



Health Workforce
Queensland

Supporting Primary Health Care in Rural Communities

**Overview of the Queensland Rural and Remote Medical Workforce - Minimum
Data Set Report as at 30th November 2005**

Health Workforce Queensland 2005

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Health Workforce Queensland Minimum Data Set Report – 30th November 2005

1. Introduction

For the 2001-2004 triennium, as a part of their contractual agreement with the Commonwealth Department of Health and Ageing (CDoHA), Rural Workforce Agencies (RWA's) in all states and territory were required to collect and report a minimum, specified set of data in relation to the rural and remote General Practice workforce in locations classified RRMA 4 through RRMA 7.

Undertaken individually by each RWA, deidentified data were compiled nationally through the Australian Rural and Remote Workforce Agencies Group (ARRWAG) to provide a comprehensive portrayal of the Australian rural and remote medical workforce.

The data were first compiled at a national level in December 2001 and were updated on an annual basis as at 30th November each year. Data in relation to the number of medical practitioners, country of basic medical qualification, residency status, age, gender, procedural skills and length of stay in current location are largely derived from databases maintained by each RWA. Data in relation in primary income source, models of service provision, clinical and total hours worked are largely self-reported and may be incomplete due to non-responses and/or missing data.

Each RWA normally surveys rural and remote medical practitioners in their state/territory in the latter part of each year. Core questions for the Minimum Data Set have been developed and standardised among the states/territories. In addition, states/territory have the flexibility to incorporate additional questions should they wish. While the annual MDS survey is a major component of the data reported, all RWA's utilise additional resources to verify and validate their data. It should also be noted that the number of doctors reported reflect the more stable elements of the rural and remote medical workforce and do not normally include transient, short term service providers (e.g., locum tenens/Queensland Health Relievers).

While no longer a contractual requirement, current and accurate information in relation to the rural and remote medical workforce is essential for the day to day operations of RWA's and as such, all RWA's have agreed to continue to collect MDS data.

Data provided in this report is for Queensland only and was current as at 30th November 2005.

2. Number and type of Medical Practitioner by RRMA

Data indicated that as at 30th November 2005, the number of medical practitioners currently in RRMA 4 to 7 locations was 993. This represents an increase of 28 practitioners (2.9%) compared with numbers reported as at 30th November 2004. Table 1 presents the total number of medical practitioners working in RRMA 4 to 7 locations in Queensland by practitioner type as at 30th November 2005. Table 2 provides a breakdown of this distribution by gender and RRMA. A more detailed analysis of gender distribution by selected age categories is provided in Figure 2. Table 3 provides a breakdown of employment type by Division of General Practice.

Table 1: Employment type by RRMA

Employment Type	RRMA4	RRMA5	RRMA6	RRMA7	Total
ACCHS	0	8	6	1	15
General Practitioner	277	362	47	21	707
GP/Academic	0	0	2	0	2
GP/Company	0	4	0	0	4
MORPP	0	9	2	9	20
MS	4	11	4	8	27
MSRPP	1	24	5	23	53
RFDS	0	0	7	15	22
RMO	58	15	21	10	104
SMO	10	21	4	4	39
Total	350	454	98	91	993

Legend

ACCHS	Aboriginal Community Controlled Health Service
MORPP	Medical Officer with Right of Private Practice
MSRPP	Medical Superintendent with Right of Private Practice
MS	Medical Superintendent
RMO	Resident Medical Officer (includes JHO, SHO, PHO etc.)
SMO	Senior Medical Officer
General Practitioner	General Practitioner
GP/Academic	GP where main responsibilities are teaching/administration
GP/Company	GP where main employment is with Defence Forces or company

Table 2: Gender by RRMA

RRMA	Female	Male	Total
RRMA4	105	245	350
RRMA5	155	299	454
RRMA6	31	67	98
RRMA7	23	68	91
Total	314	679	993

Table 3: Employment type by Division – RRMA 4 to 7

Division	ACCHS	GP	GP/Acad	GP/Comp	MORPP	MS	MSRPP	RFDS	RMO	SMO	Total
CairnDGP	0	0	0	0	0	0	2	0	0	0	2
CapDGP	2	58	0	0	0	3	0	0	8	4	75
CQR	0	20	0	0	3	1	12	0	3	1	40
FNQ	8	69	0	0	0	8	1	14	13	11	124
GCDGP	0	10	0	0	0	0	0	0	0	0	10
IWMDGP	0	34	0	0	1	0	3	0	0	0	38
MacDGP	0	24	0	0	0	1	0	0	1	4	30
NWQPHC	1	45	2	0	8	5	10	7	22	4	104
RedDGP	0	6	0	0	0	0	0	0	0	0	6
SQR	4	107	0	0	6	7	19	1	7	11	162
SunCDGP	0	216	0	0	0	1	1	0	18	3	239
ToowDGP	0	28	0	4	1	1	0	0	0	0	34
T'villeDGP	0	8	0	0	0	0	0	0	0	0	8
WBDGP	0	82	0	0	1	0	5	0	32	1	121
Total	15	707	2	4	20	27	53	22	104	39	993

3. Workloads

Estimates of Full Time Equivalents (FTE's) and Full Time Workload Equivalents (FWE's) as used by the Health Insurance Commission (HIC) in calculating GP medical service provision are based solely on the number and the dollar value of claims made by a provider over a given reference period (usually 12 months). While these can be useful measures of overall service provision under Medicare, they do not reflect the number of hours worked in providing medical services, or services provided that are not claimed and/or are not claimable through the HIC. For example, a medical practitioner is classified as full-time by the HIC if the Schedule fee value of services processed over a 12 month period is \$86,727¹ (2003-2004) or more for that practitioner. Similarly, a Full Time Workload Equivalent (FWE) value is calculated for each doctor by dividing the doctor's Medicare billing (Schedule fee value of claims processed by the HIC during the reference period) by the mean billing of full-time doctors for reference period. For the 2002-2003 reference period, this value for vocationally registered doctors was \$221,864.²

An alternative measure of service provision is number of hours worked. The Australian Bureau of Statistics (ABS) defines full-time work as being 35 hours per week or more and part-time work as less than 35 hours. It is this measure that has been chosen by Health Workforce Queensland to differentiate between full-time and part-time service provision.

An estimate of full-time/part-time medical service provision utilising ABS benchmark was undertaken based on self reported clinical hours worked. Data was available for 65.9% of the total number of practitioners. Data as displayed in Table 4 indicates that 73.7% of respondents worked 35 hours a week or more in the provision of routine clinical GP services.

Table 4: Self-reported clinical hours

Clinical Hours	Frequency	Percent
< 20 hours	42	6.4
20 to 35 hours	130	19.9
35 hours plus	482	73.7
Total	654	100.0

It should be noted that hours reported are for those worked in GP practice only and should not be interpreted as total hours as hospital hours, travel, teaching, supervision time etc. are not included. The average number of clinical hours reported was 40.5 hours per week (N=654).

A further breakdown of self-reported clinical hours by gender is displayed in Table 5 below.

¹ Australian Government Department of Health and Ageing. (2005). *RFT 127/0405 - Request for tender for a medical workforce profile project*. Canberra: ADoHA

² Ibid

Table 5: Self-reported clinical hours by gender

Clinical hours		Female	Male	Total
< 20 hours	Count	18	24	42
	% within gender	8.5	5.4	6.4
20 to 35 hours	Count	78	52	130
	% within gender	36.8	11.8	19.9
35 hours plus	Count	116	366	482
	% within gender	54.7	82.8	73.7
Total	Count	212	442	654
	% within gender	100	100	100

These data appear to be in line with national trends that suggest that female practitioners tend to work less hours compared with their male counterparts (AMWAC, 2005; CDHAC, 2001). Explanations for these differences have been well documented and reported in a considerable number of studies and will not be explored further in this analysis.

Self-reported total hours were also explored. In addition to clinical hours, these hours may include hospital hours, time spent in travel between practices, population health, teaching, administrative or representative work. Data was available for 73.5% of practitioners. Table 6 displays self-reported total weekly hours while Table 7 displays total hours by gender. The average reported total hours were 48.85 hours per week (N=730).

Table 6: Self-reported Total hours

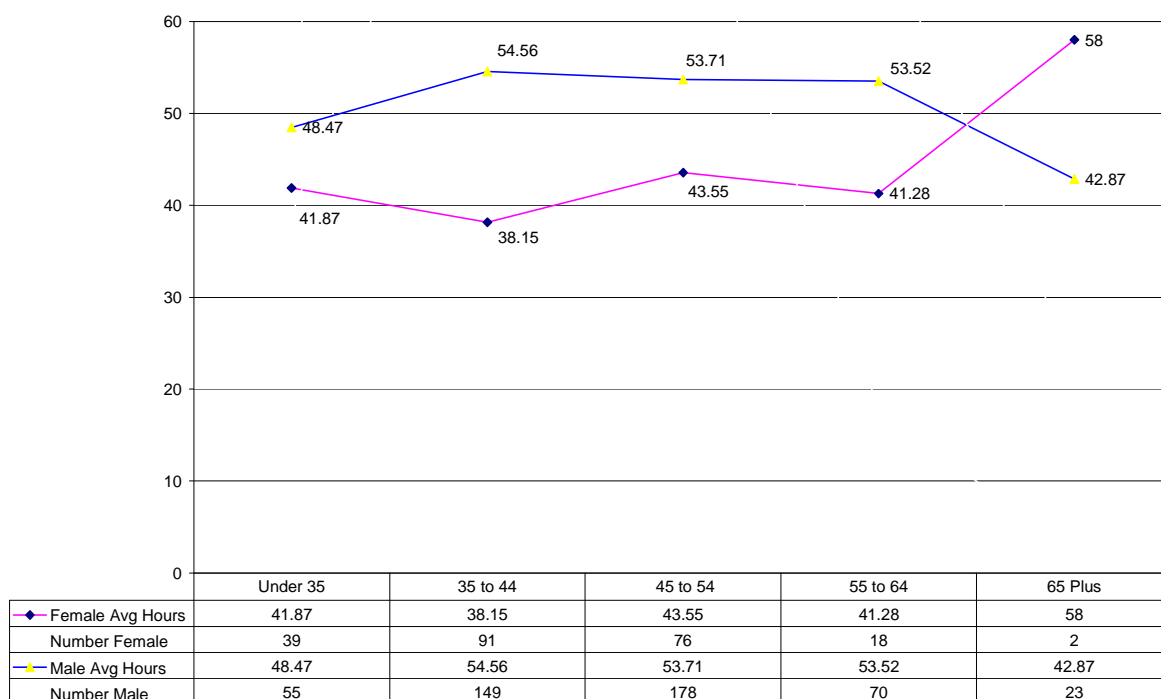
Total Hours	Frequency	Percent
< 20 hours	17	2.3
20 to 35 hours	74	10.1
35 hours plus	639	87.5
Total	730	100.0

Table 7: Self-reported total hours by gender

Total Hours		Female	Male	Total
< 20 hours	Count	11	6	17
	% within gender	4.7	1.2	2.3
20 to 35 hours	Count	54	20	74
	% within gender	23.2	4.0	10.1
35 hours plus	Count	168	471	639
	% within gender	72.1	94.8	87.5
Total	Count	233	497	730
	% within gender	100	100	100

A more refined breakdown of average total hours by gender and age categories is presented in Figure 1.

Figure 1: Average total hours worked per week by gender and age category (N=701)



4. Length of stay in current principal practice

In Queensland, the average length of stay in current principal practice was 5.9 years. A more refined breakdown by duration and RRMA is provided in Table 8.

Table 8: Length of stay in current practice by RRMA

RRMA	Duration								Total
	< 6 mths	6-12 mths	1-2 yrs	2-3 yrs	3-5 yrs	5-10 yrs	10-20 yrs	20+ yrs	
4	46	58	47	39	48	47	30	26	341
5	46	71	58	46	62	71	46	50	450
6	16	26	17	4	8	9	10	7	97
7	17	16	13	9	11	12	3	6	87
	125	171	135	98	129	139	89	89	975

Data indicates that 69.7 % of respondents have practiced in their current rural and remote locations for more than a year. Approximately 30.3% are relatively new and have been at their current practice for less than 12 months. While these data provide a guide, they do not take into account movements between practices and RRMA.

5. Age and gender by RRMA

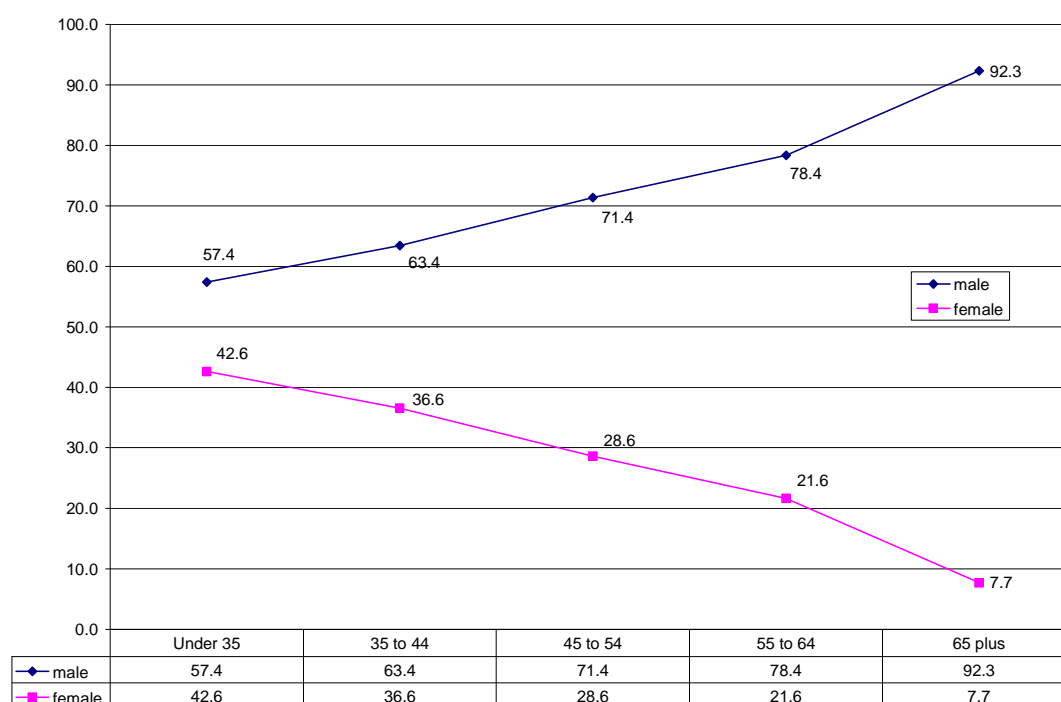
For Queensland the average age for male practitioners was 46.7 years (N=544) and 43.2 years for females (N=256). Table 9 displays gender by age category by RRMA.

Table 9: GP age categories by gender and RRMA (N=800)

RRMA	Gender	Under 35	35 to 44	45 to 54	55 to 64	65 plus	Total
4	Male	18	52	62	20	12	164
	Female	17	33	23	8	1	82
	Total RRMA4	35	85	85	28	13	246
5	Male	30	91	96	39	9	265
	Female	21	57	48	10	0	136
	Total RRMA5	51	148	144	49	9	401
6	Male	13	12	19	8	2	54
	Female	5	7	5	2	1	20
	Total RRMA6	18	19	24	10	3	74
7	Male	9	22	20	9	1	61
	Female	9	5	3	1	0	18
	Total RRMA7	18	27	23	10	1	79

Figure 2 below displays the distribution of GPs by gender across a selected number of age categories. These data suggest that females are more broadly represented in the under 45 age categories.

Figure 2: Proportion of male and female practitioners across age categories (N=800)



6. Known number of procedural practitioners

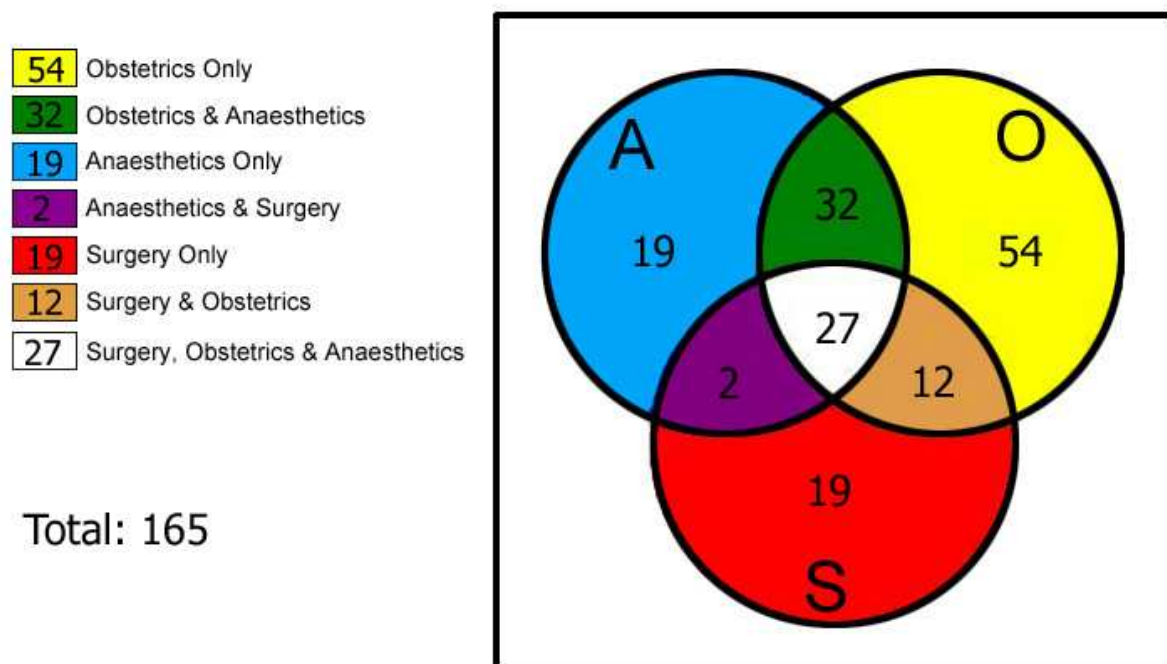
Data in relation to the provision of procedural services in rural and remote Queensland may be incomplete due to non-respondents, although the number of proceduralist GPs in rural and remote Queensland is fairly well known. Senior Medical Officers (Generalists) employed by Queensland Health and providing procedural services in Maryborough, Hervey Bay and Mount Isa are not included in the data shown below. The known number of practitioners providing specified procedural services as at 30th November 2005 is detailed in Table 10. In

many cases it is possible for a practitioner to perform a number of procedures e.g., Anaesthetics and Obstetrics or Obstetrics and Surgery etc. The number of known procedural practitioners as detailed in Table 10 (N=165) is therefore less than the total number of procedures documented (N265). A Venn diagram illustrating practitioners undertaking single and/or multiple procedures is displayed in Figure 3.

Table 10: Number of practitioners undertaking procedural work by type and RRMA

	RRMA4	RRMA5	RRMA6	RRMA7	Total
Obstetrics Normal Delivery	19	63	17	26	125
Anaesthetics General	17	41	8	14	80
Operative Surgery	13	31	6	10	60
Known Proceduralists	31	81	22	31	165
Total Practitioners	350	454	98	91	993
Percent Procedural	8.9%	17.8%	22.4%	34.1%	16.6%

Figure 3: Venn diagram illustrating numbers undertaking single and/or multiple procedures (N165)



7. Emergency Care and Aboriginal Health provision

Practitioners were also asked if they provided regular Emergency care or Aboriginal Health care services. The number of respondents indicating that they provide these services by RRMA is detailed in Table 11 below.

Table 11: Number of practitioners providing regular Emergency Care or Aboriginal Health services

Services	RRMA4	RRMA5	RRMA6	RRMA7	Total
Emergency Care	137	294	55	66	552
Aboriginal Health	67	159	45	58	329

8. Types of practice

The number of medical practitioners working in a selection of practice types by RRMA was also explored. Table 12 displays the number of doctors working in each practice type by RRMA for the period ending 30th November 2005. MSRPP's and MORPP's are normally assigned to their private practice rather than to the hospital.

Table 12: Practice type by RRMA

Practice type	RRMA4	RRMA5	RRMA6	RRMA7	Grand Total
ACCHS	0	9	6	3	18
Hospital	70	46	27	23	166
Group	264	328	47	35	674
Solo	16	71	18	30	135
Grand Total	350	454	98	91	993

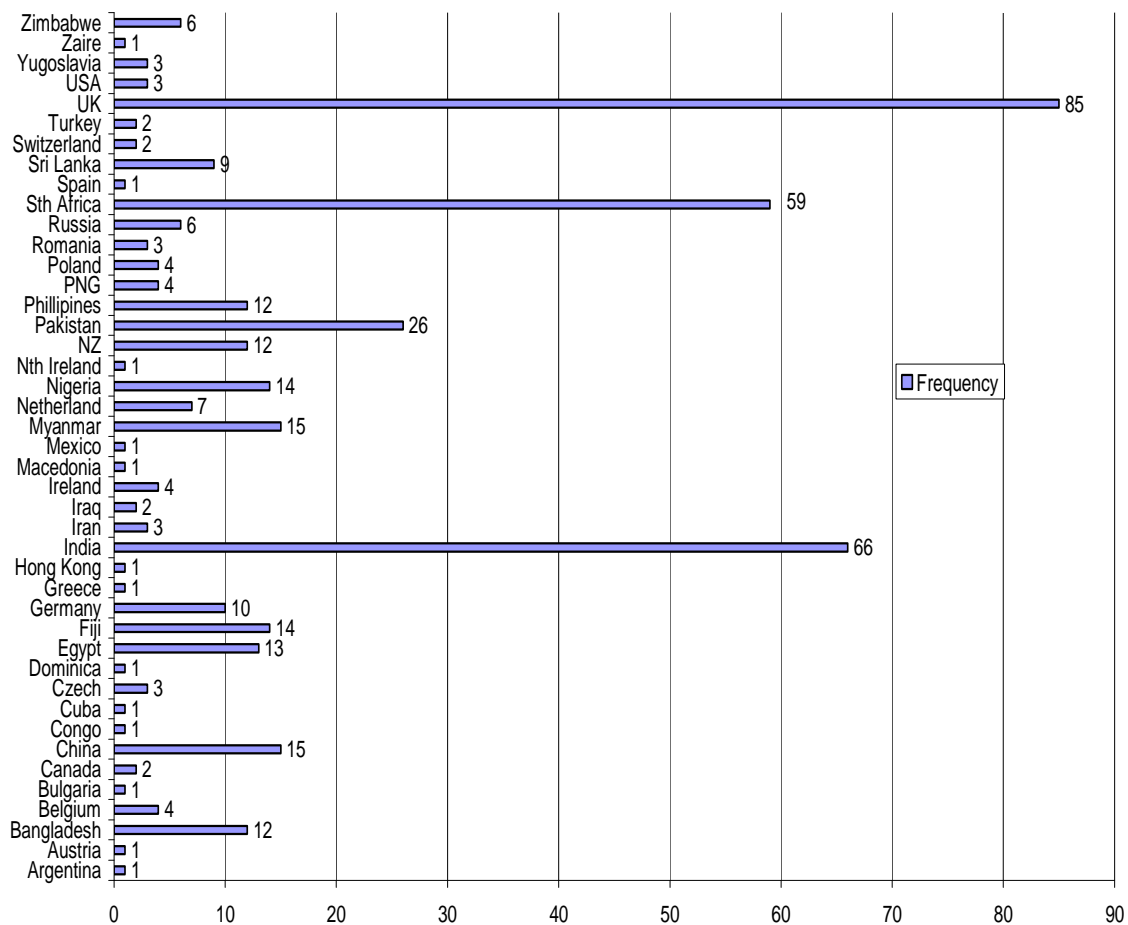
9. Country of basic medical qualification

Data indicates that 56.4 per cent (N560) of the current rural and remote medical workforce in Queensland are Australian trained. The other 43.6% per cent (N433) have obtained their basic medical qualification overseas. The largest proportions of Overseas Trained Doctors (OTDs) are from the United Kingdom (8.6%), followed by India (6.6%) and South Africa (5.9%). It also needs to be acknowledged that many Overseas Trained Doctors are Australian citizens or Permanent Residents and have practiced medicine in this country for many years. Temporary Resident Doctors (TRDs) comprise 18.6% (N185) of the current Queensland rural and remote medical workforce. Table 13 provides a breakdown by citizenship status and number of Australian/Overseas Trained Doctors. Figure 4 provides a breakdown of country of basic medical qualification for overseas trained doctors.

Table 13: Citizenship status and number of Australian/Overseas Trained Doctors

RRMA	Citizenship			Total	%Temporary
	Australian	Permanent	Temporary		
4	228	50	72	350	20.57%
5	316	68	70	454	15.42%
6	63	5	30	98	30.61%
7	70	8	13	91	14.29%
Total	677	131	185	993	18.63%
				Number	Percent
Australian Trained Doctors				560	56.40%
Overseas Trained Doctors				433	43.60%
				Number	Percent
Overseas Trained and Australian citizens or permanent residents				248	52.27%
Overseas Trained and temporary residents				185	42.73%

Figure 4: Country of basic medical qualification for non-Australian trained doctors (N=433)



10. University and year of graduation for Australian trained doctors

As of 30th November 2005, there were 993 medical practitioners working in rural and remote locations in Queensland. Four hundred and twenty five or 42.8% obtained their basic medical degree from the University of Queensland. One hundred and thirty five or 13.6% obtained their basic medical qualification from other Australian Universities. University and year of graduation for Australian trained doctors is displayed in Table 14.

Table 14: University and year of graduation for Australian trained doctors (RRMA 4-7)

YBQ	UQ	UNSW	Sydney	Newcastle	Monash	Adelaide	Flinders	UWA	Tasmania	Melbourne	Total
1951	1	0	0	0	0	0	0	0	0	0	1
1953	1	0	0	0	0	0	0	0	0	0	1
1954	0	0	0	0	0	0	0	0	0	1	1
1958	1	0	0	0	0	0	0	0	0	0	1
1959	2	0	2	0	0	1	0	0	0	0	5
1962	0	0	0	0	0	0	0	1	0	0	1
1963	3	0	0	0	0	0	0	0	0	0	3
1964	1	0	0	0	0	0	0	0	0	0	1
1965	3	0	1	0	0	1	0	0	0	2	7
1966	3	0	0	0	0	0	0	1	0	0	4
1967	4	0	0	0	1	0	0	0	0	1	6
1968	8	0	2	0	0	0	0	0	0	0	10
1969	4	1	1	0	0	0	0	0	0	0	6
1970	0	1	1	0	0	0	0	0	0	0	2
1971	4	0	2	0	0	1	0	0	0	0	7
1972	8	1	0	0	1	0	0	0	0	1	11
1973	7	0	0	0	2	2	0	0	0	0	11
1974	11	1	0	0	0	1	0	0	0	1	14
1975	15	0	0	0	1	0	0	1	0	1	18
1976	17	2	0	0	0	1	0	0	0	0	20
1977	17	0	0	0	2	0	0	1	0	1	21
1978	19	2	2	0	0	0	0	0	0	2	25
1979	14	1	0	0	1	0	0	0	0	1	17
1980	16	0	1	0	0	0	0	0	0	0	17
1981	15	0	0	0	2	0	0	0	0	0	17
1982	17	0	0	0	0	1	0	0	0	1	19
1983	14	0	1	0	0	2	0	1	1	3	22
1984	8	2	0	0	1	1	0	0	0	0	12
1985	14	2	2	0	0	1	0	0	0	1	20
1986	17	1	2	0	1	0	1	0	1	1	24
1987	10	0	0	1	1	0	0	0	0	1	13
1988	9	1	0	0	0	0	0	0	1	0	11
1989	8	1	1	2	1	0	0	0	0	0	13
1990	7	0	2	1	0	0	0	0	0	0	10
1991	5	1	0	1	0	1	0	1	0	0	9
1992	7	0	0	1	0	0	0	0	0	0	8
1993	12	0	0	1	0	0	1	0	0	0	14
1994	5	0	0	1	0	1	0	0	0	0	7
1995	5	1	0	1	2	0	1	1	0	0	11
1996	15	0	0	1	2	2	0	0	0	0	20
1997	5	0	2	0	0	0	0	0	2	0	9
1998	10	1	1	0	0	1	1	0	0	0	14
1999	16	0	1	1	0	0	1	0	0	1	20
2000	19	0	0	2	1	1	0	0	0	0	23
2001	24	0	1	1	0	0	0	1	0	0	27
2002	18	0	0	0	1	0	0	0	0	0	19
2003	6	0	1	0	0	1	0	0	0	0	8
Total	425	19	26	14	20	19	5	8	5	19	560

11. Registration categories, District of Workforce Shortage, Area of Need

Due to changes in the provider number legislation introduced in 1996, overseas trained medical practitioners are required to work in a District of Workforce Shortage (DOWS) for a specified period of time (normally 10 years). These Districts of Workforce Shortage are normally, but not exclusively in rural and remote locations. There are in addition, other medical workforce regulations that limit locations where some Permanent Resident and Australian trained doctors must practice in order to access Medicare. Data indicates that there are 217 practitioners registered under Section 135 of the Medical Practitioners Registration Act 2001 who must practice in an area of need/district of workforce shortage. It is not possible to determine the number of General and Section 138 registrants who are subject to area of need/district of workforce shortage restrictions.

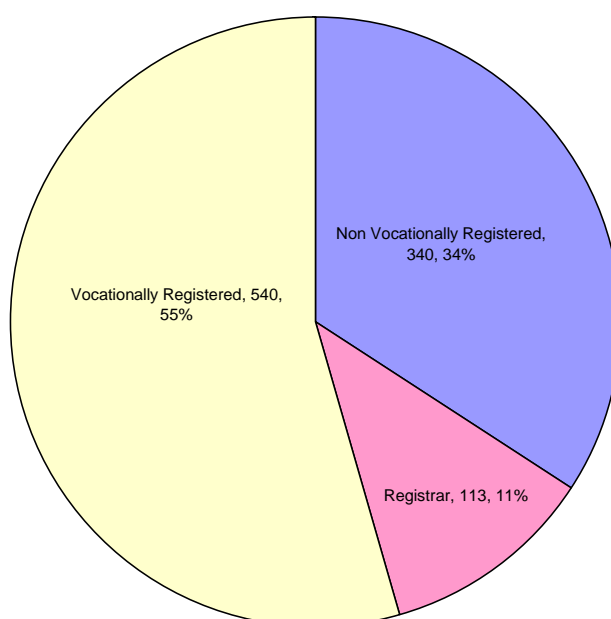
Table 15: Registration categories by RRMA

Registration Category	RRMA4	RRMA5	RRMA6	RRMA7	Total
General	244	329	60	69	702
General and Specialist Registration	1	3	2	1	7
Section 135	84	88	32	13	217
Section 138	21	34	4	8	67
Total	350	454	98	91	993

12. Vocational Status

Current data indicates that 55% per cent of medical practitioners in rural and remote Queensland are vocationally registered. Registrars undertaking training comprise a further 11%. Approximately (34%) of the rural and remote medical workforce in RRMA 4 to 7 locations do not have vocational registration. Figure 4 displays known vocational status.

Figure 5: Vocational Status



13. Notes on Queensland data

Queensland data includes 170 state salaried doctors (Residential Medical Officers, Senior Medical Officers and Medical Superintendents) who do not have the right of private practice. However, due to the differing nature of medical service provision in Queensland, it is estimated that 60 to 70 percent of these doctors provide primary care/GP type services in their communities. In the absence of a reliable method of differentiating their degree of primary care provision, they have been included in the current dataset. The negative aspect of this inclusion is that it probably does provide an overestimate of primary care/GP type services currently available in rural and remote Queensland. The data do not include Senior Medical Officers (Generalists) employed by Queensland Health in Maryborough, Hervey Bay or Mount Isa. Due to the size and nature of these hospitals, it is considered that these SMO's are providing specialist type services. Additionally, RFDS Medical Officers working from the Cairns base have been reclassified as RRMA 7 due to the communities they service.

14. Summary

The data provided in this report have been based on elements considered essential to understand the composition and workforce attributes of the Queensland rural and remote medical workforce. While the data may differ to that produced by the HIC, we believe that it is probably more valid and current as numbers reported reflect 'on ground' realities and are based on local knowledge of medical provision in communities. Measures such as FTE and FWE are based on the number and value of claims processed by the HIC and often do not capture the full extent of medical service provision in rural and remote communities. Health Workforce Queensland is satisfied that the collated data provides an accurate portrayal of medical service provision in rural and remote communities as at the 30th November 2005 reporting date. Changes since November 2003 are detailed in Appendix 1.

Changes in practitioner numbers since 30th November 2004 reporting period have been reflected mainly in RRMA 4 and 5 locations. There has also been a relatively small increase in the number of practitioners in RRMA 7 locations.

As indicated in the introduction, many aspects of the data contained in this report are not solely dependent on survey response but are derived from known working data maintained by Health Workforce Queensland. Survey responses are largely used to validate and update known data. Survey response rate for the current data collection period was 56.7%.

Trends evident in this report include:

- A 2.9% increase in practitioner numbers between 30th November 2004 and 30th November 2005 (N28).
- A relatively high number of rural and remote practitioners (N135) working in sole practice situations.
- A small increase in the number/percentage of overseas trained and temporary resident doctors in RRMA 4 to 7 locations.
- A continuation of national trends with increasing number of female practitioners in lower age groups.
- A continuation of trends that suggest that female practitioners tend to work less hours compared with their male counterparts.
- Enumeration of known procedural practitioners.

15. Terminology

ABS	Australian Bureau of Statistics
ACCHS	Aboriginal Community Controlled Health Service
AGDoHA	Australian Government Department of Health and Ageing
AMWAC	Australian Medical Workforce Advisory Committee
ARRWAG	Australian Rural and Remote Workforce Agencies Group
CDHAC	Commonwealth Department of Health and Aged Care (now Australian Department of Health and Ageing)
CDoHA	Commonwealth Department of Health and Ageing
FTE's	Full-time equivalents (calculated on HIC billings of \$81,097 or more)
FWE's	Full-time workload equivalents (calculated on average HIC billings for full-time doctors - (\$221,864 for 2002-2003 reference period)
HIC	Health Insurance Commission (Medicare)
Hicstats	Health Insurance Commission (Statistics section)
RFDS	Royal Flying Doctor Service
RRMA	Rural Remote and Metropolitan Area Classification
RWA	Rural Workforce Agency
MSRPP	Medical Superintendent with Right of Private Practice
MORPP	Medical Officer with Right of Private Practice

16. References

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Appendix 1

Trends/changes between November 2003 and November 2005

	2003	2004	2005
Total practitioners	931	965	993
Percent female	30.61	30.67	31.62
Percent male	69.39	69.33	68.38
Average age female	41.68	42.53	43.20
Average age male	46.15	47.22	46.70
Average GP clinical hours	40.84	40.64	40.50
Average total hours	48.87	49.06	48.85
Average length of stay in current practice (years)	5.83	5.92	5.90
Overseas trained doctors	388	406	433
Temporary Resident doctors (included above)	177	189	185
Proceduralists General Anaesthetics	77	84	80
Proceduralists Obstetrics (Normal delivery)	118	125	125
Proceduralists Operative surgery	69	67	60
Known Proceduralists (practising in at least one procedural field)	168	170	165
Proportion vocationally registered	56%	56%	55%
Proportion non-vocationally registered	34%	34%	34%
Proportion Registrars	10%	10%	11%
Number of GPs working in solo practices	118	132	135
Number of GPs working in group practices	813	833	858

Appendix 2

Rural, Remote and Metropolitan Area Classification (RRMA) and Accessibility/Remoteness Index of Australia (ARIA)³

Many regional programs are targeted at areas of geographic disadvantage and the convenient label of being 'rural' areas often refers to these areas. However, there is not a generally accepted or generally applicable definition for the Australian context that can be used to identify rural areas. As a result, the RRMA classification has been widely used to determine eligibility of an area for program funding. The RRMA classification was used to assign each SLA (based on 1991 boundaries) to one of 7 categories that were further aggregated into three basic zones (Metropolitan, Rural, and Remote).

The seven RRMA categories are:

1. Capital Cities (Metropolitan Zone)
2. Other Metropolitan Centres (Metropolitan Zone)
3. Large Rural Centres (Rural Zone)
4. Small Rural Centres (Rural Zone)
5. Other Rural Areas (Rural Zone)
6. Remote Centres (Remote Zone)
7. Other Remote Areas (Remote Zone)

The use of the word 'rural' in several of the category names of the RRMA classification was not originally intended to be a definition of rurality. However, over time, RRMA category names have evolved into a simple and convenient way of interpreting rurality. Many programs that have to make decisions on eligibility for assistance are constrained by legislation and policy to using RRMA categories that 'define' rural areas. Within the Commonwealth Department of Health and Ageing administration of regional assistance will move from the use of the RRMA classification to use of ARIA over time.

ARIA stands for Accessibility/Remoteness Index of Australia. During 1998, the Commonwealth Department of Health and Aged Care commissioned a project to measure and classify the remoteness of populated localities in relation to 'service centres' of various sizes (based on the 1996 Census). The result was the ARIA index developed by the National Key Centre for Social Applications of Geographical Information Systems (GISCA) at the University of Adelaide. ARIA uses Geographic Information System (GIS) technology to provide a measure of remoteness (from service centres) for all places and points in Australia.

The development of the ARIA index deliberately avoided defining 'rural' areas. In many cases the term 'rural' is used when people are really referring to regional or non-metropolitan Australia. In these situations regional or non-metropolitan areas can be interpreted based on the degree of remoteness of an area (as measured in ARIA by accessibility to service centres). However in other situations a pure remoteness measure may not be the preferred approach. It may be more appropriate to take into account the population size of nearby urban centres and the use of RRMA categories is an accepted way of doing this. Thus it is acknowledged that some program areas rely on RRMA categories to determine eligibility for funding and there is a need to overlay the RRMA categories to current geographic boundaries and use this approach in conjunction with ARIA. To meet the need for programs being able to identify the RRMA-like categories, each of the 1996

³ Measuring Remoteness: Accessibility/Remoteness Index of Australia (ARIA). Occasional Papers: New Series Number 14, Commonwealth Department of Health and Aged Care. Further information is available from the department website <http://www.health.gov.au/ari/aria.htm>

SLAs have been allocated a RRMA category code, with categories 6 and 7 being collapsed into a single group for the remote zone.

ARIA defines **five categories** of remoteness based on road distance to service centres, and is available for a variety of geographical units including localities, Census Collection districts (CCDs), Statistical Local Areas (SLAs) and postcodes. The five categories are:

1. **Highly Accessible** (ARIA score 0 - 1.84) - relatively unrestricted accessibility to a wide range of goods and services and opportunities for social interaction
2. **Accessible** (ARIA score >1.84 - 3.51) - some restrictions to accessibility of some goods, services and opportunities for social interaction
3. **Moderately Accessible** (ARIA score >3.51 - 5.80) - significantly restricted accessibility of goods, services and opportunities for social interaction
4. **Remote** (ARIA score >5.80 - 9.08) - very restricted accessibility of goods, services and opportunities for social interaction
5. **Very Remote** (ARIA score >9.08 - 12) - very little accessibility of goods, services and opportunities for social interaction

Until recently, rurality has been described almost exclusively by the seven level Rural, Remote and Metropolitan Areas (RRMA) classification. This classification is based on the size of the local population centre as well as a measure of remoteness.⁴

Work by the National Key Centre for the Social Applications of Geographical Information Systems (GISCA) from 1996 saw the development of improved measures of remoteness: the Accessibility/Remoteness Index of Australia (ARIA), a continuous variable with a remoteness score of 0-12; and its successor, ARIA+ (similar to ARIA, but with a remoteness score of 0-15).

From ARIA, the department of Health and Ageing developed its five-level classification (also called ARIA), and from ARIA+, the Australian Bureau of Statistics developed its six-level classification, the Australian Standard Geographic Classification (ASGC) Remoteness Structure.⁵

Remoteness classifications

Broad Category	RRMA			DoHA ARIA			ASGC Remoteness		
	Fine Category	Population (000,000)	%	Category	Population (000,000)	%	Category	Population (000,000)	%
Metropolitan	Capital Cities	11.6	64	Highly Accessible	14.9	81	Major Cities	12.1	66
	Other Metropolitan centres	1.4	8						
Rural	Large Rural centres	1.1	6	Accessible	2.2	12	Inner Regional	3.8	21
	Small Rural centres	1.2	7				Outer Regional	2.0	11
	Other Rural centres	2.4	13	Moderately Accessible	0.8	4			
Remote	Remote centres	0.2	1	Remote	0.2	1	Remote	0.3	0.3
	Other Remote areas	0.3	2	Very Remote	0.2	1	Very Remote	0.2	0.2
				Remote			Remote Migratory	<0.1	

Note: This table is a rough guide only; the various classes in each classification are not equivalent.
Sources: AIHW Population Estimates; AIHW Australia's Health 2002.

⁴ Australian Institute of Health and Welfare (2002). Australia's health 2002. Canberra: AIHW.

⁵ Australian Bureau of Statistics (2001). Outcomes of ABS views on remoteness consultation, Australia. ABS Cat No 1244.0.00.001. Canberra, ABS.