may have less knowledge and skill in negotiating rosters within the practice environment. OTDs may lack the knowledge of how the system works and therefore are not confident in negotiating reasonable terms when new to a country. This is further compounded by the fact that many OTDs join a rural practice as a salaried employee, where their residency status makes it difficult to obtain a loan or own property and therefore may have less say in the running of a practice. On the other hand, these doctors may also wish to undertake more after-hours work to gain experience or further income.

Higher rates of hospital consultations were found for OTDs who were either more experienced, older, working full-time or practising in a remote location, compared with ATDs with the same characteristics. It is not clear why these differences were found, but they may reflect the reliance on the hospital by OTDs who may have come from working in a hospital system rather than in a general practice setting.

Compared with the other non-surgery-based consultations, a greater number of differences between OTDs and ATDs across all demographics were found in the nursing home and other institution services consultations. Different OTDs provide different patterns of service and the reasons for these differences are multiple and complex.

Across all characteristics except for the age group 35–54 years significant differences were found in the provision of other institution and nursing home services between OTDs and ATDs. Practice location and size of communities may account for some of these differences. As described previously, a larger proportion of OTDs are working in remote locations, which are likely to be solo or small group practices. Therefore OTDs are likely to be providing all the health care services in these communities. In contrast, ATDs in remote locations are more likely to work in Aboriginal communities[72], where the provision of health services is very different and where nursing homes may not exist. It is not often that OTDs are recruited to these locations but this may go some way in explaining the patterns found.

Cultural issues as well as gender issues may also account for differences in provision of institution and nursing home services, both within the OTD group and between OTDs and ATDs. Female OTDs may be from a culture where women are seen as nurturers and therefore nursing home visits would be seen as their role rather than that of male OTDs. In a US study OTDs in a primary care physician residency program reported that nursing home visits were difficult as their culture for caring for the elderly was in conflict with the nursing home concept of care[216] and this may account in this study for a lower rate of these types of services by male OTDs. In addition, the sex of the GP has been shown to influence nursing home visits, with female GPs in Australia providing fewer nursing home visits than male GPs.[72]

Finally, the service provision may reflect the integration processes for OTDs. For example, colleagues may assist OTDs newly recruited to the practice or community in building a patient workload or to increase their income. One source of patients are nursing home and hostel patients, who will not undermine the GP's own caseload, as reported by an OTD in Victoria:

> *... but when I moved into general practice I had to pick up my own practice she [mentor] was supportive, she gave me some of her patients to look after in the nursing homes and hostels so I would get a little income.*[134] (p.37)

6.1.4. Procedural services

Procedural items included in the analysis were antenatal care, labour and delivery, surgical operations all types (T8) and total therapeutic procedures. As their distance from metropolitan areas increases, GPs in Australia tend to provide a larger percentage of procedural services, including obstetrics services and surgery.

In Australia in 2004, 85.4% of GPs in RRMA 6 and 81.4% of GPs in RRMA 7 provided obstetrics services[72], with 24% of all rural GPs providing obstetrics in 2002.[38] In this study, the OTD population performed fewer antenatal care services than ATDs, with lower rates of antenatal care services per patient by OTDs who are either younger, less remote and working full-time. On the other hand, there were no significant differences in the provision of labour and delivery services between ATDs and OTDs across all characteristics. These results illustrate the complex relationship between GPs and their patients, and how this can affect the provision of service by an OTD.

Care during the antenatal period is an important time for women, requiring regular visits with their GP over the period of their pregnancy. During this time, the relationship between the GP and the patient is particularly important.[217] A UK study found that women were more satisfied with their antenatal care if they were looked after by the same GP throughout pregnancy , had good communication with their GP and their GP knew the patient and their family.[217] The reason why OTDs may provide lower rates of this service could relate to this issue. These OTDs are relatively new to the communities in which they are practising and patients requiring antenatal care may wish to continue with the same GP throughout their pregnancy. ATDs may have established antenatal services and OTDs may not yet have time to build up their own patients in this area. Over time, OTDs may increase their rate of antenatal services. Also in larger rural communities (RRMA 3–5) patients may have a greater choice of GPs for this particular service and not select an OTD GP until a relationship has been established. This reluctance to use OTDs for antenatal service may also be related to their ethnicity. Baer's[214] study of the integration of OTDs in rural America found that, for some patients, the ethnicity of the OTD influenced whether they used another GP or a service in a neighbouring town. However, when it comes to labour and delivery, the choice of type of

GP may not be possible and that, at this stage of the pregnancy, the relationship between the GP and the patient is of less importance.

The pattern of surgical service provision by OTDs differs within the OTD group itself and may reflect the differences also found within the ATD group. Age (older), experience (more experience) and practice location (remote) accounted for higher rates of surgical operations for OTDs compared with ATDs. Conversely, younger or less experienced OTDs practising in less remote locations provided fewer surgical operations per patient than ATDs. This pattern to some extent reflects one found in the broader rural GP population. The number of GPs with procedural skills in Australia is decreasing[43, 218], with only 10% of rural GPs practising surgery regularly.[38] Younger doctors are less interested in procedural skills, particularly surgery and obstetrics[218] and so the average age of rural surgeons is 50.2 years, the oldest of all procedural groups.[219] With the decreasing number of ATDs with procedural skills, OTDs with these qualifications are targeted in recruitment campaigns. This accounts for the higher rate of procedural services among some of the OTD group. However, the results also indicate that, like the ATD population, the younger OTDs are less likely to practise surgery.

Practice location also accounts for some of the other differences in patterns of service between OTDs and ATDs. The need for surgical skills is also greater in remote locations, where alternative or visiting specialist services are not available. Different patterns may result from ATDs in the same locations as OTDs not providing procedural services. With the ageing of the rural surgical workforce, it is likely that many ATDs in remote locations may, with the arrival of an OTD proceduralist, cut back their workload, adding to the workload of the OTD. However, in less remote areas, where the number of proceduralist GPs is higher[219], the need for additional procedural services by an OTD may be less. This may also be reflected in the recruitment process, with this criterion having less importance; thus OTDs in larger rural centres may not have surgical skills.

Looking at all therapeutic procedures (total Category 3), a clear relationship appears between certain GP characteristics and rates of services for the OTDs. Experience, age and location account for a number of these differences, as seen with other individual therapeutic procedures discussed above. The link between more experience, older GPs and location of practice in a remote area is obvious. Many therapeutic procedures require skills and training that take time to acquire (link between age and experience), for example, surgery and obstetric and anaesthetic skills. Younger and less experienced OTDs may not have the skills or the confidence to undertake these procedures without additional training.

When comparing OTD service patterns with those of ATDs, it is likely that they will reflect changes occurring within the ATD group. Overall, procedural services are decreasing in smaller rural and remote centres, most of the procedures being provided by older GPs and with the number providing such services decreasing. OTDs are recruited to fill these gaps, particularly those in smaller rural or remote areas. The need for OTDs with these skills is less in larger rural centres where procedural services can be adequately provided by resident or visiting specialists. What is of concern is that younger and less experienced OTDs, like their Australian counterparts, may also be showing less interest in procedural skills and we may be replacing one ageing procedural population with another, resulting in similar problems down the track.

6.1.5. Quality services

The interpretation of the results from the patterns of service associated with the quality items should be viewed with caution as this analysis was hampered by the lack of data, particularly for the items for HbA1c, spirometry and basal cell carcinoma. However, for most of the enhanced primary care (EPC) items, sufficient data were available for analysis and so the analysis of quality of services items is confined to this area.

Within the EPC items, no differences between the two groups in the provision of health assessments, case conferencing and, where applicable, domiciliary care medical reviews, were found. This suggests that the provision of these services is not influenced by the type of GP. A possible explanation for this is that the EPC items were relatively new items for all GPs, commencing in 1999. Uptake of the various EPC items was also slow in the first two years.[72, 220] The roll-out of these new items was undertaken by local divisions with training in the use of the items. Unlike their orientation programs, which provide only an overview of the MBS items available for GPs, OTDs would have received detailed training on these items and therefore use them in a similar way to ATDs.

However, the provision of multidisciplinary care plans does seem to be influenced by GP characteristics. Less experienced or younger OTDs provided more services, while female, older and more experienced OTDs provided fewer of these services than ATDs with similar characteristics. This pattern may reflect the variable uptake of this item, rather than differences between ATDs and OTDs, although research indicates that younger GPs are more likely to be EPC-active.[221] An analysis of the update of all of the EPC items found that the widest variation in the range per GPs was with care plans – a small number of GPs undertake a large number of care plans.[72, 221] Evaluation of the EPC items found that, while health

assessments were acceptable to GPs, there was confusion associated with the care plan process. GPs found that the time constraints associated with fee-for-service arrangements made the use of this item difficult.[72]

The result of the Practice Incentive Programs analysis is not surprising, showing no significant differences between OTDs and ATDs. This item is not based on individual GPs but on the practice and reflects the quality of the practice as a whole. OTDs joining existing practices would be included in this payment regardless of their characteristics, training, communication skills or knowledge.

6.1.6. Pathology services

The results associated with the provision of pathology services by OTDs is unique, in that it appears that the role of GP characteristics on influencing patterns of service is less pronounced. OTDs, across the majority of GP characteristics ordered more pathology services than ATDs, indicating that, despite differing characteristics within the OTD group, when ordering pathology services they behaved in a homogeneous/similar way. This suggests that other influences beyond GP characteristics are affecting their ordering behaviour.

The focus group provided some suggestions for these macro-level influences – that they were exacerbated by practising in more remote locations and by the age and experience of the OTD. OTDs may order more pathology services because they are encountering new conditions and want the reassurance of test results to ensure they make the correct clinical decisions. Their fear of making a mistake and the subsequent consequences may make them order more pathology tests. This fear appears to be universal, with several overseas studies reporting similar feelings among OTDs.[190, 216]

6.1.7. Diagnostic services

Overall, location of practice accounted for the significant difference between ATD and OTD rates in the numbers of diagnostic procedures and investigations claimed, although other main influences were found to be experience and work status. OTDs in remote areas ordered more diagnostic services than ATDs in the same location, while OTDs in rural areas ordered fewer diagnostic services than ATDs.

This pattern found could reflect the provision of services in remote areas and access to support services such as specialists.

In remote areas, GPs are often required to undertake procedures that their counterparts in regional or metropolitan areas would refer to specialists. These procedures include items such as ECGs, endoscopy and physical function tests. Also, without ready access to other services, rural GPs need to rely more on their own clinical knowledge and skills. While these issues are likely to be the same for OTDs and ATDs, they would be further compounded for OTDs by their exposure to new or different patient conditions. This may lead OTDs to order more diagnostic services to confirm their diagnoses to ensure that nothing has been missed, and would be particularly important in solo practices, most often found in RRMA 6–7 (remote). Here ECGs offer an example. Firstly, practices in remote locations are found some distance from regional or metropolitan hospitals, requiring patients to be transported, often by air, in emergency situations such as heart attacks. Therefore, GPs would utilise diagnostic procedures such ECGs to determine the severity of an attack and to support their decision to transfer the patient or otherwise. While this would be similar for both OTDs and ATDs, OTDs may utilise this procedure more often because of their uncertainty about the management of heart conditions in remote areas, particularly if they are unfamiliar with this condition. In a new country they may also be more cautious than ATDs. It may also reflect their training and previous practice location where litigation may play an important role in the clinical decision-making process, as identified in the focus groups.

It could reflect the difference in socialisation of OTDs and ATDs – the lack of networks with other specialists and colleagues. Instead of referring patients for these services, they undertake the procedures themselves. GPs prefer to refer to specialists whom they know and trust and this knowledge and trust are gained through links when training and through specialist visits to rural locations.[222] Rural GPs who were not familiar with the region took a longer time to build professional networks.[222]

6.1.8. Imaging services

Of all the service items analysed in this study, only in diagnostics and imaging services were there no differences in the number of tests claimed between OTDs and ATDs across any of the GP characteristics. This suggests that the provision of these types of services is not influenced by individual GP characteristics and that it results from the type of services comprised by this group. Included in this category are services such as x-rays and ultrasounds, services not likely to affected by the sex of the GP, the age of the GP, the work status of the GP or even location. These services tend to be technique-based and are common skills required for practising medicine and are not culture- or training-specific. They are also

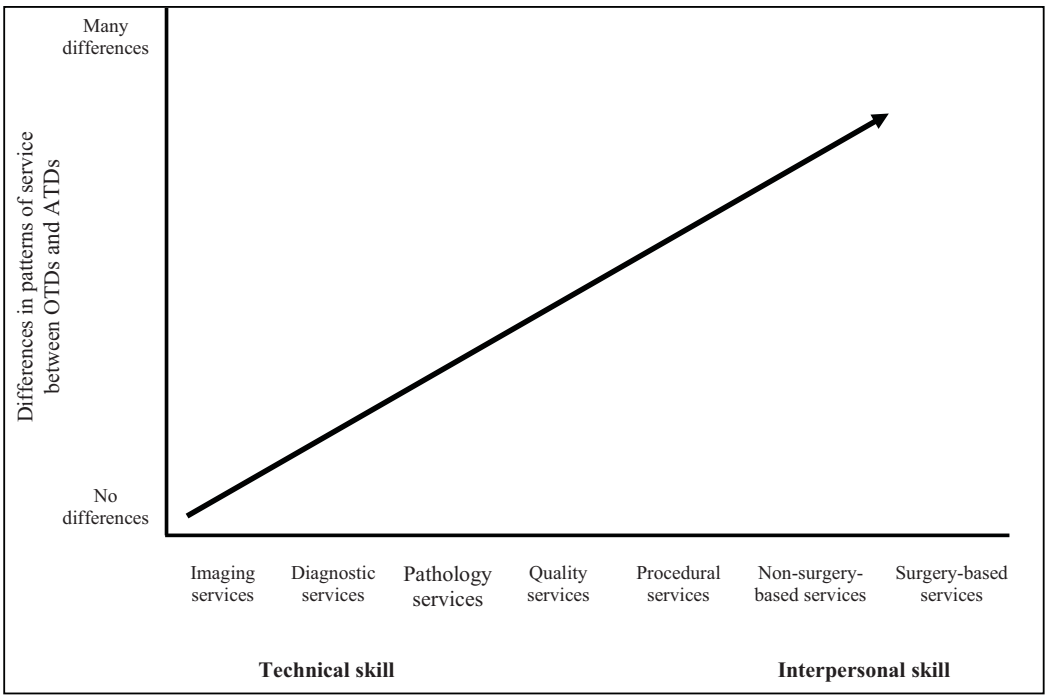
not reliant on communication skills. The apparent lack of influence of GP characteristics on imaging services is supported by the results of Britt et al.[43], who found no significant differences between rural and urban GPs in terms of imaging ordering.

6.1.9. Summary

The service items were grouped into six categories, ranging from surgery-based services through to pathology services. These categories also reflect the types of skills required for that service, ranging from services requiring mainly technical skills (such as imaging services) to services requiring interpersonal skills (surgery-based items). When reviewing the results of the statistical analysis by these categories, a pattern emerges suggesting that differences between OTDs and ATDs relate to the types of services and skills required to perform a particular service. This relationship between the service items and differences between OTDs' and ATDs' use of services is shown schematically in Figure 7.

As the services move from those requiring technically based skills to services requiring more personal skills, the differences between OTDs and ATDs across the service categories increases. This relationship and the influences that contribute to the differences will be discussed more fully in the following section.

Figure 8: Schematic representation of the relationship between types of services and types of practitioners (OTD vs ATD)



6.2. MACRO-LEVEL INFLUENCES ON SERVICES

The previous section focused on specific groups of service items and explained the influences on patterns of service, including GP characteristics. It also touched on some the macro-level influences such as communication, training and health conditions. While these do relate to particular types of services, some of them have a broader influence across all the services and GP characteristics. As a result of this, I will now discuss these macro-level influences in greater detail as they relate to OTDs, the final component of the model explaining differences in patterns of service.

6.2.1. Health care system

I use the term 'health care system' to relate to the doctor's knowledge of the health care system in which he or she operates. When a doctor commences work within a health system, it requires him or her to understand how all parts of the system operate, including the interaction between the different levels of care and between different types of health service providers, and includes knowledge of the funding structures, as well as the limitations of the system. Most doctors gain that knowledge through the medical training that occurs within that health system, acquiring it over a number of years. However, for OTDs, this is not possible. OTDs recruited through the 5 Year OTD Scheme are expected to commence work within the health care system as soon as they arrive, with minimal orientation – often less than a month.

For GPs in Australia, understanding the Medicare benefits schedule is essential, and how effectively and quickly they understand it will influence their patterns of service. Until that knowledge is gained they may use a broader range of services or rely on fewer services than experienced ATDs. However, it is not just the types of services that may differ. OTDs also need to understand how the MBS system for GPs operates. Most surgery-based consultations are designed to reflect the complexity of the visit, but it also linked to the time. A GP new to the system may be unsure of when to utilise a standard consultation versus a short consultation. For example, GPs from the UK have limited or no experience of fee-for-service general practice, where consultations are time- and complexity-based.

Many of the OTDs in this study may also be encountering a different style of practice and practice structure from their previous experiences. OTDs may come from a health care system where health care teams form an important part of health provision and are funded through the government. In Australia, it is only recently that blended payments have been

introduced in general practice; these allow better utilisation of health care teams and they only form a small number of MBS items.[72] An OTD may be accustomed to practising with support from preventative care nurses, but under the Australian system this role is often provided by the GP. OTDs in the focus group described these issues, but they have also been reported by other Australian reports, for example, by AMWAC:

> *Adapting to cultural differences in general practice – variation from countries to countries.*[146]

> *... there was no problem with my medical skill but there are many small differences in every medical system.*[146]

The AMWAC's survey of OTDs in the 5 Year OTD Scheme also found that OTDs reported a need for better information about Australia's health care system, including the referral system, MBS and PBS.[146]

The results found in this study are also supported by Hall et al.'s study which found that Canadian OTDs had difficulties adapting to their health care system.[223] The challenges posed to OTDs included: their understanding of broad-level concepts, such as the Canadian health care system being a more egalitarian rather than hierarchical system; a lack of understanding of the role of allied health professionals; and a lack of understanding of referral processes.[223]

However, the influence of the knowledge of the health care system on patterns of service is not restricted to OTDs. Britt et al.'s[166] Australian study on differences in practice patterns between new RACGP graduates and older GPs found that new graduates utilised a wider variety of items compared with established GPs and, when followed over time, these differences were reduced. It seems that to some degree OTDs new to Australia are practising more like new graduates, despite their greater age and level of experience. Both are learning to work in the Australian system as independent GPs. However, the results of the focus group indicate that the OTDs are acting more like GPs new to a practice, rather than recent graduates. As with new GP graduates, over time the differences between them and older GPs decreased as they increased their knowledge and understanding of the system. Therefore it could be presumed that this may also occur with OTDs.

Gaining an understanding of how the health care system operates will also be dependent on the relationship OTDs have with their colleagues and other health professionals. This may be more difficult for those OTDs practising as a solo GP in more isolated communities.

Some of the differences noted in service pattern may result from how OTDs utilise services. The focus group analysis suggested that OTDs utilise services differently from ATDs; for example, OTDs may prefer to see patients face to face rather than communicate via the telephone, particularly for after-hours consultations, resulting in different items being claimed. ATDs, on the other hand, may utilise telephone consultations more frequently. Similarly, OTDs' lack of knowledge of the breadth of MBS items may result in a higher rate of use of certain items.

The influence of the health care system systems on OTD patterns is well summarised in a quote from a key informant in Hawthorne et al.'s study of OTDs in Victoria:

> *Almost all of them [OTDs] are experiencing this for the first time, so they have to quickly orientate themselves to Medicare and the PBS. They have to quickly pick up on the Australian style of general practice i.e. that is a private setting, consulting in 10–15 minutes blocks depending on whether it is a bulk-billing or private billing practice. They have to contend with whatever the internal management structure is of the practice, and they also have to quickly pick up on the referral networks for any given location. They have to know where the specialists are, who does what, establish the contacts and start receiving some feedback from their patients.*[134]

6.2.2. Cultural and communication influences

Practice patterns, as suggested earlier, can also be influenced by cultural and communication issues.[224] In general practice effective doctor–patient communication is fundamental, poor communication leading to medical errors.[225] Cultural differences between the GP and patient can add further difficulties to communication.[225] OTDs may have difficulty with certain services and procedures, depending on their cultural background, for example, homosexuality, women's issues, men's impotency, aged care issues and use of palliative care services in nursing homes.[134, 216, 223]

A number of studies have reported the influence of cultural issues on an OTD provision of services.[216, 223, 224, 226] Fiscella et al.[216] reported that OTDs from India and Pakistan felt untrained to take sexual histories or perform physical examinations on female patients. In these countries, female patients rarely consult male doctors and this is reflected in the curricula of their medical schools.

Language and communication skills may also influence patterns of service, as good communication skills are needed to develop effective patient–doctor relationships.[223] In Australia, Rolfe and Pearson[227] identified deficient communication skills among OTDs, and many OTDs may have no formal training in communications skills[228] which are often not the primary focus of their countries' medical curriculum.[224] In Australia this has been recognised as an issue for both OTDs and ATDs in vocational training programs, with Australian General Practice Training funding programs attempting to improve the communication skills of both types of graduates.[229]

Communication skills are further exacerbated when OTDs originate from a country where English may not be their first language.[214] Tussing et al.'s[190] study suggested that the differences in caesarean rates between OTDs and non-OTDs may reflect the culture of the OTD, language issues, skill of the OTD and their vulnerability in the medical system. They suggested the failure to communicate with patients could affect the doctor–patient relationship which, in turn, could result in a greater readiness to perform a caesarean section. They concluded that their study added weight to the notion that poor communication skills of OTDs, where their native language was not English, affected caesarean section rates[190], although the study design limited the definitiveness of this conclusion.[230] OTDs in Fiscella et al.'s[216] study in the US found that OTDs often had difficulty with language and in expressing themselves with patients.

However, these issues may be transient as both the OTD and the patient become familiar with each other. Baer found that patients reported that the language difficulties dissipated as they adjusted over time to the different way of talking.[214]

The issue of communication is not a one-way process. OTDs may also need to adjust to the local vernacular which may in turn affect patterns of service. In Hall et al.'s Canadian study, OTDs identified the need for a better understanding of the English language, particularly the use of idioms, nuances and vernacular terms.[216, 223] OTDs in the focus groups spoke of getting to understand the patients and identifying the accepted approach to communication (for example, the discussion regarding fishing in the focus group). As a result OTDs may spend more time with patients to reach a common understanding. This is supported by Baer, who reported that OTDs spent more time with patients, despite busy schedules, particularly if their first language was not English. This required them to be a more attentive listener and to spend a longer time with the patient.[214]

6.2.3. Health conditions

In a similar vein to issues associated with the health care system, OTDs are also facing new conditions they may not have encountered in their practice prior to their arrival in Australia. Australia's population, particularly in rural communities, has high rates of chronic disease such as diabetes and asthma as well as higher rates of 'at risk' levels of alcohol and substance abuse.[231] Rural communities also have an older population and 26% of the Aboriginal population resides in remote communities in Australia.[232] Thus OTDs may be faced with a number of health conditions in which they have little experience and which are likely to influence their patterns of service.

During the focus groups, OTDs mentioned specific conditions that were more prevalent in Australia. One of these conditions was mental health, an area of concern for OTDs also reported elsewhere.[233] OTDs described having little exposure to mental health in their previous practices and this may exert some influence over the length of their consultations, their use of pathology services or their prescribing.

OTDs from Africa or India require some adjustments to enable them to deal with these health conditions and diseases, which are not as prevalent in their countries. This requirement for adjustment was reported in the focus groups.

6.2.4. Patient and community attitudes

Some of the differences relating to types of consultations and services ordered may also be explained by the patient mix. A GP new to a community, whether OTD or ATD, will take time to establish his/her own patient list as well as gain patients' confidence. These GPs will be reliant on colleagues referring their own patients, or providing services for new patients, or seeing patients who cannot get an appointment with their own GP.[134] Establishing their own list of patients can take up an take up two years, as reported by one OTD in rural Victoria.[134] Therefore, the different practice patterns seen between ATDs and OTDs can also reflect their patient profile. The raw data on rates generated for OTDs and ATDs support this (Table 33).

On the whole, patients treated by ATDs were seen more often, in that they had a higher number of items claimed per 100 consultations. The only exceptions were for services related to diagnostic imaging and pathology services, where patients treated by OTDs had more services claimed. This suggests a pattern whereby OTDs saw more patients, but that they were seen less often during the year, while ATDs saw fewer patients, but saw them more often. This does not seem a surprising pattern if you consider that many of the OTDs were

new to the community and the practice; they would not have yet established their own patient lists and were reliant on the overflow from their colleagues' lists. Many of these patients may have seen the OTD for a one-off consultation, say in an emergency, but would return to their established GP at other times. This difference was more obvious between male OTDs and ATDs, and less pronounced with female ATDs and OTDs. Female OTDs are likely to be able to establish a patient base sooner than male OTDs because of the demand for their services by female patients, particularly in women's health.

Patients' attitudes to OTDs could also affect their pattern of service. Patients in rural and remote communities may be wary of OTDs, especially if he/she is from a non-English speaking background, and therefore be reluctant to consult OTDs.[234] Patients may be reluctant to consult OTDs perhaps due to a racist attitude; the conservative nature of rural communities also needs to be considered.[235] However, the results of a US study on OTDs servicing specific population groups suggest that patients with an OTD as their health care provider may be more reluctant to seek medical care[89] and this is related to the OTD's interpersonal skills. As reported by an OTD in Victoria, it took time for him/her to gain the community's trust and for patients to utilise his/her service rather than travel to a neighbouring community.[134] Baer's studies of OTDs in rural America[214] and community health centres[94] found that OTDs are less accepted by patients, but that this can dissipate over time as they become familiar with them in their community.[214]

From the OTD perspective, patients and their expectations of health care may be different from those experienced elsewhere.[223] As discussed in the focus groups, OTDs reported that patients were often well informed about their conditions and assistance with their conditions was expected, even if inconvenient. These differences in expectations may account for differences between OTDs and ATDs in their patterns of service.

6.2.5. Remuneration influences

Like many immigrants, OTDs are likely to aspire to a good way of life, and remuneration levels are important. While remuneration was not a major theme in the focus group discussions, the OTDs did touch on this issue. Most OTDs recruited through the RWAs are initially contracted by practices as employees. This limits their income to a percentage of their earnings. At the same time, OTDs often have a number of debts resulting from their immigration. As temporary residents they are not able to access services such as Medicare for themselves and family[134]; they pay higher premiums for insurance[146]; are unable to obtain loans or credit; and they bear the total cost of tertiary education for their children, while at the

same time taxed at the highest level. Many OTDs are unaware of these limitations when recruited and, when surveyed by AMWAC[146], reported this as a key area of dissatisfaction with the 5 Year OTD Scheme.

For the study group, the analysis of the raw data (Table 33) indicates that OTDs' overall Medicare earnings are higher than ATDs. This suggests that OTDs work longer hours or see more patients, or undertake a larger number of higher-earning activities. However, it is more likely to reflect the terms and conditions under which they are employed.

6.2.6. Training influences

OTDs are a diverse group in terms of their cultural background, their experiences and, most importantly, their qualifications and training.[104, 121, 224, 226] Their training varies greatly in quality, relevance to the kinds of health problems encountered in Australia and preparedness for the advanced technology encountered in Australia.[121] As discussed earlier, these differences in training can account for some of the differences in patterns of service.

Differences in the structure of training in the OTDs' countries can lead to a number of problems.[236] As discussed above, communication skills training may not be part of some medical curriculum.[216, 228] In Australia, rural general practice/medicine is recognised as a unique discipline require specific training.[237, 238] Not all countries provide undergraduate or postgraduate training specifically targeted at rural practice. On the other hand, the OTDs participating in the focus group felt that some aspects of medical training were the same everywhere. This suggests that the influence of training on patterns of service will depend on the type of service being investigated. Services requiring communication skills may be more influenced by the training of an OTD than in the provision of a more technical service such as an ECG.

6.3. IMPLICATIONS OF THE MODEL

This study showed that OTDs do practise differently from ATDs and that the differences vary with the type of service being provided and they result from a number of influences at both the micro and macro levels. Thus the study can reject the null hypothesis and conclude that OTDs do differ in their patterns of service when compared to Australian graduates working in similar locations. In addition, the study aimed to understand the variation in the service provision, with the focus groups playing a key role in this. The model presented at the beginning of this chapter brings together the quantitative and qualitative results and provides a structure to explain the complex relationship between various factors and their influence on

patterns of service. However, what does this means for policies relating to OTDs in Australia?

The underlying assumption in this analysis is that the patterns of service provided by ATDs in rural and remote Australia is a consequence of the high-quality training provided by the Australian medical system, therefore resulting in the best care available. Comparing OTD and ATD patterns of service indicates that OTDs differ from ATDs in a number of areas and, while the 5 Year OTD Scheme attempted to ensure that those OTDs recruited were experienced general practitioners (through assessment of their qualifications and experiences), the policy did not incorporate strategies that account for some of the differences found in OTDs' provisions of services.

By identifying differences and commonalities between the pattern of services provided by OTDs and ATDs, the study may be useful in guiding the content of orientation and upskilling programs for OTDs conducted by various organisations in Australia. The results suggest elements for inclusion in such programs could be:

- a detailed introduction to the Australian health care system, including use of the Medicare Benefits Schedule and Pharmaceutical Benefits Schedule
- an introduction to rural communities, including patient expectations
- a communication skills training component that includes an introduction to local vernacular, idioms and body language
- common health conditions in general practice, such chronic disease management, mental health as well as Aboriginal health
- specific skills training, such as emergency medicine.

6.4. LIMITATIONS OF THE STUDY

As outlined at the beginning of this thesis, this is an exploratory study that has attempted to answer a complex policy question using data sources with specific limitations. Three potential limitations can be summarised as follows:

- issues associated with the use of Medicare Australia data for the core component of the analysis, including the size of the study group and associated problems, and the selection of items, including the use of surrogate quality items

- issues related to the statistical model used
- issues associated with the use of focus groups, which form the second part of the analysis
- limitations of the research topic.

6.4.1. Medicare Australia data

During the development of the data request for the Medicare Australia, a problem emerged which required the project to be revised or acknowledged in the analysis. This problem was related to the size of the study population. Medicare Australia has strict guidelines on maintaining the privacy of medical practitioners and patients. A researcher wanting to access data on medical practitioners or patients can do this in two ways, either by gaining consent for release of their details or by using de-identified data. The first option was not possible for this study because of the size of the population and no access to the medical practitioners' contact details. This meant that the study used the second option, relying on de-identified data for its analysis. However, this was further compromised by other privacy issues. As the OTD study population was so small (147 in 2002), there was a possibility that the data could be traced to an individual OTD. Medicare Australia privacy guidelines restrict access to data-based on the cell size and mean rates.

The Practice Incentive Program was designed as a quality improvement policy for general practice. However, the MBS items relating to the PIP are a practice-based and not funded on an individual GP level. It is a practice management level decision to participate in this program and therefore its relevance in determining the quality of an individual practitioner's service may not be appropriate. An OTD may join a practice that is already enrolled in the program. As we are unable to obtain data on practice size from Medicare Australia, we cannot attribute this quality indicator to an individual GP. However, at a broader level, these items may indicate the types of practices to which OTDs are recruited and whether they have a commitment to providing quality care.

A number of items were not used in the final analysis because data were insufficient or were not provided in a format suitable for the analysis. For example, pap smears and HbA1c were selected as surrogate indicators of quality, but they could not be included in the model as they were not provided at a patient level, only as totals. This was the same for all diagnostic and pathology services. This information can only be provided in raw rates.

A number of other items had insufficient data for analysis. For example, the number of patients receiving health assessments is limited to those 75 years or older and as a result there were too few in the OTD group for analysis to be undertaken.

The Medicare data only represent one component of the rural GP workload. As we have seen, Medicare data do not include non-patient-related activities, hospital work funded through state or territory health departments or information on the morbidity of the patients.

Finally, I had no control of the accuracy of the data provided by Medicare Australia and the writing of the retrieval program that generated the data and I accepted that what was provided was accurate.

6.4.2. Statistical model

The statistical model selected had a number of limitations with the potential to affect the interpretation of the results.

Firstly, the problem of repeat testing: as the analysis undertook multiple tests on one sample, there is the possibility that spurious significant results occur (increased possibility of a Type 1 error). An example of this type of error is likely to explain the result found in the main effects, with the relationship between rate of ECGs per patient and years since graduation and work status. The results show a significant relationship which is contradictory (see Table 39) and is likely to result from a Type I error. However, as this was largely an exploratory study this issue was taken into account in the interpretation of the results. This limitation could be reduced by undertaking the analysis over more than one sample or over a longer period of time.

Secondly, there were substantial amounts of missing data for some of the items selected. This resulted from the small sample of OTDs in the study, although they consisted of the all OTDs in the 5 Year OTD Scheme identified by the Commonwealth Government. This issue was further exacerbated by the limitations regarding small cell sizes by Medicare Australia. These issues could be addressed by using a larger sample size and, although the OTD population of interest is a small group, a larger sample could be achieved by expanding the years covered by the data. In addition, there is a risk that this study over-emphasises differences rather than focuses on similarities.

There were also a large number of analyses undertaken on a number of Medicare service items. While many of the results were statistically significant, it was not possible to

determine whether these items were clinically significant. This is an important aspect, as the differences found may have no impact on the types and quality of care provided by the OTDs compared with ATDs. An attempt was made in the study to look at clinically significant items and this was undertaken with the identification of surrogate quality of care items in the Medicare dataset. Unfortunately, this analysis suffered from the small sample size, which limited its usefulness. This is an area for further investigation.

6.4.3. Focus group limitations

In recruiting participants for the focus group, I used convenience sampling technique as the study was focused on a specific group of doctors – those who had been recruited from overseas to work in rural and remote general practice. The study did not require a wider participation and therefore I accessed this group through workshops being held by organisations in South Australia. It could be argued that the results are less valid because of this, but the researcher believes that this not the case for a number of reasons.

Firstly, the aim of the focus group was to gain an understanding of the patterns of service identified by the quantitative analysis. Therefore the questions used in the focus group were related to a general discussion on how the OTDs practise; their responses did not need to be location-specific. Secondly, the demographic profile of the focus group participants was fairly similar to that of the OTDs used in the quantitative analysis. This suggests that the participants were representative of all Australian OTDs. This was supported by the results of studies undertaken in Victoria, where similar themes were identified with a group of OTDs in 2002.[134] Thirdly, several OTDs had worked in other Australian states and territories and were able to provide this perspective.

One of the benefits of focus group methods is the discussion generated by the group dynamics, whereby new ideas and concepts are generated and topics can be pursued in greater depth.[239] However, this can also be a limitation of the method. The researcher needs to deal with reticent speakers and those who dominate the discussion.[240] A consequence of this can be an individual suppressing their own ideas over the views of the majority of the group, resulting, termed by Barbour, in overemphasis of consensus.[240]

In order to reduce the effect of group contamination on the results, the researcher used the following strategies suggested in the literature.[240, 241]

- Ground rules regarding the focus group were provided to participants by the researcher. These emphasised the need for all members of the group to participate and that there were no wrong or right answers to any of the questions; it was the experiences of the individuals that were important.

- During the course of the focus groups, the researcher ensured that those who did not speak very much were asked a direct question to encourage them to respond; the researcher also utilised the technique of asking if anyone had any other points of view after the dominant speaker has finished.

- Participant validation was gained when summaries of the discussion were sent to participants some time following the focus group. Participants were asked to confirm the key results and also asked to add any other information. This allowed individuals to agree or disagree with what had been discussed and to express any ideas they had felt unable to raise during the focus group.

The nature of focus groups causes some difficulties when recording the discussion. Variations in voice pitch and the size of the room can result in loss of some responses.[240] I attempted to offset this potential problem by asking participants to speak one at a time; however, this was not always successful and some information was lost. An assistant was also used to help record additional information, such as non-verbal cues, and to act as a backup for the digital recorder.

6.4.4. Limitations of the research topic

This study addresses one small but important area of research on the use of an OTD medical workforce. However, it should be noted that there is a much larger research agenda relating to the role of OTDs in the Australian medical workforce, particularly given their increasing importance in rural and remote areas. Topics that have been investigated or which need further research include the issue of retention of OTDs in rural and remote communities; their integration, including that of their families, into these communities; their satisfaction with the processes involved in placing and supporting them in rural communities; appropriate assessment of OTD skills and qualifications; career pathways; and at a global level, the ethical issues associated with the recruitment of OTDs.

This study focused on OTDs in terms of the general practice workforce rather than on those recruited to work in other areas of the medical workforce, such as in hospitals or other

specialist areas, and concentrated on rural and remote communities in Australia. The issues affecting the recent increase in the number of OTDs working in general practice in outer-metropolitan areas also require investigation. Such research will also need to take account of the distinctions between the range of OTDs that exist in the medical workforce.

In this context, this study contributes to the wider research agenda by providing timely insights into a small but crucial aspect of the OTD issues, one which has received attention in both medical and non-medical circles.

CHAPTER SEVEN: CONCLUSION

The hypothesis underpinning the study was that the patterns of GP services provided by OTDs in rural and remote Australia were different from those provided by Australian graduates in similar locations. The results from the analysis conducted to determine whether this hypothesis is valid are mixed. This study showed that variation between OTDs and Australian graduates exists across a number of GP services, and this variation increases with the complexity of the service and the skill required, and where the influences of culture, communication, knowledge of the health system and training have the greatest impact. This study commenced with the aim of examining the Australian Government's approach to solving the geographic maldistribution that exists in rural and remote areas by recruiting overseas trained doctors. To do this, I focused on one particular strategy within this policy – the 5 Year OTD Scheme. I examined this policy, in terms of its influence om service provision and quality of service, an important but often neglected area in health policy research.

The goal of the Australian Government is to provide a medical workforce that is skilled and able to provide high-quality care to Australians living in all parts of Australia, including rural and remote areas. This is mainly achieved through the provision of a high-quality medical training process and, in the case of rural and remote areas, through policies to attract and retain GPs. However, if the supply of such a workforce is not adequate, as was clearly shown in Chapter One, then governments resort to other sources of supply such as OTDs. The question raised by this approach is whether this workforce is adequately trained and able to provide a similar quality of care to meet the standards set by Australian medical training. The research into this aspect of the OTD policy is limited or lacking. The risk of inadequately assessing OTD skills is aptly illustrated by the Patel case at Bundaberg Hospital.[242]

Most research examining the effectiveness of OTDs in addressing areas of workforce shortage has examined it from the perspective of the *supply* of OTDs, the *distribution* of the OTD workforce and their *integration* into the community in which they are placed. While this body of research evaluates the policy from an access perspective, it does not address the issue of quality. There is a vast amount of research dedicated to determining the quality of service using a range of indicators, but rarely is it applied to examining quality of care within the medical workforce planning framework. The research that does exist examines quality in terms of performance in examinations such as American Board of Licence in the US, General

Medical Council pass rates in the UK and complaints to medical boards. However, this does not assess performance in the field.

This study addressed this lack of research by providing an analysis of the patterns of services and differences and similarities in the services provided between OTDs and ATDs. The results of the study have the potential to provide governments and associated authorities and professional organisations with evidence to underpin the establishment of measures of support and to suggest areas for improvement to ensure that communities in rural and remote areas receive an adequate and competent health service, irrespective of the training location of the doctor providing that service. In doing so, it also addresses the larger issue of quality of service.

In terms of distribution, OTDs recruited through the 5 Year OTD Scheme have practised in the areas of rural and remote Australia where Australian graduates are reluctant to work. The offer of permanent residency for these doctors at the end of their five-year tenure has been sufficient to attract participants to the program. However, as the international market for these doctors becomes more competitive, the sustainability of this policy may be questionable. As the demand for OTDs increases within developed countries, the quality of the OTD workforce may become diluted.

This study demonstrated the usefulness/applicability of a mixed methods approach in an analysis of policy. The combination of the quantitative and qualitative results provided a more complete picture of the patterns of services for OTDs and allowed the development of a model to explain the interaction of micro- and macro-level influences. This approach has the potential to add value to medical workforce research and move it beyond a quantitative-based method.

From a workforce planning and policy perspective, the results of this study have two key implications. Firstly, the results can be utilised to ensure that current support programs ensure that specific areas of training are included, and, secondly, it highlighted the need for reliable and accessible medical workforce data to allow analysis of subgroups within the medical workforce.

Support programs for OTDs

The results of this study have indicated a number of areas where OTDs may require further support and training to enable their service provision to match that of ATDs. Currently, a number of organisations provide support programs for OTDs working in rural and remote Australia. Organisations such as RWAs, medical colleges (RACGP and ACRRM) and state/territory Departments of Health provide, either directly or indirectly, orientation programs, supervision, training for examinations, or funding for OTDs recruited to work in rural and remote Australia.

By highlighting both the differences and similarities found between OTDs and ATDs and subsequently exploring why these differences may occur, this study provides these organisations with evidence based on Australian research for use in the provision of more targeted programs to support OTDs' integration into the Australian health system.

The need for consistent and reliable medical workforce data sets

This study emphasised one of the key difficulties in undertaking medical workforce research – lack of reliable and standardised data. What is lacking in Australia is a consistent and reliable workforce data set which allows analysis of the workforce at a number of levels. Currently there is a lack of common definitions and a reliance on broad definitions. While it may not be possible to define all types of medical practitioners, it should be possible to identify those associated with a policy through a relevant data set. For example, RWAs implement the 5 Year OTD Scheme, but their data sets – the Minimum Data Sets – do not allow for identification of OTDs in the national data collection process.

Summary

The aim of the 5 Year OTD Scheme was to recruit and place OTDs in 'districts of workforce shortage', and policy-makers focused on this aspect of the program. This study indicates that, although OTDs recruited through this program have general practice experience and/or recognised general practice training, in some areas they are not providing the same type of service as ATDs. Some of these differences could be reduced through targeted training sessions within existing OTD support programs.

The study raised various issues that were beyond the capacity of this study to explore, but indicate scope for further research.

- This study focused on only one aspect of patterns of service. The role of patient morbidity on patterns of service is well documented. The use of the BEACH data sets which collect morbidity data could be a useful adjunct to this project, although the number and type of OTDs enrolled in the BEACH data collection is limited.

- The methodology could be adapted to other groups of OTDs as part of the evaluation of workforce policy, for example, OTDs working in outer-metropolitan areas.

- The focus groups results indicated a great diversity of OTDs, in terms of culture, training and skills, suggesting the need/usefulness of an exploration of differences in the patterns of service within the OTD group itself.

- Limitations were found with the use of Medicare Australia data to assess quality of services. This is an important aspect and warrants further investigation, by either expanding the sample or using other sources such as BEACH data.

- Quality of service can also be analysed from a patient perspective. Satisfaction surveys and practice surveys form a standard part of the Practice Incentive Program, a quality indicator in Australian general practice. Similarly, many GP vocational training providers utilise patient surveys (DISQ program[243]) to assess registrar interpersonal skills in a consultation. This methodology could be used to compare the quality of services provided by OTDs and ATDs from a patient perspective.

- Finally, as suggested in the discussion, many of the differences identified may be of a temporary nature and may dissipate over time as OTDs become familiar with the Australian system and Australian general practice. A follow-up study of the group of OTDs and ATDs used in this study in three to five years time using the same methodology would determine whether OTDs move towards the norm over time.

If, as is likely, OTDs continue to be a dominant feature of the medical workforce landscape in Australia, the need to provide them with additional support to meet the requirements of the communities in which they are placed becomes imperative.

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APPENDICES

Appendix 1: Description of geographic maldistribution in selected countries

Geographic maldistribution exists in a number of countries and this appendix provides a more detailed outline of this issue for the selected countries used in this thesis.

Canada

Canada is characterised by vast areas of sparsely populated wilderness with a number of urban centres concentrated along a thin border, with 22% of Canada's population living in rural areas[14], a similar distribution to Australia. A significant portion of the country is sparsely populated and in these areas medical practitioners tend to be aggregated in small communities of fewer than a few thousand.[63] For rural areas, there are 53 medical practitioners to 100 000 population ratio compared with 229 for urban areas.[14]

There is significant geographical variation among provinces in the supply of physicians, ranging from 13.0 per 1000 population in Prince Edward Island to 21.2 in Quebec, with the lowest levels in the remote territories (9.2 per 1000 in Northwest Territories).[14] Between 1991 and 1999 there was a modest increase (15%) in the supply of rural physicians per capita; however, much of this increase took place in rural areas located in close proximity to major urban centres.[14]

United States of America

Geographic maldistribution has been one of the most persistent characteristics of the American health care systems, with many inner city and rural areas struggling to attract an adequate number of health care providers, while there is a surplus of medical practitioners in many urban areas.[5] As a result there have been numerous studies on the distribution of physicians in the US.[5, 18, 244-248]

In terms of rural communities, 20% of the American population (over 50 million) live in areas considered rural or non-metropolitan, but only 9% of the country's medial practitioners practise in rural communities.[5] There also exist numerous inner-city populations that experience shortages in medical providers.[17]

Access to health care in the US is affected dramatically by where physicians locate, and most physicians tend to practise in affluent urban and suburban areas.[17] The US has shortages in general medical practitioners (which include general practitioners) and an oversupply of

specialists, resulting in 'shortages amid surplus'.[5] The approach taken in the US to address this issue in the late 1960s was to rapidly increase the production of physicians.

Physicians are the largest group of medical care providers in rural areas, apart from nurses. In 1998 there were approximately 70 000 physicians (11% of all physicians) located in rural areas servicing 20–27% of the US population. The supply of rural physicians varies across the country, in terms of speciality, geographic location and population distribution. Increases in the aggregate supply of physicians have translated into increases in numbers of physicians in rural areas, but these are limited to larger rural communities close to urban areas.[17]

The number of physicians per 100 000 population varies greatly between urban and rural populations, with the number of physicians being more than half the ratio in all rural areas than that found in urban centres.[17] The more remote the community, the fewer number of physicians (39 generalists per 100 000) and these have increased only slightly over the last six decades. GPs/FPs are distributed more evenly, relative to the population than other generalist specialities and in small and remote communities are the only physicians available. In 1997, GPs/FPs constituted 64% of the practising physicians in non-metropolitan area counties.[18]

At a regional level there are also differences in physician numbers, with the north-east region having the highest rate of rural general physicians per 100 000 population and the rural south having the lowest supply of physicians (ratio of 45 generalists per 100 000 population). The majority of physicians in rural areas are male, despite the increasing number of women graduating from medical schools. Analysis of recent graduation cohorts by Ellsbury, Doescher and Hart indicates that women are substantially less likely to locate to rural areas than male physicians.[17] If this trend continues, it will exacerbate the physician shortages in rural areas. For those women who do practise in rural areas, their distribution is very uneven.

New Zealand

As with other countries discussed in this section, New Zealand is a highly urbanised country, with 85.7% of its population residing in urban areas in 2002.[15] Only 18% of New Zealand GPs work in rural areas. Health care in rural New Zealand is variable, due to difficulties in accessing GPs and health care providers, and difficulties in recruiting and retaining health care providers in these areas.

In terms of distribution, the lowest ratios of medical practitioners to population are found in rural regions in the North Island, particularly the regions of Northland, Tairawhiti and Hawke's Bay. The highest ratios are found in the larger urban centres towns.[3]

While there has been a 36% increase in the number of medical practitioners in New Zealand since 1990, the ratio of medical practitioners to patients in rural areas is decreasing in some areas.[3]

In 2000, GPs in New Zealand formed 39% of the medical workforce, but there are shortages of GPs in rural areas and more deprived urban areas.[3] In terms of distribution of GPs in New Zealand, the majority of GPs reside in the North Island (73%) where the bulk of New Zealanders live.[15]

United Kingdom

Unlike the other countries mentioned in this section, geographic maldistribution relates more to inner-city areas rather than rural areas, although shortages in rural areas exist, such as the North West and the Midlands. Shortages of medical practitioners are found in the hospital system, within certain specialities and within general practice.[106] Shortages in hospital specialists are found in the north of England where specialists are reluctant to work and have been the focus of recruitment campaigns.[106]

GP shortages are found across the country, although there are substantial geographic differences, with more attractive local areas having higher rates of GPs. Deprived urban areas have the greatest difficulty filling GP positions as well as difficulties in attracting applicants to vocational training schemes.[249] In the 2002 annual survey on GP recruitment, retention and vacancy rates, urban deprived areas attracted fewer applicants than other areas, while rural areas have more applicants than other areas.[20]

Appendix 2: Summary of *Health Insurance Act*, Sections 19AA and 19AB

HEALTH INSURANCE ACT AMENDEMENTS

In December 1996, the *Health Insurance Act 1973* was amended to restrict access to Medicare benefits for medical practitioners who do not hold postgraduate qualifications or who are overseas trained. The specific amendment/sections and exemptions provided under them are outlined below:

19AA

Section 19AA restricts the access to Medicare benefits for medical practitioners who do not hold a postgraduate qualification recognised under the Act.

A doctor who was first recognised as a 'medical practitioner' for the purposes of the Act on or after 1 November 19996, is unable to attract Medicare benefits unless they are a recognised general practitioner, specialist, consultant physician or a person undertaking as 'approved placement'. A recognised GP is either a vocationally registered GP or a person who holds a Fellowship of the RACGP.

In order to be eligible to provide services that attract medical benefits a doctor who is a permanent resident or Australian citizen must meet one of the following criteria:

- **Before 1 November 1996,** the doctor was recognised as a 'medical practitioner by having permanent residency or citizenship of Australia, completed their internship or period of supervised training and held registration with an Australian medical board.
- **After 1 November 1996,** the doctor was recognised as a 'medical practitioner' under the Act as a specialist, consultant physician or GP or is in approved placement under section 3GA of the Act (Rural Locum Relief Program).

19AA Exemptions

Section 3GA

Medical practitioners working in Australia who are permanent residents or Australian citizen and affected by the provisions in Section 19AA may gain access to Medicare benefits through the Rural Locum Relief Program or the approval Deputizing Service Program.

The Rural Locum Relief Program provides approved placements to medical practitioners in a structure that provides adequate supervision, quality assurance and backup arrangements. This program is administered through the rural workforce agencies.

The Approved Medical Deputizing Service Program expands the pool of available medical practitioners who may provide after-hours home visit services. It allows medical practitioners affected by section 19AA to provide a restricted range of professionals services for which medical benefits will be payable. This program is administered by the Department of Health and Ageing.

19AB

Section 19AB restricts access to Medicare benefits for overseas trained doctors or former overseas medical students who are permanent residents or citizens of Australia.

For overseas trained doctors and former overseas medical students the amendments to the Act set a minimum of ten years, commencing on the date they are recognised as a medical practitioner under the Act, before they become eligible to provide services that attract Medicare benefits.

An 'overseas trained doctor' is any doctor who did not obtain his or her primary medical qualification in Australia, including primary degrees obtained from NZ medical schools.

A 'former overseas medical student' is a doctor who has began studying medicine in Australia under a temporary visa, but who subsequently changed visa status to become a permanent resident.

Doctors who are subject to the ten-year moratorium on receipt of Medicare benefits may also be subject to restrictions on Medicare benefits under section 19AA of the Act.

In order to be eligible to provide services that attract medical benefits, overseas trained doctors and former overseas medical students who are permanent residents or Australian citizens must meet one of the following criteria:

- Before 1 January 1997, the doctor held registration with an Australian medical board and had completed their internship or supervised training required by the AMC or an Australian medical board; or held a determination under section 3J of the Act during 1996.

- The doctor made an application to the AMC for assessment of medical qualifications (and was eligible to be assessed) prior to 1 January 1997.

- A period of ten years has lapsed from the first recognition as a 'medical practitioner' as defined under the Act.

19AB Exemptions

Section 3GA

Overseas trained doctors and who are permanent residents or Australia citizens and affected by the provisions in Section 19AB (the 'ten-year moratorium') may gain access to Medicare benefits through the Rural Locum Relief Program or the Approved Deputizing Service Program.

The Rural Locum Relief Program provides approved placements to medical practitioners in a structure that provides adequate supervision, quality assurance and backup arrangements. Doctors will also need to seek an exemption from this moratorium if they whish to provide locum services through this program. This program is administered through rural workforce agencies.

The Approved Medical Deputizing Service Program expands the pool of available medical practitioners who may provide after-hours home visit services. It allows medical practitioners affected by section 19AB to provide a restricted range of professional services for which Medical benefits will be payable. This program is administered by the Department of Health and Ageing.

Class exemption

There is a class exemption that covers who are either (1) medical practitioner appointed to an academic position at one of ten medical schools or (2) people who were Australian citizens or permanent residents prior to 1 January 1997 and who commenced study prior to the 1 January 1997 at a medical school listed in the WHO's *World Directory of Medical Schools*.

Exemptions provision

The minister or delegate can grant exemptions to the ten-year moratorium. The granting of an exemption to the moratorium is likely to be favourably considered under the following circumstances:

- Medical practitioners qualified and actually working in specialist fields where Australia has a general undersupply and where the incoming practitioner will give an understanding to work in a specific area of undersupply.

- Medical practitioners who have entered into contractually arrangements before 1 January 1997 with an Australian person to provide medical services.

- Spouses of eminent persons migrating to Australia or people entering Australia under the first point.

Appendix 3: Recruitment letter for focus group and consent form

THE UNIVERSITY OF ADELAIDE AUSTRALIA

DISCIPLINE OF GENERAL PRACTICE
SCHOOL OF POPULATION HEALTH AND CLINICAL PRACTICE
FACULTY OF HEALTH SCIENCES

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CRICOS Provider Number 00123M

MONASH UNIVERSITY

November 2006

Dear GP

This letter has been sent by the Rural Doctors Workforce Agency (RDWA) on behalf of the Discipline of General Practice at the University of Adelaide.

I am writing to ask if you would be involved in a study I am undertaking as part of my PhD candidature which is exploring the practice patterns of OTDs in rural and remote Australia. The project is being undertaken within the Discipline of General Practice at the University of Adelaide.

The project is entitled: ***Overseas trained doctors in rural and remote Australia: do they practise differently from Australian graduates?***

A key part of the study has been the analysis of the practice patterns of OTDs in rural and remote Australia using Medicare Australia data and a comparison of their patterns of practice with a group of Australian trained graduates in similar locations. This part of the study has now been completed and the results indicate some differences between the two groups across certain Medicare items. In order to gain a greater understanding of why these differences occur, I would like to discuss the results with a group of OTDs and obtain their input into the reason why the differences occur.

The results of this study will provide organisations involved in workforce planning with a better understanding of why differences may occur between OTDs and Australian trained doctors and help them to design appropriate strategies to support OTDs recruited to work in rural and remote Australia.

Your input would be invaluable for the study and I would like to invite you to participate in a focus group with other OTDs which will be held during the RDWA OTD forum in Adelaide on the 1st & 2nd December 2006. The focus group will last approximately 45 minutes. If you are interested in participating in the study, please complete the attached consent and registration form and return it to me in the reply paid envelope provided. You will then be contacted to confirm your participation and discuss any issues regarding the study.

Participation in this study is entirely voluntary. With your consent, the focus group will be audio-taped, transcribed, and a copy of the transcript will be sent to you for confirmation of its accuracy. At all times confidentiality will be maintained, and the tapes and transcripts will be stored in a locked cabinet in the Discipline of General Practice at the University of Adelaide. Although the results will be published, neither you nor your responses will be personally identified.

You will be free to withdraw from the study at any time before, during or after the focus group, without having to give a reason, although should you have any concerns about the

project at any time, we will happy to discuss these with you. My contact details are listed below:

Caroline Laurence
Medical Workforce Analysis Unit
Discipline of General Practice
The University of Adelaide
Ph: 8303 4951
Email: caroline.laurence@adelaide.edu.au

The University of Adelaide Human Research Ethics Committee has approved this study. Should you wish to speak to a person not directly involved in the study, you may contact the Secretary of this Committee on 8303 6028 in relation to:

- Making a complaint,
- Raising concerns on the conduct of the project;
- The University of Adelaide policy on research involving human subjects; or
- Your rights as a participant.

I look forward to speaking with you in the near future.

Yours sincerely

Caroline Laurence
Senior Research Fellow

The Supervisors for this study are:

Prof Justin Beilby
Executive Dean
Faculty of Health Sciences
University of Adelaide

Prof John Humphreys
Professor of Rural Health
School of Rural Health, Bendigo Campus
Monash University

DISCIPLINE OF GENERAL PRACTICE

Consent and Registration Form

If you would like to participate in the focus group, please complete this form and return to me in the enclosed reply paid envelop by Monday 27 November 2006

1. I, ... *(please print name)*

   consent to take part in the research project entitled:

   Overseas trained doctors in rural and remote Australia: do they practise differently from Australian graduates?

2. I acknowledge that I have read the invitational letter including the information on the project.

3. I have had the project, so far as it affects me, fully explained to my satisfaction by the research worker. My consent is given freely.

4. I understand the focus group will be audio-taped and that these tapes will be destroyed once the interviews have been transcribed

5. I have been informed that, while information gained during the study may be published, I will not be identified and my personal results will not be divulged.

6. I understand that I am free to withdraw from the project at any time.

7. I am aware that I should retain a copy of this Consent Form, when completed, and the attached invitational letter.

.....

(signature) *(date)*

My phone number for further contact is .....

My address is: .....

.....

Thank you for your participation

Appendix 4: Question guide for focus groups

OTD FOCUS GROUPS

- Study is exploring the differences between the practice patterns of OTDs and Australian trained graduates (ATDs) working in rural and remote Australia. The analysis has involved a comparison of Medicare services provided by OTDs with ATDs practising across a number of GP demographics. The results have indicated some differences between the two groups across certain Medicare items.

- In order to gain a greater understanding of why these differences occur, I would like to present some of the results and gain input from you as to why the differences or similarities occur.

- The results will provide evidence on the effectiveness of the workforce policy to recruit overseas trained doctors to work in areas of workforce shortage and can be used by organisations such as RDWA to improve their support programs

- Describe the ground rules and how the FG will be run – short time line so I may interrupt discussion and refocus it. I would like everyone to have a say and if possible not talk all at once.

No.	Time (mins.)	Type of question	Questions
1.	5	Intro	I am going to ask you a couple of questions that will look at comparing your practice in Australia with your practice in your home country. If not practised in home country, the most recent country before Australia or the way they would have practised at home. Thinking back to your practice before you came to Australia, what have you found to be the most similar things from your practice at home to your Australian practice?
2.	5	Transition	Again, thinking back to when you first started practising in rural Australia. What did you find hardest things to adapt to in your actual practice? Why was this problem?
3.	10	Key 1	This table shows a summary of the comparisons between practice patterns of OTDs and ATDs. How would you explain the differences?

			What do you think are the main factors that contribute to accounting for these differences? (most important)
4.	5	Key 1a	From the list of issues you have discussed, do you think that these will change in their importance or impact the longer you work in Australia?
5.	10	Key 2	When establishing your practice in Australia, types of assistance and support did you find the most helpful and what things did you find the least helpful? Why? Get the group to rate the most important facilitator and most important barriers.
6.	5	Key 3	From your experience, do you have any suggestions on how programs could be improved to assist OTDs with their transition to practise in rural Australia?
7.	5	Ending	Our purpose today, was to gain an understanding of the practice patterns of OTDs and why they differ from ATDs. From your own experience, have we missed anything?

Appendix 5: Summary of quantitative results provided to participants in the focus group

SUMMARY OF MEDICARE DATA ANALYSIS

We analysed service provision data from Medicare using a number of Medicare items and compared the rate of service provision per patient between OTDs and ATDs working in rural and remote Australia to identify any differences in their practice patterns. The analysis looked at the differences across GP demographics (age, sex, experience, rural location and work level) to explore if these accounted for differences between the two groups. A total of 123 OTDs were compared with 6899 ATDs practising in rural Australia in 2002.

The items were grouped into three categories: consultations in the surgery, non-surgery consultations and procedural, therapeutic and diagnostic services.

Category	Items analysed	Results	Examples of differences in practice patterns by GP demographics
Consultations in the surgery	Short consultations Standard consultations Long consultations Prolonged consultations	***Large differences*** between ATDs and OTDs across most demographics	Short consultations • OTDs who were either female, younger, in more remote locations or working full-time provided ***more*** short consultations than ATDs with the same characteristics Long consultations • OTDs who were either male, younger, in remote locations or working full time, provided ***more*** long consultations than ATDs with the same characteristics Prolonged consultations • OTDs who were older, more experienced, in less remote locations and working part-time provided ***less*** prolonged consultations than ATDs with the same characteristics
Non-surgery consultations	Nursing home Hospital After hours/emergency	***Moderate differences*** between ATDs and OTDs across some demographics	Nursing home visits • OTDs who were female provided ***more*** services than female ATDs, while male OTDs provides ***less*** services than male ATDs • OTDs who were either more experienced or practising in remote

Category	Items analysed	Results	Examples of differences in practice patterns by GP demographics
			locations provided ***more*** services than experienced ATDs • OTDs who were either male, less experienced, younger or in less remote locations provided ***less*** services than ATDs with the same characteristics Hospital consultations • OTDs who were either more experienced, older, in more remote location or working part-time provided ***more*** services than ATDs • OTDs who were either in a less rural location or working part-time provide ***less*** services than ATDs
Procedural, therapeutic and diagnostic services	Therapeutic procedures Surgical procedures Diagnostic procedures – investigations and imaging Pathology services	***Few differences*** between ATDS and OTDs across demographics	Diagnostics procedures & investigations • OTDs in less rural locations provide ***less*** services than ATDs • OTDs in more remote locations provide ***more*** services than ATDs Diagnostics & imaging services Labour and Delivery • ***No differences*** between ATDs and OTDs Pathology services • OTDs who were either older, in remote location or working full time order ***more*** services than ATDs
Quality items	Multidisciplinary care plans Case conferences Health Assessments PIP incentives	***Very few differences*** between ATDS and OTDs across demographics	

Appendix 6: University of Adelaide Human Research Ethics Committee approval

THE UNIVERSITY
OF ADELAIDE
AUSTRALIA

OFFICE OF THE DEPUTY VICE-CHANCELLOR (RESEARCH)

HELEN MALBY
SECRETARY
HUMAN RESEARCH ETHICS COMMITTEE
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CRICOS Provider Number 00123M

25 March 2003

Professor JJ Beilby
General Practice

Dear Professor Beilby

PROJECT NO: *OTDs in rural and remote Australia: practice patterns and adjustment to general practice*
H-12-2003

I write to advise you that the Human Research Ethics Committee has approved the above project. Please refer to the enclosed endorsement sheet for further details and conditions that may be applicable to this approval.

Approval is current for one year. The expiry date for this project is: 31 March 2004

Where possible, subjects taking part in the study should be given a copy of the Information Sheet and the signed Consent Form to retain.

Please note that any changes to the project which might affect its continued ethical acceptability will invalidate the project's approval. In such cases an amended protocol must be submitted to the Committee for further approval. It is a condition of approval that you immediately report anything which might warrant review of ethical approval including (a) serious or unexpected adverse effects on participants (b) proposed changes in the protocol; and (c) unforseseen events that might affect continued ethical acceptability of the project. It is also a condition of approval that you inform the Committee, giving reasons, if the project is discontinued before the expected date of completion.

A reporting form is available from the Committee's website. This may be used to renew ethical approval or report on project status including completion.

Yours sincerely

per CE MORTENSEN
Convenor
Human Research Ethics Committee

THE UNIVERSITY
OF ADELAIDE
AUSTRALIA

OFFICE OF THE DEPUTY VICE-CHANCELLOR (RESEARCH)

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CRICOS Provider Number 00123M

Applicant: Professor JJ Beilby

Department: General Practice

Project Title: *OTDs in rural and remote Australia: practice patterns and adjustment to general practice*

THE UNIVERSITY OF ADELAIDE HUMAN RESEARCH ETHICS COMMITTEE

Project No: H-12-2003 RM No: 0000005453

APPROVED for the period until: 31 March 2004

on the basis of minor modification to the participant information letter and consent form including reference to and use of the Committee's contacts/complaints document. It is noted that this project is being conducted by Ms C Laurence, PhD candidate.

Refer also to the accompanying letter setting out requirements applying to approval.

Professor CE Mortensen
Convenor

Date: 25 MAR 2003

Appendix 7: Detailed results of the logistic regression analysis

The results of the logistic regression analysis are presented below in two parts. The first section reports the results of analysis of the service items and the second part reports the results of the analysis of the quality items. Where statistically significant differences were found between OTDs and ATDs, it is indicated by shading on the following tables. A summary of all the results are provided in the first table.

SERVICE ITEMS

Summary of all results

Table 39 provides a summary of all the results of the logistic regression analysis across all the service items investigated and the direction of the result.

Table 39: Summary of results of the multiple logistic regression analysis – ATD/OTD characteristics and service items by direction of result

	Service Items	GP Characteristics										
		Sex		Experience		Age			Rural location		Work status	
		Male relative rates (OTD/ATD)	Female relative rates (OTD/ATD)	5–9 years relative rates (OTD/ATD)	10+ years relative rates (OTD/ATD)	<35 years relative rates (OTD/ATD)	35–54 years relative rates (OTD/ATD)	55+ years relative rates (OTD/ATD)	RRMA 3–5 relative rates (OTD/ATD)	RRMA 6–7 relative rates (OTD/ATD)	Part-time relative rates (OTD/ATD)	Full-time relative rates (OTD/ATD)
Surgery-based services	Short consultations	NS	+	NS	NS	+	-	+	NS	+	NS	NS
	Standard consultations	-	-	+	-	+	-	-	-	+	NS	-
	Long standard consultations	+	NS	+	+	+	+	-	-	+	+	-
	Prolonged consultations	NS - ME -		+	-	NS	-	-	-	NS	+	-
Non-surgery-based services	Emergency & after-hours consultations	NS	NS	+	NS	+	NS	NS	NS	NS	NS	NS
	Hospital consultations	NS	NS	NS	+	NS	NS	+	-	+	-	+
	Other institution/ nursing home	-	+	-	+	-	NS	+	-	+	+	-
Diagnostic services	Total Group A consultations	-	NS	+	-	+	-	-	-	+	+	-
	ECGs	NS	NS	NS – ME +		NS	NS	NS	NS	+	NS – ME -	
	Total Category 2 – diagnostic procedures and investigations	NS	NS	NS	NS	NS	NS	NS	-	+	NS	NS
Procedural services	Antenatal care	NS – ME -		NS – ME -		-	-	NS	-	NS	NS	-
	Labour and delivery	NS	NS	NS	NS	NS	NS	a	NS	NS	NS	NS
	Group T8 – surgical operations all types	NS – ME -		-	+	NS	-	+	-	+	NS – ME -	
	Total Category 3 – therapeutic procedures	NS – ME -		-	+	-	-	+	-	+	NS	-
Imaging services	Total Category 5 – diagnostic imaging services	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pathology services	Total category 6 – pathology services	NS – ME +		NS – ME +		NS	+	+	NS	+	+	NS

a. Insufficient data for model

Note: NS=not significant and NS-ME = Main effect only

Sex

Table 40 describes GP service items for OTDs and ATDs by sex.

Table 40: GP service items adjusted and relative rates by sex

Service Item	Male			Female		
	Adjusted rates ATD	**Adjusted rates OTD**	**Relative rates OTD/ATD (CI, 95%)**	**Adjusted rates ATD**	**Adjusted rates OTD**	**Relative rates OTD/ATD (CI, 95%)**
Short consultations	1.32215	1.30165	0.9845 (p=0.1230) (0.9651-1.0042)	1.20495	1.36942	1.1365 (p=0.0002) (1.0634-1.2147)
Standard consultations	2.16623	2.05260	0.9475 (p=0.0001) (0.9443-0.9508)	1.81810	1.79568	0.9877 (p=0.0024) (0.9798-0.9956)
Long standard consultations	1.38304	1.47418	1.0659 (p=0.0001) (1.0561-1.0758)	1.35608	1.33288	0.9829 (p=0.0964) (0.9631-1.0031)
Prolonged consultations	Main effect					
Emergency & After Hours consultations	1.10477	1.11230	No significant effects	1.07616	1.03660	No significant effects
Hospital consultations	2.88907	2.93456	1.0157 (p=0.2751) (0.9876-1.0447)	2.38984	2.18019	0.9123 (p=0.0812) (0.8228-1.0114)
Other institution/nursing home	2.77500	2.55355	0.9202 (p=0.0001) (0.8997-0.9411)	2.29611	3.51590	1.5312 (p=0.0001) (1.4530-1.6137)
Total Group A consultations	2.32518	2.23406	0.9606 (p=0.0001) (0.9579-0.9638)	1.96954	1.97177	1.0011 (p=0.7547) (0.9940-1.0083)
ECGs	1.05857	1.10214	No significant effects	1.03901	1.00927	No significant effects
Total Category 3 – therapeutic procedures	Main effect					
Antenatal care[a]	Main effect					
Labour and delivery[a]	1.00075	1.03900	No significant effects	0.99808	0.9205	No significant effects
Group T8 – surgical operations all types	Main effect					
Total Category 2 – diagnostic procedures and investigations	1.20739	1.20487	No significant effects	1.16470	1.09690	No significant effects
Total Category 5 – diagnostic & imaging services	1.19514	1.14617	No significant effects	1.15078	1.11656	No significant effects
Total Category 6 – pathology services	Main effect					

a. Analysis for female patients only

Significant differences were found between OTDs and ATDs

Short consultations

There is a significantly higher rate for short consultations per patient for female OTDs compared with female ATDs. There is no difference in rate for short consultations between male OTDs and male ATDs.

Standard consultations

There is a significantly lower rate for standard consultations per patient for male OTDs compared with male ATDs. There is a significantly lower rate for standard consultations per patient for female OTDs compared with female ATDs.

Long standard consultations

There is a significantly higher rate of long standard consultations per patient for male OTDs compared with male ATDs. There is no difference in rate of long standard consultations per patient for female OTDs compared with female ATDs.

Other institution/nursing home

There is a significantly lower rate of other institution/nursing home consultations per patient for male OTDs compared with male ATDs. There is a significantly higher rate of other institution/nursing home consultations per patient for female OTDs compared with female ATDs.

Total Group A consultations

There is a significantly lower rate of total Group A consultations per patient for male OTDs compared with male ATDs. There is no difference in rate of total Group A consultations per patient for female OTDs compared with female ATDs.

Other items

While there are interactions between sex and the following service items, there were no significant differences between male OTDs and male ATDs and female OTDs and female ATDs: Emergency and after-hours consultations, hospital consultations, ECGs, labour and delivery, total Category 2 – diagnostic procedures and investigations and total Category 5 – diagnostic and imaging services.

Summary points from table

1. Female OTDs are doing significantly more short consultations and nursing home visits than Australian female ATDs.
2. Male OTDs are doing significantly more long consultations than their male ATDs.
3. Male OTDs are doing significantly fewer total Group A consultations and institution and nursing home visits.
4. Both male and female OTDs are doing fewer standard consultations than male and female ATDs.

Years since graduation

Table 41 describes GP service items for OTDs and ATDs by years since graduation.

Table 41: GP service items adjusted and relative rates by years since graduation

Service item	5–9 years			10+ years		
	Adjusted rates ATD	Adjusted rates OTD	Relative rates OTD/ATD (CI, 95%)	Adjusted rates ATD	Adjusted rates OTD	Relative rates OTD/ATD (CI, 95%)
Short consultations	1.18567	1.13673	0.9587 (p=0.1041) (0.9112-1.0087)	1.31545	1.33641	1.0159 (p=0.1309) (0.9953-1.0370)
Standard consultations	1.71470	1.81917	1.0609 (p=0.0001) (1.0513-1.0707)	2.16452	2.03656	0.9409 (p=0.0001) (0.9378-0.9440)
Long standard consultations	1.30885	1.53261	1.1710 (p=0.0001) (1.1479-1.1945)	1.39157	1.43073	1.0281 (p=0.0001) (1.0186-1.0377)
Prolonged consultations	1.13434	1.24052	1.0936 (p=0.0026) (1.0318-1.1591)	1.27887	1.09932	0.8596 (p=0.0001) (0.8317-0.8885)
Emergency and after-hours consultations	1.07160	1.16555	1.0877 (p=0.0031) (1.0287-1.1500)	1.10655	1.08957	0.9847 (p=0.2653) (0.9582-1.0118)
Hospital consultations	2.14402	2.79627	0.9903 (p=0.5071) (0.9620-1.0193)	2.88216	2.85407	1.3042 (p=0.0001) (1.2079-1.4082)
Other institution/nursing home	1.81817	2.11935	0.9645 (p=0.0011) (0.9437-0.9857)	2.97986	2.87400	1.1657 (p=0.0001) (1.0915-1.2449)
Total Group A consultations	1.82477	2.10561	1.1539 (p=0.0001) (1.1449-1.1630)	2.33097	2.20054	0.9440 (p=0.0001) (0.9412-0.9469)
ECGs	Main effect					
Total Category 3 – therapeutic procedures	1.21000	1.33928	0.9259 (p=0.0001) (0.9119-0.9401)	1.36540	1.26423	1.1068 (p=0.0001) (1.0716-1.1432)
Antenatal care[a]	Main effect					

Service item	5–9 years			10+ years		
	Adjusted rates ATD	Adjusted rates OTD	Relative rates OTD/ATD (CI, 95%)	Adjusted rates ATD	Adjusted rates OTD	Relative rates OTD/ATD (CI, 95%)
Labour and delivery[a]	1.00631	1.08938	No significant effects	1.00027	1.02102	No significant effects
Group T8 – surgical operations all types	1.16043	1.27565	0.9311 (p=0.0001) (0.9138-0.9487)	1.24082	1.15527	1.0993 (p=0.0001) (1.0544-1.1461)
Total Category 2 – diagnostic procedures and investigations	1.14995	1.20936	No significant effects	1.20663	1.19036	No significant effects
Total Category 5 – diagnostic and imaging services	1.12751	1.11011	No significant effects	1.19957	1.15261	No significant effects
Total Category 6 – pathology services						

a. Analysis for female patients only

Short consultations

While there is an interaction between years since graduation, there are no significant differences between OTDs who graduated 5–9 years ago or OTDs who graduated 10 or more years ago compared with ATDs who graduated 5–9 years ago or ATDs who graduated 10 or more years ago.

Standard consultations

There is a significantly higher rate of standard consultations per patient for OTDs who graduated within last 5–9 years compared with ATDs who graduated within the last 5–9 years. There is a significantly lower rate of standard consultations per patient for OTDs who graduated 10 or more years ago compared with ATDs who graduated 10 or more years ago.

Long standard consultations in the surgery

There is a significantly higher rate of long consultations per patient for OTDs who graduated within the last 5–9 years compared with ATDs who graduated within the last 5–9 years. There is a significantly higher rate of long consultations per patient for OTDs who graduated 10 or more years ago compared with ATDs who graduated 10 or more years ago.

Prolonged consultations in the surgery

There is a significantly higher rate of prolonged consultations per patient for OTDs who graduated within the last 5–9 years compared with ATDs who graduated within the last 5–9

years. There is a significantly lower rate of prolonged consultations per patient for OTDs who graduated 10 or more years ago compared with ATDs who graduated 10 or more years ago.

Emergency and after-hours consultations

There is a significantly higher rate of emergency and after-hours consultations per patient for OTDs who graduated within the last 5–9 years compared with ATDs who graduated within the last 5–9 years. There is no difference in the rate of emergency and after-hours consultations per patient for OTDs who graduated 10 or more years ago compared with ATDs who graduated 10 or more years ago.

Hospital consultations

There is no difference in the rate of hospital consultations per patient for OTDs who graduated within the last 5–9 years compared with ATDs who graduated within the last 5–9 years. There is a significantly higher rate of hospital consultations per patient for OTDs who graduated 10 or more years ago compared with ATDs who graduated 10 or more years ago.

Other institutional/nursing home consultations

There is a significantly lower rate of other institutional/nursing home consultations per patient for OTDs who graduated within the last 5–9 years compared with ATDs who graduated within the last 5–9 years. There is a significantly higher rate of other institutional/nursing home consultations per patient for OTDs who graduated within the 10 or more years ago compared with ATDs who graduated 10 or more years ago.

Total Group A consultations

There is a significantly higher rate for total Group A consultations per patient for OTDs who graduated within last 5–9 years compared with ATDs who graduated within the last 5–9 years. There is a significantly lower rate of total group A consultations per patient for OTDs who graduated 10 or more years ago compared with ATDs who graduated 10 or more years ago.

Total therapeutic procedures

There is a significantly lower rate of total therapeutic procedures per patients for OTDs who graduated within the last 5–9 years compared with ATDs who graduated within the last 5–9

years. There is a significantly higher rate of total therapeutic procedures per patients for OTDs who graduated within the 10 or more years ago compared with ATDs who graduated 10 or more years ago.

Surgical operations all types

There is a significantly lower rate of surgical operations of all types per patient for OTDs who graduated within the last 5–9 years compared with ATDs who graduated within the last 5–9 years. There is a significantly higher rate of surgical operations of all types per patient for OTDs who graduated within the 10 or more years ago compared with ATDs who graduated 10 or more years ago.

Other items

For the following service items no significant effects were found: labour and delivery, total Category 2 – diagnostic procedures and investigations and total Category 5 – diagnostic and imaging services.

Summary points

1. More recently graduated OTDs are, overall, providing significantly more services across all items except short consultations, compared with more recently graduated ATDs.
2. More experienced OTDs are, overall, providing significantly fewer standard or prolonged consultations than more experienced ATDs, but fewer long consultations.
3. The overall trend shows more experienced OTDs provide fewer services, while more recent graduate OTDs provide more services across all items.

Age

Table 42 describes GP services items for OTDs and ATDs by age group.

Short consultations

There is a significantly higher rate of short consultations per patient for OTDs aged 34 years or less compared with ATDs aged 34 years or less. There is a significantly lower rate of short consultations per patient for OTDs 35–54 years compared with ATDs aged 35–54 years. There is a significantly higher rate of short consultations per patient for OTDs aged 55 years or more years compared with ATDs aged 55 years or more.

Table 42: GP service items adjusted and relative rates by GP age group

Service item	<35 years			35-54 years			55+ years		
	Adjusted rates ATD	Adjusted rates OTD	Relative rates OTD/ATD (CI, 95%)	Adjusted rates ATD	Adjusted rates OTD	Relative rates OTD/ATD (CI, 95%)	Adjusted rates ATD	Adjusted rates OTD	Relative rates OTD/ATD (CI, 95%)
Short consultations	1.12373	1.26402	1.1248 (p=0.0001) (1.0787-1.1730)	1.28548	1.24029	0.9648 (p=0.0036) (0.9419-0.9884)	1.44829	1.73251	1.1962 (p=0.0001) (1.1423-1.2528)
Standard consultations	1.65119	1.99109	1.2059 (p=0.0001) (1.1961-1.2157)	2.13231	2.00033	0.9381 (p=0.0001) (0.9347-0.9416)	2.24483	2.11769	0.9434 (p=0.0001) (0.9351-0.9517)
Long standard consultations	1.27329	1.55021	1.2175 (p=0.0001) (1.1959-1.2395)	1.39274	1.44558	1.0379 (p=0.0001) (1.0273-1.0487)	1.41210	1.31488	0.9312 (p=0.0001) (0.9082-0.9546)
Prolonged consultations	1.11088	1.09018	0.9814 (p=0.5520) (0.9224-1.0441)	1.25722	1.18483	0.9424 (p=0.0013) (0.9089-0.9772)	1.36782	1.01937	0.7453 (p=0.0001) (0.6937-0.8006)
Emergency and after-hours consultations	1.04875	1.14479	1.0916 (p=0.0005) (1.0389-1.1469)	1.09498	1.09629	1.0012 (p=0.9377) (0.9716-1.0317)	1.16059	1.05294	0.9072 (p=0.0224) (0.8345-0.9863)
Hospital consultations	2.04073	3.12072	0.9979 (p=0.9649) (0.9080-1.0967)	2.84056	2.79454	0.9838 (p=0.3137) (0.9530-1.0156)	3.42845	3.42119	1.5292 (p=0.0001) (1.4368-1.6276)
Other institution/nursing home	1.68464	2.87557	0.7687 (p=0.0001) (0.7273-0.8124)	2.87942	2.84018	0.9864 (p=0.2799) (0.9621-1.0112)	3.43356	2.63932	1.7069 (p=0.0001) (1.6225-1.7958)
Total Group A consultations	1.74024	2.29959	1.3214 (p=0.0001) (1.3122-1.3307)	2.30248	2.16189	0.9389 (p=0.0001) (0.9358-0.9421)	2.41357	2.25420	0.9340 (p=0.001) (0.9266-0.9414)
ECGs	1.03984	1.11108	No significant effects	1.05858	1.09931	No significant effects	1.05675	1.01390	No significant effects
Total Category 3 – therapeutic procedures	1.20690	1.36458	0.8925 (p=0.0001) (0.8509-0.9361)	1.38212	1.27292	0.9210 (p=0.0001) (0.9059-0.9364)	1.30631	1.16587	1.1307 (p=0.0001) (1.0982-1.1641)
Antenatal care[a]	1.60047	1.59008	0.5797 (p=0.0001)	2.09176	1.78953	0.8555 (p=0.0001)	1.99534	1.15670	0.9935 (p=0.8343)

Service item	<35 years			35-54 years			55+ years		
	Adjusted rates ATD	Adjusted rates OTD	Relative rates OTD/ATD (CI, 95%)	Adjusted rates ATD	Adjusted rates OTD	Relative rates OTD/ATD (CI, 95%)	Adjusted rates ATD	Adjusted rates OTD	Relative rates OTD/ATD (CI, 95%)
			(0.4679-0.7182)			(0.8291-0.8827)			(0.9347-1.0561)
Labour and delivery[a]	0.99829	1.08928	No significant effects	1.00067	1.02095	No significant effects	0.99821	b	
Group T8 – surgical operations all types	1.16191	1.32173	0.9600 (p=0.1182) (0.9121-1.0104)	1.25340	1.12770	0.8997 (p=0.0001) (0.8807-0.9192)	1.20634	1.15809	1.1375 (p=0.0001) (1.0989-1.1775)
Total Category 2 – diagnostic procedures and investigations	1.14850	1.20061	No significant effects	1.20830	1.20549	No significant effects	1.18069	1.09235	No significant effects
Total Category 5 – diagnostic and imaging services	1.12618	1.11084	No significant effects	1.19052	1.15038	No significant effects	1.23531	1.20209	No significant effects
Total Category 6 – pathology services	1.35658	1.63498	0.8472 (p=0.0575) (0.7139-1.0053)	1.40340	1.53696	1.0952 (p=0.0001) (1.0516-1.1405)	1.61381	1.36717	1.2052 (p=0.0001) (1.1152-1.3025)

a. Analysis for female patients only
b. Not enough data to perform analysis in OTD stratum

Standard consultations

There is a significantly higher rate of standard consultations per patient for OTDs aged 34 years or less compared with ATDs aged 34 years or less. There is a significantly lower rate of standard consultations per patient for OTDs 35–54 years compared with ATDs aged 35–54 years. There is a significantly lower rate of standard consultations per patient for OTDs aged 55 years or more years compared with ATDs aged 55 years or more.

Long standard consultations in the surgery

There is a significantly higher rate of long consultations per patient for OTDs aged 34 years or less compared with ATDs aged 34 years or less. There is a significantly higher rate of long consultations per patient for OTDs 35–54 years compared with ATDs aged 35–54 years. There is a significantly lower rate of long consultations per patient for OTDs aged 55 years or more years compared with ATDs aged 55 years or more.

Prolonged consultation in the surgery

There is no significant difference in the rate of prolonged consultations per patient for OTDs aged 34 years or less compared with ATDs aged 34 years or less. There is a significantly lower rate of prolonged consultations per patient for OTDs aged 35–54 years compared with ATDs aged 35–54 years. There is a significantly lower rate of prolonged consultations per patient for OTDs aged 55 years or more years compared with ATDs aged 55 years or more.

Emergency and after-hours consultations

There is a significantly higher rate of emergency and after-hours consultations per patient for OTDs aged 34 years or less compared with ATDs aged 34 years or less. There is no difference in the rate of emergency and after-hours consultations for OTDs aged 35–54 years compared with ATDs aged 35–54 years. There is no difference in the rate of emergency and after-hours consultations for OTDs aged 55 years or more years compared with ATDs aged 55 years or more.

Hospital consultations

There is no significant difference in the rate of hospital consultations per patient for OTDs aged 34 years or less compared with ATDs aged 34 years or less. There is no significantly difference in the rate of hospital consultations per patient for OTDs aged 35–54 years

compared with ATDs aged 35–54 years. There is a significantly higher rate of hospital consultations per patient for OTDs aged 55 years or more years compared with ATDs aged 55 years or more.

Other institutional/nursing home consultations

There is a significantly lower rate of other institutional/nursing home consultations per patient for OTDs aged 34 years or less compared with ATDs aged 34 years or less. There is no difference in the rate of other institutional/nursing home consultations for OTDs aged 35–54 years compared with ATDs aged 35–54 years. There is a significantly higher rate of other institutional/nursing home consultations per patient for OTDs aged 55 years or more years compared with ATDs aged 55 years or more.

Total Group A consultations

There is a significantly higher rate of total group A consultations per patient for OTDs aged 34 years or less compared with ATDs aged 34 years or less. There is a significantly lower rate of total group A consultations per patient for OTDs 35–54 years compared with ATDs aged 35–54 years. There is a significantly lower rate of total group A consultations per patient for OTDs aged 55 years or more years compared with ATDs aged 55 years or more.

Total therapeutic procedures

There is a significantly lower rate of total therapeutic procedures per patient for OTDs aged 34 years or less compared with ATDs aged 34 years or less. There is a significantly lower rate of total therapeutic procedures per patient for OTDs aged 35–54 years compared with ATDs aged 35–54 years. There is a significantly higher rate of total therapeutic procedures per patient for OTDs aged 55 years or more years compared with ATDs aged 55 years or more.

Antenatal care consultations

There is a significantly lower rate of antenatal care consultations per patient for OTDs aged 34 years or less compared with ATDs aged 34 years or less. There is a significantly lower rate of antenatal care consultations per patient for OTDs aged 35–54 years compared with ATDs aged 35–54 years. There is no difference in the rate of antenatal care consultations per patients for OTDs aged 55 years or more years compared with ATDs aged 55 years or more.

Surgical operations all types

There is no significant difference in the rate of surgical operations of all types per patient for OTDs aged 34 years or less compared with ATDs aged 34 years or less. There is a significantly lower rate of surgical operations of all types per patient for OTDs aged 35–54 years compared with ATDs aged 35–54 years. There is a significantly higher rate of surgical operations of all types per patient for OTDs aged 55 years or more years compared with ATDs aged 55 years or more.

Total pathology services

There is no significant difference in the rate of total pathology services per patient for OTDs aged 34 years or less compared with ATDs aged 34 years or less. There is a significantly higher rate of total pathology services per patient for OTDs aged 35–54 years compared with ATDs aged 35–54 years. There is a significantly higher rate of total pathology services per patient for OTDs aged 55 years or more years compared with ATDs aged 55 years or more

Other items

For the following service items no significant effects were found: Labour and delivery, total Category 2 – diagnostic procedures and investigations and total Category 5 – diagnostic and imaging services.

Summary points from table

1. Younger OTDs are providing more services across all items except for prolonged consultations than younger ATDs.

2. Generally the older OTDs provide fewer GP services than older ATDs.

3. Older OTDs doing more short consultations than older ATDs, and 35–54 year OTDs are doing more long consultations than ATDs aged 35–54 years.

Location of practice

Table 43 describes GP service items for OTDs and ATDs by rural location of practice.

Table 43: GP service items adjusted and relative rates by location of practice (RRMA)

Service item	RRMA 3–5 (Rural)			RRMA 6–7 (Remote)		
	Adjusted rates ATD	Adjusted rates OTD	Relative rates OTD/ATD (CI, 95%)	Adjusted rates ATD	Adjusted rates OTD	Relative rates OTD/ATD (CI, 95%)
Short consultations	1.28504	1.30140	1.0127 (P=0.2319) (0.9919-1.0340)	1.42776	1.31918	0.9240 (p=0.0012) (0.8807-0.9693)
Standard consultations	2.09752	1.92540	0.9179 (p=0.0001) (0.9147-0.9212)	1.87872	2.31099	1.2301 (p=0.0001) (1.2220-1.2382)
Long standard consultations	1.38039	1.35309	0.9802 (p=0.0002) (0.9699-0.9906)	1.31920	1.63945	1.2428 (p=0.0001) (1.2249-1.2609)
Prolonged consultations	1.27187	1.11719	0.8784 (p=0.0001) (0.8465-0.9115)	1.13380	1.15358	1.0175 (p=0.4665) (0.9712-1.0659)
Emergency and after-hours consultations	1.09542	1.09061	No significant effects	1.15913	1.14485	No significant effects
Hospital consultations	2.76604	2.4231	0.8765 (p=0.0001) (0.8477-0.9062)	3.15933	4.21475	1.3341 (p=0.0001) (1.2714-1.3999)
Other institution/nursing home	2.65836	2.57328	0.9680 (p=0.0041) (0.9467-0.9898)	2.50521	3.10877	1.2409 (p=0.0001) (1.1723-1.3136)
Total Group A consultations	2.25343	2.05847	0.9135 (P=0.0001) (0.9105-0.9164)	2.02830	2.66633	1.3146 (P=0.001) (1.3070-1.3222)
ECGs	1.05327	1.03871	0.9862 (p=0.4689) (0.9497-1.0240)	1.06774	1.26384	1.1837 (p=0.0001) (1.1100-1.2622)
Total Category 3 – therapeutic procedures	1.34964	1.24361	0.9214 (p=0.0001) (0.9062-0.9369)	1.31702	1.36282	1.0348 (p=0.0074) (1.0092-1.0610)
Antenatal care[a]	2.12819	1.79287	0.8424 (p=0.0001) (0.8166-0.8691)	1.58276	1.65630	1.0465 (p=0.1384) (0.9855-1.1113)
Labour and delivery[a]	1.00015	1.033545	No significant effects	1.00318	0.99797	No significant effects
Group T8 – surgical operations all types	1.23081	1.09985	0.8936 (p=0.0001) (0.8744-0.9132)	1.25138	1.31702	1.0525 (p=0.0005) (1.0225-1.0832)
Total Category 2 – diagnostic procedures and investigations	1.19874	1.13070	0.9432 (p=0.0009) (0.9111-0.9765)	1.18356	1.36099	1.1499 (p=0.0001) (1.0892-1.2140)
Total Category 5 – diagnostic & imaging services	1.17949	1.11127	No significant effects	1.20525	1.15837	No significant effects
Total Category 6 – pathology services	1.45560	1.47078	1.0104 (p=0.6741) (0.9627-1.0605)	1.38846	1.66786	1.2012 (p=0.0001) (1.1385-1.2675)

a. Analysis for female patients only

Short consultations

There is no significant difference in the rate of short consultations per patient for OTDs practising in RRMA 3–5 compared with ATDs practising in RRMA 3–5. There is a significantly lower rate for short consultations per patient for OTDs practising in RRMA 6–7 compared with ATDs practising in RRMA 6–7.

Standard consultations

There is a significantly lower rate for standard consultations per patient for OTDs practising in RRMA 3–5 compared with ATDs practising in RRMA 3–5. There is a significantly higher rate for standard consultations per patient for OTDs practising in RRMA 6–7 compared with ATDs practising in RRMA 6–7.

Long standard consultations in the surgery

There is a significantly lower rate for standard consultations per patient for OTDs practising in RRMA 3–5 compared with ATDs practising in RRMA 3–5. There is a significantly higher rate for standard consultations per patient for OTDs practising in RRMA 6–7 compared with ATDs practising in RRMA 6–7.

Prolonged consultation in the surgery

There is a significantly lower rate for prolonged consultations per patient for OTDs practising in RRMA 3–5 compared with ATDs practising in RRMA 3–5. There was no significant difference in the rate of prolonged consultations for OTDs practising in RRMA 6–7 compared with ATDs practising in RRMA 6–7.

Hospital consultations

There is a significantly lower rate for hospital consultations per patient for OTDs practising in RRMA 3–5 compared with ATDs practising in RRMA 3–5. There is a significantly higher rate for hospital consultations per patient for OTDs practising in RRMA 6–7 compared with ATDs practising in RRMA 6–7.

Other institutional/nursing home consultations

There is a significantly lower rate for other institutional/nursing home consultations per patient for OTDs practising in RRMA 3–5 compared with ATDs practising in RRMA 3–5. There is a significantly higher rate for other institutional/nursing home consultations per patient for OTDs practising in RRMA 6–7 compared with ATDs practising in RRMA 6–7.

Total Group A consultations

There is a significantly lower rate for total Group A consultations per patient for OTDs practising in RRMA 3–5 compared with ATDs practising in RRMA 3–5. There is a significantly higher rate for total Group A consultations per patient for OTDs practising in RRMA 6–7 compared with ATDs practising in RRMA 6–7.

Total therapeutic procedures

There is a significantly lower rate for total therapeutic procedures per patient for OTDs practising in RRMA 3–5 compared with ATDs practising in RRMA 3–5. There is a significantly higher rate for total therapeutic procedures per patient for OTDs practising in RRMA 6–7 compared with ATDs practising in RRMA 6–7.

Antenatal care consultations

There is a significantly lower rate for antenatal care consultations per patient for OTDs practising in RRMA 3–5 compared with ATDs practising in RRMA 3–5. There is no difference in the rate of antenatal care consultations per patient for OTDs practising in RRMA 6–7 compared with ATDs practising in RRMA 6–7.

Surgical operations all types

There is a significantly lower rate for surgical operations all types per patient for OTDs practising in RRMA 3–5 compared with ATDs practising in RRMA 3–5. There is a significantly higher rate for surgical operations of all types per patient for OTDs practising in RRMA 6–7 compared with ATDs practising in RRMA 6–7.

Total diagnostic procedures and services

There is a significantly lower rate for total diagnostic procedures and services per patient for OTDs practising in RRMA 3–5 compared with ATDs practising in RRMA 3–5. There is a significantly higher rate for total diagnostic procedures and services per patient for OTDs practising in RRMA 6–7 compared with ATDs practising in RRMA 6–7.

Total pathology services

There is no difference in the rate of total pathology services per patient for OTDs practising in RRMA 3–5 compared with ATDs practising in RRMA 3–5. There is a significantly higher

rate for total pathology services and services per patient for OTDs practising in RRMA 6–7 compared with ATDs practising in RRMA 6–7.

Other items

For the following service items no significant effects were found: emergency and after-hours consultations, labour and delivery and total Category 5 – diagnostic and imaging services.

Summary points from table

1. OTDs working in larger rural centres (RRMA 3–5) are providing fewer services per patient than ATDs in similar locations.
2. OTDs working in more remote and isolated communities (RRMA 6–7) are providing more services per patient than ATDs.

Work status

Table 44 describes GP service items for OTDs and ATDs by their work status (full- or part-time work).

Table 44: GP service items adjusted and relative rates by work status

Service item	Part-time			Full-time		
	Adjusted rates ATD	Adjusted rates OTD	Relative rates OTD/ATD (CI, 95%)	Adjusted rates ATD	Adjusted rates OTD	Relative rates OTD/ATD (CI, 95%)
Short consultations	1.41643	1.46200	No significant effects	1.22584	1.23444	No significant effects
Standard consultations	2.47826	2.46434	0.9944 (p=0.0180) (0.9897-0.9990)	1.82861	1.74476	0.9541 (p=0.0001) (0.9501-0.9582)
Long standard consultations	1.44838	1.63711	1.1303 (p=0.0001) (1.1175-1.1433)	1.32227	1.26874	0.9595 (p=0.0001) (0.9476-0.9716)
Prolonged consultations	1.23273	1.15228	0.9347 (p=0.0019) (0.8957-0.9755)	1.26525	1.11077	0.8779 (p=0.0001) (0.8446-0.9125)
Emergency and after-hours consultations	1.13741	1.14408	No significant effects	1.06635	1.06417	No significant effects
Hospital consultations	3.42492	3.25715	0.9510 (p=0.0060) (0.9176-0.9587)	2.34341	2.51448	1.0730 (p=0.0008) (1.0296-1.1183)
Other institution/nursing home	3.27364	3.59960	1.0996 (p=0.0001) (1.0696-1.1303)	2.29496	2.00197	0.8723 (p=0.0001) (0.8455-0.9000)
Total Group A consultations	2.69584	2.75873	1.0233 (p=0.0001) (1.0191-1.0276)	1.95042	1.85619	0.9517 (p=0.0001) (0.9481-0.9553)
ECGs	Main effect					
Total Category 3	1.39007	1.38766	0.9983	1.30526	1.18886	0.9108

Service item	Part-time			Full-time		
	Adjusted rates ATD	Adjusted rates OTD	Relative rates OTD/ATD (CI, 95%)	Adjusted rates ATD	Adjusted rates OTD	Relative rates OTD/ATD (CI, 95%)
– therapeutic procedures			(p=0.8629) (0.9788-1.0182)			(p=0.0001) (0.8936-0.9284)
Antenatal care[a]	2.16406	2.09525	0.9682 (p=0.1197) (0.9296-1.0084)	1.95047	1.48210	0.7599 (p=0.0001) (0.7319-0.7889)
Labour and delivery[a]	1.00122	1.04466	No significant effects	0.99938	0.99756	No significant effects
Group T8 – surgical operations all types	Main effect					
Total Category 2 – diagnostic procedures and investigations	1.24741	1.25611	No significant effects	1.15571	1.13547	No significant effects
Total Category 5 – diagnostic and imaging services	1.23799	1.18007	No significant effects	1.12863	1.10909	No significant effects
Total Category 6 – pathology services	1.50561	1.73525	1.1525 (p=0.0001) (1.1006-1.2069)	1.36532	1.33670	0.9790 (p=0.4438) (0.9274-1.0336)

a. Analysis for female patients only

Standard consultations

There is a significantly lower rate of standard consultations for OTDs working part-time compared with ATDs working part-time. There is a significantly lower rate of standard consultations per patient for OTDS working full-time compared with ATDs working full-time.

Long standard consultation in the surgery

There is a significantly higher rate of long standard consultations per patient for OTDs working part-time compared with ATDs working part-time. There is a significantly lower rate of long standard consultations per patient for OTDS working full-time compared with ATDs working full-time.

Prolonged consultation in the surgery

There is a significantly lower rate of prolonged consultations per patient for OTDs working part-time compared with ATDs working part-time. There is a significantly lower rate of prolonged consultations per patient for OTDs working full-time compared with ATDs working full-time.

Hospital consultations

There is a significantly lower rate of hospital consultations per patient for OTDs working part-time compared with ATDs working part-time. There is a significantly higher rate of hospital consultations per patient for OTDs working full-time compared with ATDs working full-time.

Other institutional/nursing home consultations

There is a significantly higher rate of other institutional/nursing home consultations per patient for OTDs working part-time compared with ATDs working part-time. There is a significantly lower rate of other institutional/nursing home consultations per patient for OTDs working full-time compared with ATDs working full-time.

Total Group A consultations

There is a significantly higher rate of total Group A consultations per patient for OTDs working part-time compared with ATDs working part-time. There is a significantly lower rate of total Group A consultations per patient for OTDS working full-time compared with ATDs working full-time.

Total therapeutic procedures

There is no significant difference in the rate of total therapeutic procedures per patient for OTDs working part-time compared with ATDs working part-time. There is a significantly lower rate of total therapeutic procedures per patient for OTDs working full-time compared with ATDs working full-time.

Antenatal care

There is no significant difference in the rate of antenatal care consultations per patient for OTDs working part-time compared with ATDs working part-time. There is a significantly lower rate of antenatal care consultations per patient for OTDs working full-time compared with ATDs working full-time.

Total pathology services

There is a significantly higher rate of total pathology services ordered per patient for OTDs working part-time compared with ATDs working part-time. There is no difference in the rate of total pathology services ordered per patient for OTDs working full-time compared with ATDs working full-time.

Other items

For the following service items no significant effects were found: short consultations, emergency and after-hours consultations, labour and delivery, total Category 2 – diagnostic procedures and investigations and total Category 5 – diagnostic and imaging services.

Summary points from table

1. Part-time OTDs are providing more total Group A consultations, long standard consultations and nursing home visits per patient than part-time ATDs.
2. Part-time OTDs are providing fewer prolonged consultations and hospital consultations per patient than part-time ATDs.
3. Full-time OTDs are providing fewer services per patient than full-time ATDs.
4. Full-time OTDs are providing more hospital consultations per patient than full-time ATDs.

QUALITY ITEMS

Summary of all results

Table 47 provides a summary of all the results of the logistic regression analysis across all the quality items investigated and the direction of the result.

Table 45: Summary of results of the multiple logistic regression analysis – ATD/OTD characteristics and quality items by direction of result

	Service items	GP Characteristics										
		Sex		Experience		Age			Rural location		Work status	
		Male relative rates (OTD/ATD)	Female relative rates (OTD/ATD)	5–9 years relative rates (OTD/ATD)	10+ years relative rates (OTD/ATD)	<35 years relative rates (OTD/ATD)	35–54 years relative rates (OTD/ATD)	55+ years relative rates (OTD/ATD)	RRMA 3–5 relative rates (OTD/ATD)	RRMA 6–7 relative rates (OTD/ATD)	Part-time relative rates (OTD/ATD)	Full-time relative rates (OTD/ATD)
Enhanced Primary Care items	Group A14 Health assessments	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Group A15 Case conferences	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Group A15 Multidisciplinary care plans	NS	-	+	-	+	-	NS	NS	NS	NS - ME -	
	Group A17 Domiciliary Care Medical Reviews	a	a	a	a	NS	NS	NS	a	a	a	a
Practice Incentive Payments	Group 18 PIP incentives payments	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Group A19 PIP incentives payments	a	a	a	a	a	a	a	a	a	a	a
Preventive items	Spirometry	a	a	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Basal cell carcinoma	a	a	a	a	a	a	a	a	a	a	a
	HbA1c	a	a	a	a	a	a	a	a	a	a	a

a. Insufficient data for model
Note: NS = not significant and NS-ME = Main effect only

Sex

Table 46 describes GP quality items for OTDs and ATDs by sex.

Table 46: Quality items adjusted and relative rates by sex

Quality item	Male			Female		
	Adjusted rates ATD	**Adjusted rates OTD**	**Relative rates OTD/ATD (CI, 95%)**	**Adjusted rates ATD**	**Adjusted rates OTD**	**Relative rates OTD/ATD (CI, 95%)**
Group A14 Health assessments	1.00120	1.00112	No significant effects	1.00114	1.00118	No significant effects
Group A15 Case conferences	1.16582	1.02593	No significant effects	1.13904	1.03304	No significant effects
Group A15 Multidisciplinary care plans	1.251523	1.21131	0.9861 (P=0.3075) (0.9096-1.0303)	1.23810	0.97136	0.7846 (p=0.0266) (0.6331-0.9723)
Group 18 PIP incentives payments	1.02816	1.01745	No significant effects	1.01885	1.02204	No significant effects
Group A17 Domiciliary Care Medical Review[a]						
Group A19 PIP incentive payments[a]						
Basal cell carcinoma[a]						
Spirometry[a]						
HbA1c[a]						

a. Not enough data to produce adjusted rates

Group A15 Multidisciplinary care plans

There is a significant lower rate of multidisciplinary care plans per patient for female OTDs compared with female ATDs. There is no difference in rates of multidisciplinary care plans between male OTDs and male ATDs.

Other items

For the following service items, no significant effects were found relating to GP sex: Group A14 health assessments, Group A15 Case conferences and Group 18 PIP incentive payments.

Summary points from table

1. Female OTDs do significantly fewer multidisciplinary care plans per patient than ATDs.

Years since graduation

Table 47 describes quality service items for OTDs and ATDs by years since graduation.

Table 47: Quality items adjusted and relative rates by years since graduation

Quality item	5–9 years			10+ years		
	Adjusted rates ATD	**Adjusted rates OTD**	**Relative rates OTD/ATD (CI, 95%)**	**Adjusted rates ATD**	**Adjusted rates OTD**	**Relative rates OTD/ATD (CI, 95%)**
Group A14 Health assessments	1.00137	1.00066	No significant effects	1.00118	1.00116	No significant effects
Group A15 Case conferences	1.12048	1.02224	No significant effects	1.16242	1.03482	No significant effects
Group A15 Multidisciplinary care plans	1.21694	1.34460	1.1049 (p=0.0254) (1.0124-1.2059)	1.25639	1.06361	0.8466 (p=0.0001) (0.7777-0.9215)
Group 18 PIP incentives payments	1.02188	1.01510	No significant effects	1.02690	1.02090	No significant effects
Spirometry	1.08424	1.03074	No significant effect	1.18762	1.12370	No significant effect
Group A17 Domiciliary Care Medical Reviews[a]						
Group A19 PIP incentives payments[a]						
Basal cell carcinoma[a]						
HbA1c[b]						

a. Not enough data to produce adjusted rates
b. Not enough data to analyse

Group A15 Multidisciplinary care plans

There is a significantly higher rate of multidisciplinary care plans per patient for OTDs who graduated within last 5–9 years compared with ATDs who graduated within last 5–9 years. There is a significantly lower rate of multidisciplinary care plans per patient for OTDs who graduated within 10 or more years ago compared with ATDs who graduated 10 or more years ago.

Other items

For the following service items no significant effects were found for years since graduation: Group A14 health assessments, Group A15 Case conferences, Group 18 PIP incentive payments and spirometry.

Summary points from table

1. More recent OTD graduates are doing the same or significantly more quality items than more recent ATD graduates.

2. Less recent OTD graduates are doing significantly fewer quality items than ATD.

Age

Table 48 describes quality service items for OTDs and ATDs by age of GPs.

Group A15 Multidisciplinary care plans

There is a significantly higher rate of multidisciplinary care plans per patient for OTDs aged 34 years or less compared with ATDs aged 34 years or less. There is a significantly lower rate of multidisciplinary care plans per patient for OTDs 35–54 years compared with ATDs aged 35–54 years. There is no significant difference in rate of multidisciplinary care plans per patient for OTDs 55 years or more compared with ATDs aged 55 years or more.

Other items

For the following service items no significant effects were found: Group A14 Health assessments, Group A15 Case conferences, Group A17 Domiciliary care medical reviews, Group 18 PIP incentive payments and spirometry.

Summary points from table

1. Younger OTDs are providing more quality services than younger ATDs.

2. Older OTDs are providing fewer quality services than older ATDs.

Table 48: Quality items adjusted and relative rates by age

Quality item	<35 years			35–54 years			55+ years		
	Adjusted rates ATD	Adjusted rates OTD	Relative rates OTD/ATD (CI, 95%)	Adjusted rates ATD	Adjusted rates OTD	Relative rates OTD/ATD (CI, 95%)	Adjusted rates ATD	Adjusted rates OTD	Relative rates OTD/ATD (CI, 95%)
Group A14 Health assessments	1.00135	1.00100	No significant effects	1.00118	1.00115	No significant effects	1.00112	1.00115	No significant effects
Group A15 Case conferences	1.05207	1.04312	No significant effects	1.17987	1.01939	No significant effects	1.12597	0.97177	No significant effects
Group A15 Multidisciplinary care plans	1.15258	1.33511	1.1584 (p=0.0007) (1.0644-1.2607	1.27365	1.06188	0.8337 (p=0.0001) (0.7600-0.9146)	1.18368	0.95202	0.8043 (p=0.1176) (0.6123-1.0566)
Group A17 Domiciliary Care Medical Reviews	0.99973	0.99898	No significant effects	1.00073	0.99932	No significant effects		0.99973	No significant effects
Group 18 PIP incentives payments	1.02037	1.02872	No significant effects	1.02643	1.01825	No significant effects	1.03106	1.00117	No significant effects
Group A19 PIP incentives payments[a]									
Basal cell carcinoma[a]									
Spirometry	1.11092	1.02903	No significant effects	1.18601	1.13795	No significant effects	1.16502	1.02734	No significant effects
HbA1c[b]									

a. Not enough data to produce adjusted rates
b. Not enough data to analyse

Location of practice

Table 49 describes quality service items for OTDs and ATDs by rural location of practice.

Table 49: Quality items adjusted and relative rates by location of practice (RRMA)

Quality item	RRMA 3–5			RRMA 6–7		
	Adjusted rates ATD	**Adjusted rates OTD**	**Relative rates OTD/ATD (CI, 95%)**	**Adjusted rates ATD**	**Adjusted rates OTD**	**Relative rates OTD/ATD (CI, 95%)**
Group A14 Health assessments	1.00126	1.00122	No significant effects	1.00094	1.00113	No significant effects
Group A15 Case conferences	1.18076	1.03618	No significant effects	1.07288	1.03216	No significant effects
Group A15 Multidisciplinary care plans	1.25582	1.23144	No significant effects	1.13464	1.08989	No significant effects
Group A17 Domiciliary Care Medical Reviews[a]						
Group 18 PIP incentives payments	1.02611	1.01538	No significant effects	1.02767	1.02757	No significant effects
Group A19 PIP incentives payments[a]						
Basal cell carcinoma*						
Spirometry	1.17537	1.04961	No significant effects	1.12155	1.16878	No significant effects
HbA1c[b]						

a. Not enough data to produce adjusted rates
b. Not enough data to analyse

Items

For the following service items no significant effects were found relating to practice location: Group A14 health assessments, Group A15 Case conferences, Group A15 Multidisciplinary care plans, Group 18 PIP incentive payments and spirometry.

Summary points from table

1. There were no differences in the provision of quality items between OTDs and ATDs and location of practice.

Work status

Table 50 describes quality service items for OTDs and ATDs by whether they work full- or part-time work.

Table 50: Quality items adjusted and relative rates by work status

Quality item	Part-time			Full-time		
	Adjusted rates ATD	Adjusted rates OTD	Relative rates OTD/ATD (CI, 95%)	Adjusted rates ATD	Adjusted rates OTD	Relative rates OTD/ATD (CI, 95%)
Group A14 Health assessments	1.00117	1.00116	No significant effects	1.00121	1.00106	No significant effects
Group A15 Case conferences	1.9273	1.02047	No significant effects	1.14419	1.04037	No significant effects
Group A15 Multidisciplinary care plans	Main effect					
Group A17 Domiciliary Care Medical Reviews[a]						
Group 18 PIP incentives payments	1.03043	1.01944	No significant effects	1.02138	1.01912	No significant effects
Group A19 PIP incentives payments[a]						
Basal cell carcinoma[a]						
Spirometry	1.20331	1.13150	No significant effects	1.13007	1.05951	No significant effects
HbA1c[b]						

a. Not enough data to produce adjusted rates
b. Not enough OTD data for analysis

Items

For the following service items no significant effects were found relating to work status: Group A14 health assessments, Group A15 Case conferences, Group 18 PIP incentive payments and spirometry.

Summary points from table

- There were no differences in the provision of quality items between OTDs and ATDs and work status.

Appendix 8: Summary of studies indicating influences on patterns of service

Practice patterns GP characteristic/ Other	Prescribing	Length of consultation	Caesarean rates	High billing	Diagnostic, therapeutic/ surgical procedures	Consultations	Referrals	Pathology	Preventive services	Hospital admissions	Doctor–patient communication	Miscellaneous
Ethnicity	No[184]	Yes[213]									Yes[206]	
Age		No[188, 213] Yes[189, 194]	Yes[190]				No[200, 201, 205]			No[198]	Yes[206]	
Sex	Yes[211]	No[213] Yes[188, 189, 211, 212]	Yes[190]	Yes[192]	Yes[211]		Yes[205, 250]	Yes[211]	Yes[196]		Yes[206, 212]	Yes[251] (home deliveries)
Sex and age		Yes[188]										
Sex and location		Yes[188]										
Sex, age and location		Yes[188]										
Experience (years since graduation)				Yes[192]			No[200, 201] Yes[202]					
Training/ qualifications	Yes[165, 166, 196]	Yes[165, 166, 189]			Yes[166]	Yes[165, 166] No[191]	Yes[165, 166, 202-204] No[200, 201]	Yes[165, 166]	Yes[165, 166, 196]			
Location of training (OTD)	No[184] Yes??[185]	Yes[189]	Yes[190]	Yes[192]	Yes[192]				Yes[196]			
Practice location (rural/urban)	Yes[185]	No[188] Yes[189]					Yes[202, 250]		No[196]			
Type of P – Proceduralist, Community health GP	No[186]			Yes[192]		No[186]	Yes[186]	No[186]		Yes[198]		
Work hours (i.e. part-time/ full-time)							No[205]				Yes[206]	
Type of practice – billing, community		Yes[186, 213]							Yes[196]			

Practice patterns GP characteristic/ Other	Prescribing	Length of consultation	Caesarean rates	High billing	Diagnostic, therapeutic/ surgical procedures	Consultations	Referrals	Pathology	Preventive services	Hospital admissions	Doctor–patient communication	Miscellaneous
health, health care system												
Practice size		No[188]					No[205]		Yes[196]	No[198]		Yes[251] (home visits)