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Please note that there is the potential for minor revisions of data in this report. Please check the online version at <www.aihw.gov.au> for any amendments.

Contents

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Abbreviations

ABS	Australian Bureau of Statistics
AHMAC	Australian Health Ministers Advisory Council
AHPRA	Australian Health Practitioner Regulation Agency
AIHW	Australian Institute of Health and Welfare
ASGC	Australian Standard Geographical Classification
ASGC RA	Australian Standard Geographical Classification Remoteness Area
COAG	Council of Australian Governments
FTE	full-time equivalent
HWA	Health Workforce Australia
NHWDS	National Health Workforce Data Set
NRAS	National Registration and Accreditation Scheme
RA	Remoteness area

Symbols

–	nil or rounded to zero
-	negative or minus values
. .	not applicable (category/data item does not apply)
n.p.	not published (data cannot be released due to quality issues, confidentiality or permission not granted).

Technical notes

1. Numbers in tables may not sum to the totals shown due to the estimation procedure to adjust for non-response (see Appendix A). As a result, the estimated numbers of medical practitioners may be in fractions, but are rounded to whole numbers for publication.
2. Percentages in tables are calculated on the unrounded figures, and therefore may not sum to 100.0 due to rounding.
3. *Italics* within a table denote a subtotal.
4. Explicit references to categories of data items are in quotes.

Summary

This report presents information on the medical practitioner workforce, based primarily on estimates derived from the National Health Workforce Data Set: medical practitioners 2010, the first in this new series. The data set contains information on the demographic and employment characteristics of medical practitioners who were registered in Australia in 2010. Data are collected via registration forms and a survey instrument administered by the Australian Health Practitioner Regulation Agency, in conjunction with the annual registration renewal process. Registered medical practitioners whose principal state of practice was Queensland or Western Australia have largely been excluded from this report (unless stated otherwise), because registration renewal in these states did not close until after the national registration deadline of 30 September 2010.

The main findings of the report are:

- In 2010, the total number of medical practitioners registered in Australia was 81,639.
- Between 2006 and 2010, the number of medical practitioners employed in medicine, in all states and territories other than Queensland and Western Australia, increased by 13.3% from 46,336 to 52,497. In 2010, 93.6% (49,128) were working as clinicians, of whom 36.1% were specialists and 35.3% were general practitioners. The largest main speciality of practice identified by respondents was physician (22.1% of all specialists), followed by surgery (14.7% of all specialists).
- Of those employed as non-clinicians (6.4% of all employed medical practitioners), almost a third were researchers (30.8%) and a quarter were administrators (24.9%).
- The average weekly hours worked by employed medical practitioners decreased slightly from 43.5 hours in 2006 to 43.3 hours in 2010. Over the same period, average hours worked by males also decreased slightly (46.4 to 46.2 hours), while hours worked by females increased (37.8 to 38.5 hours).
- Despite a slight decrease in average hours worked from 2006 to 2010, the overall supply of employed medical practitioners increased from 346 to 366 full-time equivalent medical practitioners per 100,000 population over that period due to overall numbers increasing by 13.3%.
- Medical practitioner supply across remoteness areas ranged from 400 full-time equivalents per 100,000 population in *Major cities* to 185 in *Outer regional* areas. In contrast, the variation in the supply of general practitioners was smaller between *Major cities* and *Outer regional* areas (105 and 103 full-time equivalents per 100,000 population, respectively).
- The average age of medical practitioners did not change from 2006 to 2010 (45.9 years). However, the proportion of employed medical practitioners aged 55 and over increased from 25.5% to 26.4% over the same period.
- Females continued to increase their share of the medical practitioner workforce, growing to 37.0% of employed practitioners in 2010 (up from 33.7% in 2006). Among clinicians, in 2010, females accounted for 49.2% of hospital non-specialists compared with 25.4% of specialists.
- The survey response rate of 78.0% in 2010 is the highest since 1999. Estimates should be interpreted with caution, especially due to the exclusion of Queensland and Western Australia from the figures in this report.

1 Introduction

This report provides data on the Australian medical workforce in 2010, and is the first report using information from the new National Health Workforce Data Set (NHWDS): medical practitioners 2010. The NHWDS combines data from the National Registration and Accreditation Scheme (NRAS) with health workforce survey data collected at the time of annual registration renewal.

The information presented in this report was collected from medical practitioners when they renewed their registration via the mandatory registration process administered by the Australian Health Practitioner Regulation Agency (AHPRA). An optional survey collected a range of additional demographic and workforce information at the same time as registration renewal occurred. Registered medical practitioners whose principal state of practice was Queensland or Western Australia have largely been excluded from this report, because registration renewal in these states in 2010 did not close until after the national registration deadline of 30 September 2010. For all historical data included in this report, figures have been recalculated to also exclude Queensland and Western Australia to allow comparisons to be made.

Where the data allow, this report provides comparisons of the 2010 results with estimates derived from surveys conducted in earlier years. Registration data from the now superseded state and territory medical boards and councils are also presented to provide time series information, where possible.

1.1 Medical practitioners in Australia

In Australia, the role of a medical practitioner is to diagnose physical and mental illnesses, disorders and injuries, provide medical care to patients, and prescribe and perform medical and surgical treatments to promote and restore good health (ABS 2006). Medical practitioners may be clinicians, who include general practitioners, hospital non-specialists, specialists, specialists-in-training and other clinicians. They may also be non-clinicians, and work as administrators, teachers or educators, or researchers (see Box 1.1 and 'Glossary').

Medical practitioners undertake several years of on-the-job training once they have completed their medical studies

Box 1.1: What is a medical practitioner?

A **medical practitioner** (commonly referred to as a doctor) is a person whose primary employment role is to diagnose physical and mental illnesses, disorders and injuries and prescribe medications and treatment to promote or restore good health.

Medical practitioners can be further classified as either a clinician or non-clinician according to the primary field of medicine they practise.

A **clinician** is a medical practitioner who reported spending the majority of his or her total weekly working hours involved in the area of clinical practice. The clinical group comprises several subfields: general practitioner, hospital non-specialist, specialist, specialist-in-training and other clinicians.

A **non-clinician** is a medical practitioner who reported spending the majority of his or her total weekly working hours not involved in the area of a clinical practice. This can include working as an administrator, teacher/educator, researcher or other non-clinician.

at university. Initial training is undertaken as an intern, and then as a resident medical officer, usually in the public hospital system. After this initial training, most medical practitioners go on to do more specialised training as a general practitioner or a specialist in a large range of recognised medical specialties. Apart from general practice training, most of this vocational training is undertaken in the public hospital system. Most general practice trainees do their training in private general practices.

Upon completion of specialist or general practice training, the options open to medical practitioners broaden to include: private medical practice; a combination of private medical practice with a visiting medical officer engagement at one or more public hospitals; and employment as a staff specialist in a public hospital or health facility, with options to undertake limited private practice (AMA 2008).

All medical practitioners must be registered with the AHPRA to practise in Australia. This applies to both those who trained in Australia and those who trained overseas. AHPRA manages the NRAS, which replaced jurisdiction-based registration with a single national registration and accreditation system for health professionals. As part of this scheme, AHPRA supports National Health Practitioner Boards that are responsible for regulating registered health professions under nationally consistent legislation. Registration for each profession is granted by the relevant Boards, subject to applicants meeting the standards and policies set by each. The outcome of an application is either 'registration', 'registration with conditions' or 'rejection'.

At its introduction, the NRAS covered registration for ten health professions; with an additional four scheduled for inclusion from 1 July 2012 (see Box 1.2).

The type of medical registration held by medical practitioners determines or limits the work they are licensed to perform. Registration is granted to medical practitioners who have fulfilled the full requirements of the Board to practice. It permits medical practitioners to work unsupervised in their field. If a medical practitioner does not meet the requirements to become a registered medical practitioner, he or she may obtain a registration with conditions—such as completion of further education or training within a specified period, or a specified period of supervised practice.

Although AHPRA registration data are used, the information provided in this report focuses on practitioners who make up the workforce, thus most of the data exclude those not actively working in medicine. For this reason, figures in this report are not directly comparable with figures on the number of registered practitioners released by AHPRA.

Box 1.2: Which professions are included in the National Registration and Accreditation Scheme?

Since 1 July 2010, the following ten professions have been regulated under the National Scheme:

- *chiropractors*
- *dental practitioners (including dentists, dental hygienists, dental prosthetists and dental therapists)*
- *medical practitioners*
- *nurses and midwives*
- *optometrists*
- *osteopaths*
- *pharmacists*
- *physiotherapists*
- *podiatrists*
- *psychologists.*

From 1 July 2012, the following four health professions will be included in the National Scheme:

- *Aboriginal and Torres Strait Islander health practitioners*
- *Chinese medicine practitioners*
- *medical radiation practitioners*
- *occupational therapists.*

Source: AHPRA 2011.

1.2 Medical Workforce Survey 2010

Access to reliable, comprehensive, timely and nationally consistent trend data is required to understand the current health labour force and for workforce planning. The size, distribution and expertise of the health workforce are of keen interest to governments, educators, health-care providers and the community. There is particular interest in changes to the size and composition of the various health professions, and the potential impacts of these changes on health-care delivery.

Recognising this, the Australian Health Ministers Advisory Council (AHMAC) commissioned the Australian Institute of Health and Welfare (AIHW), initially in 1990, to develop national health labour force statistics on the major registrable health professions. Medical practitioners were identified as one of the key health professions for which ongoing information should be collected for monitoring and planning purposes. These practitioners have been the focus of an annual survey and AIHW report since 1993.

Before 2010, the AIHW Medical Labour Force Survey was managed by each state and territory health authority, with a questionnaire administered by the medical board (or council) in each jurisdiction, as part of the registration renewal process. Under agreement with AHMAC's Health Workforce Principal Committee, the AIHW cleaned, collated and weighted the state and territory survey results to obtain national estimates of the total medical workforce, and reported the findings.

In 2010, the NRAS was introduced and the AIHW Medical Labour Force Survey was replaced with the Medical Workforce Survey 2010. The new national survey is administered by AHPRA and included as part of the registration renewal process.

The Medical Workforce Survey 2010 is used to provide nationally consistent estimates of the medical workforce. It provides data not readily available from other sources, such as: the type of work done by, and job setting of, medical practitioners; the number of hours worked in a clinical or non-clinical role, and in total; and the numbers of years worked in, and intended to remain in, the medical workforce. The survey also provides information on those registered medical practitioners who are not undertaking clinical work or who are not employed.

The overall response rate in 2010 was 78.0% which was the highest survey response rate since 1999, and was a 24.9 percentage point increase on the rate of response in 2009 (Table A2). South Australia and Victoria had the highest response rates at 83.4% and 82.3%, respectively. The Northern Territory had the lowest response rate at 67.5%.

Responses to the survey have been weighted to benchmark figures to account for non-response. The benchmarks used are the number of registered practitioners in each state and territory by age group. Due to the exclusion of Queensland and Western Australia from the survey, and hence the benchmark population, the national estimates of the medical workforce exclude Queensland and Western Australia.

Former and present surveys have different collection and estimation methodologies, as well as questionnaire design. As a result, care should be taken in comparing historic data from the AIHW Medical Labour Force Survey with the Medical Workforce Survey 2010.

Some historical estimates published in this report have been re-calculated to match the scope of the 2010 data (that is, excluding Queensland and Western Australia) and hence differ from other national published figures.

A detailed description of the Medical Workforce Survey 2010, including a summary of changes from the 2009 AIHW Medical Labour Force Survey and data collected, is provided in Appendix A.

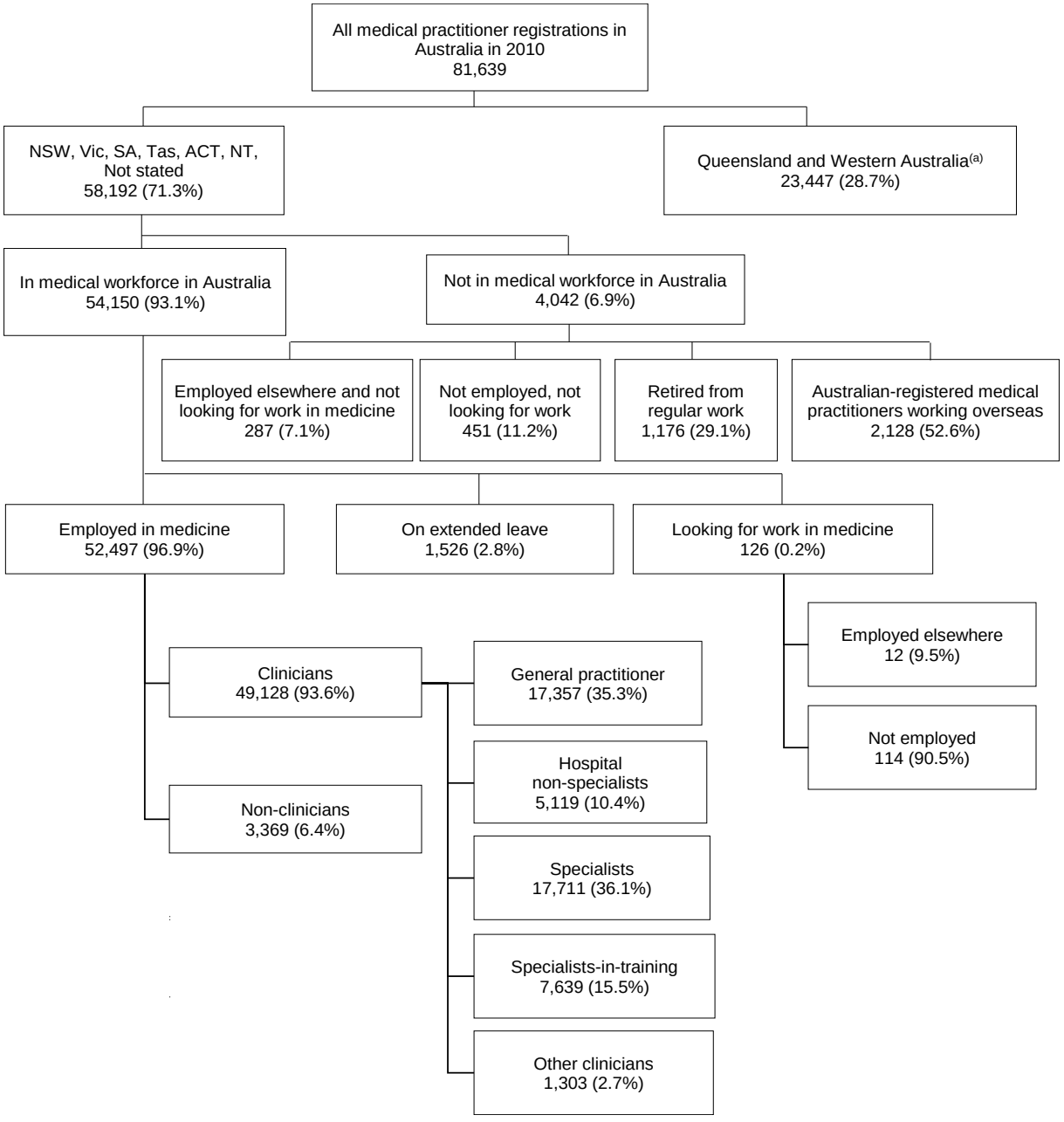
1.3 Additional information

Before the introduction of the NRAS in 2010, medical practitioner registration numbers were published in annual reports of state and territory medical boards or councils (see Appendix B). These figures are now published by AHPRA, and are available from the AHPRA website at <http://www.ahpra.gov.au/>.

An electronic version of this report is available from the AIHW website at <http://www.aihw.gov.au/workforce-publications/> (select link to *Medical workforce 2010*). Additional data tables from the NHWDS: medical practitioners 2010 are also available from the website.

2 Registered medical practitioners

The number of registered medical practitioners in 2010 was 81,639 (Figure 2.1). This figure is the number of practitioner registrations provided by AHPRA from the NRAS, which closed on 30 September 2010.



(a) Number of registered medical practitioners for Queensland and Western Australia is incomplete due to their registration period closing after the national registration deadline of 30 September 2010. Therefore the figure is an undercount of registered medical practitioners.

(b) Data exclude Queensland and Western Australia due to their registration period closing after the national registration deadline of 30 September 2010. Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who reside overseas. Therefore, state and territory totals may not sum to the national total.

Source: NHWDS: medical practitioners 2010.

Figure 2.1: Estimated registered medical practitioners, by workforce status, 2010(a)

Between 2006 and 2010, the number of medical practitioners employed in medicine increased by 13.3% from 46,336 to 52,497 (Table 2.1).

Differences between the questionnaires previously administered by jurisdictions, as well as changes to the new nationally standardised survey tool have resulted in a slight change in the pattern of responses to the employment-related questions. As such, comparing data over time should be done with caution (see Appendix A for further information on significant changes to the three employment-related questions).

2.1 Workforce status

Of the 58,192 registered medical practitioners in 2010, 52,497 (90.2%) were employed in medicine in Australia (Table 2.1). This ranged from 92.2% in the Australian Capital Territory to 94.7% in the Northern Territory (Table 2.2). When comparing across jurisdictions, the scope and issues with response rates to the survey should be considered (see Appendix A).

Table 2.1: Registered medical practitioners, by workforce status, 2006 and 2010[(a)]

Workforce status	2006 (all jurisdictions)	2006 (excluding Qld and WA)	2010[(a)]
Medical workforce	**63,688**	**47,373**	**54,150**
Employed in medicine	62,425	46,336	52,497
Looking for work in medicine	*283*	*253*	*126*
Employed elsewhere	63	59	12
Not employed	220	195	114
On extended leave	980	784	1,526
Not in the medical workforce	**8,052**	**6,351**	**4,042**
Working in medicine overseas	3,063	2,469	2,128
Not looking for work in medicine	*4,989*	*3,883*	*1,194*
Employed elsewhere (not in medicine)	735	624	287
Not employed	2,529	1,997	451
Retired from regular work	1,725	1,261	1,176
Total registered medical practitioners	**71,740**	**53,724**	**58,192**
Apparent multi-state registrations	6,162	4,802	. .
Total registrations	77,902	58,526	58,192
Percentage of registered medical practitioners employed in medicine	**81.8**	**79.2**	**90.2**

(a) 2010 data exclude Queensland and Western Australia due to their registration period closing after the national registration deadline of 30 September 2010. Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who reside overseas.

Sources: AIHW Medical Labour Force Survey 2006; NHWDS: medical practitioners 2010.

Just under a half (48.8%) of all registered medical practitioners not employed in medicine had a principal address in New South Wales. Similarly, 47.1% of all registered medical practitioners who were retired from regular work in medicine had New South Wales as their principal address (Table 2.2).

Table 2.2: Registered medical practitioners, by workforce status and state and territory of principal address, 2010

Workforce status	NSW	Vic	Qld[(a)]	WA[(a)]	SA	Tas	ACT	NT	Australia[(b)]
Employed in medicine	23,549	18,883	. .	. .	5,984	1,717	1,523	818	52,497
On extended leave	596	586	. .	. .	152	48	48	26	1,526
Not employed in medicine	*146*	*98*	. .	. .	*10*	*n.p.*	*10*	*n.p.*	*299*
Looking for work in medicine	5	7	. .	. .	—	—	—	—	12
Not looking for work in medicine	140	91	. .	. .	10	n.p.	10	n.p.	287
Employed in medicine overseas	*304*	*210*	. .	. .	*38*	*24*	*24*	*7*	*2,128*
Looking for work in Australia in medicine	43	34	. .	. .	6	6	4	—	246
Not looking for work in Australia in medicine	261	177	. .	. .	32	18	21	7	1,882
Not employed in Australia	*248*	*174*	. .	. .	*45*	*23*	*6*	*11*	*566*
Looking for work in Australia in medicine	45	40	. .	. .	8	7	n.p.	n.p.	114
Not looking for work in Australia in medicine	203	134	. .	. .	37	16	6	8	451
Retired from regular work in medicine	554	358	. .	. .	148	n.p.	41	n.p.	1,176
Total registered	**25,398**	**20,309**	**. .**	**. .**	**6,376**	**1,854**	**1,653**	**864**	**58,192**
Percentage of registered practitioners employed in medicine	**92.7**	**93.0**	**. .**	**. .**	**93.8**	**92.6**	**92.2**	**94.7**	**90.2**

(a) Data exclude Queensland and Western Australia due to their registration period closing after the national registration deadline of 30 September 2010.

(b) Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who reside overseas. Therefore, state and territory totals may not sum to the national total. The sum of state and territory numbers of registered medical practitioners (excluding Queensland and Western Australia) is 56,454 compared with the national figure of 58,192; a difference of 1,738 medical practitioners (1.3% of all registered medical practitioners, excluding Queensland and Western Australia).

Source: NHWDS: medical practitioners 2010.

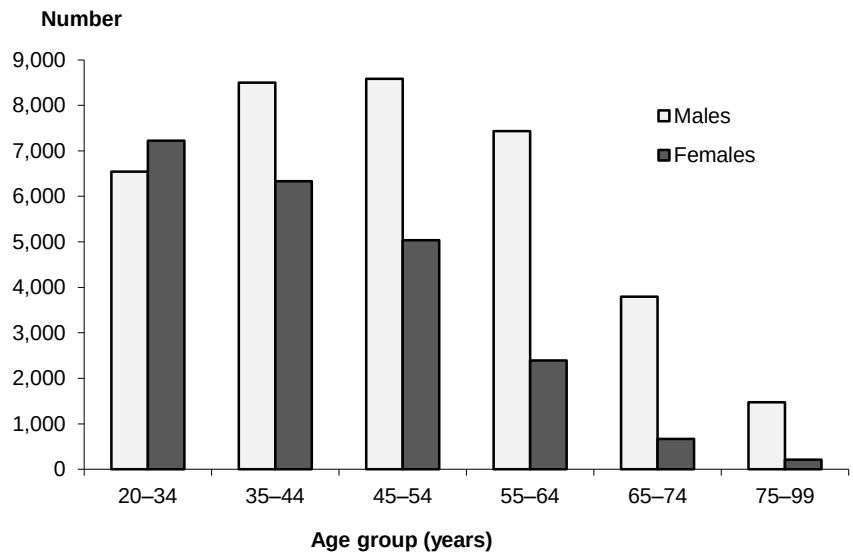
3 Medical practitioners employed in medicine in Australia

A medical practitioner who reported working in medicine in the week before the survey is considered to have been employed in medicine, or an employed medical practitioner, at the time of the survey (see 'Glossary'). In 2010, there were 52,497 medical practitioners employed in medicine in Australia (Figure 2.1; tables 2.1 and 2.2).

The characteristics and supply of these medical practitioners employed in Australia are the focus of the remainder of this report.

3.1 Age and sex

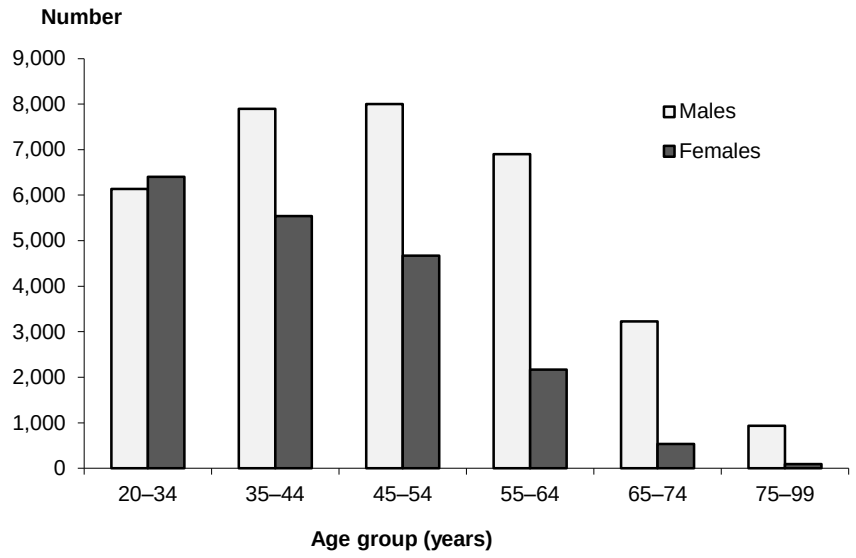
In 2010, the average age of employed medical practitioners was identical to that estimated in the 2006 AIHW Medical Labour Force Survey, at 45.9 years (Table 3.2). The female proportion of the medical workforce rose from previous years, with females forming 33.7% of the medical workforce in 2006 and 37.0% in 2010. However, as can be seen in figures 3.1 and 3.2, the age pattern of females and males is different, with substantially more males in the older age groups.



(a) Data exclude Queensland and Western Australia due to their registration period closing after the national registration deadline of 30 September 2010. Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who reside overseas.

Source: NHWDS: medical practitioners 2010.

Figure 3.1: Number of registered medical practitioners, by age group and sex, 2010[(a)]



(a) Data exclude Queensland and Western Australia due to their registration period closing after the national registration deadline of 30 September 2010. Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who reside overseas.

Source: NHWDS: medical practitioners 2010.

Figure 3.2: Number of employed medical practitioners, by age group and sex, 2010[(a)]

3.2 Aboriginal and Torres Strait Islander medical practitioners

In 2010, there were 113 medical practitioners employed in medicine in Australia who identified as Aboriginal or Torres Strait Islander. This represents about 0.2% of all medical practitioners employed in medicine who provided their Indigenous status.

Table 3.1: Employed medical practitioners, by Indigenous status and state and territory of principal practice, 2010

Indigenous status	NSW	Vic	Qld[(a)]	WA[(a)]	SA	Tas	ACT	NT	Australia[(b)]
Indigenous	55	23	. .	. .	8	4	8	14	113
Non-Indigenous	23,413	18,792	. .	. .	5,955	1,705	1,510	803	52,201
Not stated/Inadequately described	81	68	. .	. .	20	7	5	1	183
Total	**23,594**	**18,883**	**. .**	**. .**	**5,984**	**1,717**	**1,523**	**818**	**52,497**
Percentage of medical practitioners employed in medicine who were Indigenous[(c)]	**0.2**	**0.1**	**. .**	**. .**	**0.1**	**0.3**	**0.5**	**1.7**	**0.2**

(a) Data exclude Queensland and Western Australia due to their registration period closing after the national registration deadline of 30 September 2010.

(b) Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who reside overseas. Therefore, state and territory totals may not sum to the national total.

(c) Percentages exclude the 'Not stated/Inadequately described' category.

Source: NHWDS: medical practitioners 2010.

About 7 in 10 (69.0%) Indigenous medical practitioners were employed in New South Wales and Victoria, the two most populous states in Australia (Table 3.1).

Excluding Queensland and Western Australia, the Northern Territory has the highest proportion of medical practitioners who identified as Aboriginal or Torres Strait Islander, at 1.7%.

3.3 Field of medicine

Field of medicine describes the types of medical work undertaken by employed practitioners. The 2010 survey categorised the roles as clinician, administrator, teacher/educator, researcher and other.

Clinicians, the largest group, are mainly involved in the diagnosis, care and treatment of individuals, including recommending preventative action. Within the clinical group, further subfields are identified—general practitioner, hospital non-specialist, specialist, specialist-in-training and other clinicians. Medical practitioners working in the remaining fields are termed 'non-clinicians' (see Box 1.1 and 'Glossary').

Most employed medical practitioners in Australia in 2010 were working as clinicians (93.6%). Of these, the largest proportion were specialists (36.1%), followed by general practitioners (35.3%), specialists-in-training (15.5%) and hospital non-specialists (10.4%) (Figure 2.1). Of the non-clinical workforce, researchers (30.8%) and other non-clinicians (26.8%) made up over half of this group, followed by administrators (24.9%) and teachers/educators (17.5%) (Table 3.2).

Table 3.2: Employed medical practitioners: selected features by main field of medicine, 2006 and 2010[(a)]

Main field of medicine	Number	Average age	Aged 55 and over (per cent)	Female (per cent)	Average hours	FTE rate[(b)]	Change in number between 2006 and 2010 (per cent)
			2006 (all jurisdictions)				
Clinician	*58,167*	*45.7*	*25.0*	*33.8*	*43.6*	*306.3*	. .
Non-clinician	*4,258*	*50.8*	*36.2*	*32.7*	*39.5*	*20.3*	. .
Total	**62,425**	**46.1**	**25.8**	**33.7**	**43.3**	**326.5**	**. .**
			2006 (excluding Qld and WA)				
Clinician	*42,988*	*45.5*	*24.7*	*33.8*	*43.8*	*323.6*	. .
Primary care practitioner	16,793	49.9	32.3	37.2	39.7	114.6	. .
Hospital non-specialist	4,739	33.2	4.5	49.5	47.7	38.8	. .
Specialist	14,697	49.8	32.9	21.7	45.0	113.7	. .
Specialist-in-training	6,118	32.9	—	40.6	49.9	52.5	. .
Other clinician	641	43.1	23.7	44.1	36.2	4.0	. .

(continued)

Table 3.2 (continued): Employed medical practitioners: selected features by main field of medicine, 2006 and 2010[(a)]

Main field of medicine	Number	Average age	Aged 55 and over (per cent)	Female (per cent)	Average hours	FTE rate[(b)]	Change in number between 2006 and 2010 (per cent)
			2006 (excluding Qld and WA)				
Non-clinician	*3,348*	*50.6*	*36.0*	*32.3*	*39.5*	*22.7*	. .
Administrator	920	51.1	35.5	26.7	45.4	7.2	. .
Teacher/Educator	491	50.9	35.0	46.1	34.6	2.9	. .
Researcher	995	44.5	19.7	36.5	43.2	7.4	. .
Public health physician	252	46.6	21.1	44.7	40.1	1.7	. .
Occupational health physician	195	51.5	39.6	25.6	34.5	1.2	. .
Other	496	63.6	76.7	16.9	27.5	2.3	. .
Total	**46,336**	**45.9**	**25.5**	**33.7**	**43.5**	**346.4**	**. .**
			2010[(a)]				
Clinician	*49,128*	*45.6*	*25.7*	*36.8*	*43.6*	*345.0*	*14.3*
General practitioner[(c)]	17,357	50.6	36.7	40.2	39.2	109.6	3.4
Hospital non-specialist	5,119	33.8	5.0	49.2	46.9	38.7	8.0
Specialist	17,711	49.8	32.3	25.4	44.4	126.7	20.5
Specialist-in-training	7,639	32.8	0.4	46.1	49.9	61.4	24.9
Other clinician[(c)]	1,303	42.6	20.9	43.4	39.6	8.3	103.3
Non-clinician	*3,369*	*50.5*	*36.1*	*39.1*	*39.4*	*21.4*	*0.6*
Administrator	838	52.9	41.4	32.2	42.5	5.7	-8.9
Teacher/educator	591	53.2	43.7	43.7	34.4	3.3	20.4
Researcher	1,037	45.0	23.6	38.5	43.8	7.3	4.2
Other[(d)]	904	52.8	40.7	43.0	34.3	5.0	82.3
Total	**52,497**	**45.9**	**26.4**	**37.0**	**43.3**	**366.1**	**13.3**

(a) 2010 data exclude Queensland and Western Australia due to their registration period closing after the national registration deadline of 30 September 2010. Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who reside overseas.

(b) Full-time equivalent (FTE) number per 100,000 population. FTE is based on total weekly hours worked (see *Glossary*).

(c) In 2010, primary care practitioners who did not self-identify as general practitioners may be included in 'Other clinician' rather than 'General practitioner'. Therefore, general practitioner data in 2010 are not directly comparable with primary care practitioner data in 2006.

(d) In 2010, 'Other' includes public health physician and occupational health physician, which were previously reported as separate categories.

Sources: AIHW Medical Labour Force Survey 2006; NHWDS: medical practitioners 2010.

Clinicians

The number of clinicians in Australia, excluding Queensland and Western Australia, grew by 14.3% from 42,988 in 2006 to 49,128 in 2010 (Table 3.2). This growth was seen across all areas of main field of medicine, with the largest increases observed in other clinicians (103.3%), followed by specialists-in-training (24.9%). Growth in the number of general practitioners from 2006 to 2010 was relatively small (3.4%) compared with that for other fields of clinical practice, but may have been affected by a change in the category title.

General practitioners

The 3.4% growth in general practitioner numbers between 2006 and 2010 (from 16,793 to 17,357), when coupled with an increase in the same population of 6.7%, resulted in a decrease in the general practitioner rates from 115.4 to 111.8 per 100,000 population (tables 3.2, 3.3 and D1). However, a change in the question response options from 'GP/primary care practitioner' in earlier surveys to 'General practitioner (GP)' may have impacts on the comparability of these responses over time, and time series data should be used with caution. This may have led to the observed increase in responses in the 'Other clinician' category.

Table 3.3: Employed medical practitioners: clinicians per 100,000 population by main area of clinical practice, 2006[(a)] and 2010[(b)]

	Main area of clinical practice					
Year	General practitioner[(c)]	Hospital non-specialist	Specialist	Specialist-in-training	Other clinician[(c)]	All clinicians
2006[(a)]	115.4	32.6	101.0	42.1	4.4	**295.5**
2010[(b)]	111.8	33.0	114.1	49.2	8.4	**316.5**

(a) To allow comparison with data from 2010, Queensland and Western Australia have been excluded from the 2006 data. See note (b) below.

(b) 2010 data exclude Queensland and Western Australia due to their registration period closing after the national registration deadline of 30 September 2010. Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who reside overseas.

(c) In 2010, primary care practitioners who did not self-identify as general practitioners may be included in 'Other clinician' rather than 'General practitioner'. Therefore, general practitioner data in 2010 are not directly comparable with primary care practitioner data in 2006.

Sources: AIHW Medical Labour Force Survey 2006; NHWDS: medical practitioners 2010.

The average age of general practitioners increased slightly between 2006 and 2010 (49.9 and 50.6, respectively), making them the clinician subfield with the oldest average age in both 2006 and 2010. General practitioners, in 2010, had the highest proportion aged 55 and over (36.7%) (Table 3.2). The proportion of general practitioners who were female also increased over the 5-year period, from 37.2% to 40.2% in 2010.

Hospital non-specialists

The number of hospital non-specialists grew between 2006 and 2010 by 8.0% from 4,739 in 2006 to 5,119 in 2010 (Table 3.2). This was matched by an increase from 32.6 hospital non-specialists per 100,000 population in 2006 to 33.0 per 100,000 population in 2010 (Table 3.3).

The average age for this clinician subfield in 2010 was 33.8, about the same as in 2006 (33.2) (Table 3.2). The proportion of females decreased slightly from 49.5% in 2006 to 49.2% in 2010. Hospital non-specialists were the second youngest subfield, among clinicians in 2010.

Specialists

Comparison of specialists who are clinicians and their specialty of practice in 2010 with data from earlier years should be interpreted with caution, due to significant changes in the classification of specialties and in the methodology of collection (see Appendix A).

The number of employed specialist clinicians across New South Wales, Victoria, South Australia, Tasmania, Northern Territory and the Australian Capital Territory increased between 2006 and 2010 (from 14,697 to 17,711) (Table 3.2). From 2006 to 2010, there was a 20.5% increase in specialist numbers, contributing to an increase from a rate of 101.0 to 114.1 specialist clinicians per 100,000 population (tables 3.3, 3.4 and D1).

The average age for specialist clinicians was 49.8 in 2010, which was unchanged since 2006 and only slightly younger than general practitioners at 50.6. In 2010, 25.4% of specialist clinicians were female, the lowest proportion of all clinician subfields (Table 3.2).

Table 3.4: Employed specialists: clinicians per 100,000 population by broad specialty group, 2006[(a)] and 2010[(b)]

	Broad specialty group[(c)]				
Year	Physician	Pathology	Surgery	Other specialties	Total
2006[(a)(c)]	28.1	4.5	20.5	47.9	**101.0**
2010[(b)(c)]	24.6	4.1	17.5	65.9	**114.1**

(a) To allow comparison with data from 2010, Queensland and Western Australia have been excluded from the 2006 data. See note (b) below.

(b) 2010 data exclude Queensland and Western Australia due to their registration period closing after the national registration deadline of 30 September 2010. Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who reside overseas.

(c) There have been significant changes in the classification of specialties and in the methodology of collection used by the AIHW Medical Labour Force Survey 2006 and the NHWDS: medical practitioners 2010. In 2006, the specialty of practice was self-identified; while in 2010 specialty was extracted from registration data (see Appendix A for further information).

Sources: AIHW Medical Labour Force Survey 2006; NHWDS: medical practitioners 2010.

The largest change seen in the broad specialty groups from 2006 to 2010 was the increase in the other specialities group, which increased from a rate of 47.9 to 65.9 per 100,000 population (up by 37.5%) (Table 3.4). Over the same period, the other groups declined slightly but these changes within the specialty groups are likely to be due to the change in classification and methodology (see Appendix A).

Specialists-in-training

The number of specialists-in-training increased by 24.9% between 2006 and 2010, from 6,118 to 7,639 (Table 3.2). This equates to a rise over the period from 42.1 trainee specialists per 100,000 population, to 49.2 per 100,000 in 2010 (tables 3.3 and D1).

In 2010, 46.1% of specialists-in-training were female; almost double the proportion of specialists (25.4%), and up from 40.6% in 2006.

The average age of specialists-in-training (32.8 in 2010) was relatively young compared with specialists and general practitioners (49.8 and 50.6, respectively).

Non-clinicians

Non-clinician practitioners are medical practitioners who reported in the Medical Workforce Survey 2010 that they worked as one of the following:

- an administrator: employed in medical administration
- a teacher/educator: teaching or training people in medicine
- a researcher: engaged in medical research
- in a non-clinical medical field that is not one of the above.

It should be noted that using this definition, a clinician may undertake some non-clinician functions and vice versa.

In 2010, there were 3,369 employed non-clinician medical practitioners, compared with 49,128 employed clinicians (Table 3.2). This equated to 6.4% of medical practitioners employed in medicine in Australia, of which almost a third were researchers (30.8%) and a quarter administrators (24.9%).

The number of employed non-clinician medical practitioners increased only slightly by 0.6% from 2006 to 2010. Among the non-clinical fields, teachers/educators had the highest increase in numbers (up 20.4%), and administrators reported a decrease in numbers (down 8.9%).

Non-clinicians were, on average, slightly older than clinicians (50.5 and 45.6, respectively, in 2010). In 2010, almost 2 in 5 (39.1%) were female, which is slightly higher than the proportion for clinicians (36.8%).

Specialty of practice

Table 3.5 contains an analysis of a range of specialist practice areas, by number, average age, proportion aged 55 and over, proportion of females and average weekly hours worked. The main specialty of practice categories captured in the NHWDS: medical practitioners 2010 were not identical to those previously collected in the AIHW Medical Labour Force Survey, thus comparisons with results from earlier years cannot be made and therefore not presented in this report.

Physician was the largest main speciality of practice among both specialists who are clinicians and all specialists (3,819 and 4,254, respectively). These physicians represented 21.6% of clinician specialists and 22.1% of all specialists. The second largest main speciality of practice for clinician specialists and all specialists was surgery (2,710 and 2,822, respectively), and these surgeons represented 15.3% of clinicians and 14.7% all specialists (Table 3.5).

The main specialty of practice with the oldest average aged workers was public health medicine for clinicians (56.6 years) and occupational and environmental medicine for all specialists (54.9 years), although numbers are relatively small. The specialty with the youngest average age was emergency medicine for both clinicians and all specialists (43.2 and 43.6 years, respectively).

For all specialists, the proportion of females was lowest for surgery at 7.9%, and highest for palliative care and sexual health medicine (55.3% and 54.3%, respectively). The proportion of all specialists aged 55 and over was lowest for emergency medicine (6.0%), and highest for occupational and environmental medicine and pain medicine (55.9% and 54.8%, respectively), although numbers in these groups are quite low (Table 3.5).

Table 3.5: Specialists: selected features by main specialty of practice, 2010[(a)]

	Clinician					Total specialists				
Specialty of practice	Number	Average age	Aged 55 and over (per cent)	Female (per cent)	Average weekly hours	Number	Average age	Aged 55 and over (per cent)	Female (per cent)	Average weekly hours
Addiction medicine	20	51.2	36.7	31.6	44.1	27	52.5	40.1	32.0	43.3
Anaesthesia	2,395	47.9	26.3	24.4	43.2	2,442	48.0	26.5	24.4	43.3
Dermatology	303	51.1	38.1	37.7	39.8	307	51.2	38.2	38.1	39.6
Emergency medicine	668	43.2	5.0	30.5	42.3	723	43.6	6.0	30.1	42.2
General practice	488	52.7	42.5	24.1	43.0	540	52.7	42.4	25.7	42.9
Intensive care medicine	204	44.8	12.6	17.7	54.8	220	45.1	13.3	17.0	54.2
Medical administration	6	53.7	38.9	40.9	42.3	79	51.8	40.3	47.0	44.5
Obstetrics and gynaecology	984	51.6	38.0	33.8	49.1	1,033	51.8	39.2	34.1	48.6
Occupational and environmental medicine	106	54.3	56.1	22.1	39.9	131	54.9	55.9	20.6	39.7
Ophthalmology	616	52.3	38.3	18.4	41.8	626	52.4	38.5	18.3	42.0
Paediatrics and child health	878	49.1	30.6	39.8	44.3	988	49.4	30.9	40.6	44.1
Pain medicine	18	52.0	51.8	14.0	47.1	19	52.4	54.8	19.4	46.6
Palliative care	65	50.1	36.1	52.5	39.0	72	50.3	35.8	55.3	38.5
Pathology	631	51.3	38.0	39.3	40.9	755	51.8	38.9	39.7	41.0
Physician	3,819	49.4	30.5	24.6	45.9	4,254	49.3	30.7	25.2	45.7
Psychiatry	1,894	52.2	41.9	33.9	37.6	2,103	52.5	42.2	33.0	37.7
Public health medicine	12	56.6	49.0	11.0	32.9	81	52.6	37.1	43.6	43.4
Radiation oncology	211	46.1	19.5	31.6	44.7	218	46.4	21.0	31.0	45.0
Radiology	1,021	49.5	30.5	23.4	41.3	1,049	49.8	31.4	23.0	41.2
Rehabilitation medicine	272	49.5	30.2	37.8	40.1	284	49.9	31.9	37.0	40.3
Sexual health medicine	26	48.3	32.4	55.3	40.1	33	48.0	29.1	54.3	38.2
Sport and exercise medicine	41	47.6	22.8	12.1	44.4	46	48.2	23.1	13.4	42.7
Surgery	2,710	51.6	37.2	8.1	50.5	2,822	52.1	39.0	7.9	49.8
Not stated/Inadequately described	321	44.0	18.4	31.7	42.9	377	45.2	21.5	33.4	42.2
Total	**17,711**	**49.8**	**32.3**	**25.4**	**44.4**	**19,230**	**50.1**	**33.0**	**25.9**	**44.2**

(a) Data exclude Queensland and Western Australia due to their registration period closing after the national registration deadline of 30 September 2010. Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who reside overseas.

Source: NHWDS: medical practitioners 2010.

3.4 Country of first medical qualification

Information about the country of first medical qualification was collected in previous AIHW Medical Labour Force Surveys, however was not included as a survey question in 2010 as it is now collected as part of the NRAS registration data. Although it is understood that country of first medical qualification is being entered for new registrants, data migrated from some of the previous jurisdiction-based systems did not contain this information, thus it could not be included in this report due to poor quality. It is anticipated that this information will improve over time and will be able to be reported in subsequent years.

3.5 Work setting

Medical practitioners were asked to indicate the setting of their main job in medicine in the week prior to completing the Medical Workforce Survey 2010.

Of all employed clinicians, almost a half (48.4%) worked in private practice at the time of the survey. Of those working in private practice, about 7 in 10 were in group practices (68.1%) and 3 in 10 (30.1%) were in solo practices (Table 3.6).

Hospital was reported as the work setting of main job for 42.4% of clinicians. Of these clinicians working in hospitals, only 2.5% indicated outpatient services as their main work setting.

Clinicians working in community health care services made up only 2.0% of all practitioners employed. Within this small group, 56.2% were working in community mental health service settings, 37.4% in other community health care service settings and 6.3% in community drug and alcohol service settings (Table 3.6).

Educational facilities was the main work setting for 2.0% of all practitioners, but only 0.6% of clinicians reported this as their main work setting. Among all practitioners working in educational facilities, 91.3% were working in tertiary educational facilities.

Less than 1% of all practitioners were working in each of the following settings: other government department or agency (0.9%); Aboriginal health service (0.7%); commercial/business services (0.5%); defence forces (0.4%); residential health care services settings (0.2%); and correctional services (0.1%) (Table 3.6).

Table 3.6: Employed medical practitioners: number of and average weekly hours worked, by work setting, 2006[(a)] and 2010[(b)]

	Clinician		Total practitioners	
Work setting	**Number**	**Average weekly total hours**	**Number**	**Average weekly total hours**
		2006[(a)]		
Total employed	**42,988**	**43.8**	**46,336**	**43.5**
		2010[(b)]		
Private practice	*23,770*	*41.2*	*24,064*	*41.1*
Solo private practice	7,154	45.0	7,273	44.7
Group private practice	16,183	39.7	16,352	39.7
Locum private practice	432	35.6	439	35.5
Aboriginal health service	310	36.1	345	36.6
Community health care services	*975*	*36.3*	*1,050*	*36.1*
Community mental health service	548	37.9	579	38.0
Community drug and alcohol service	61	36.6	72	37.5
Other community health care service	365	33.8	398	33.0

(continued)

Table 3.6 (continued): Employed medical practitioners: average weekly hours worked, by work setting, 2006[(a)] and 2010[(b)]

	Clinician		Total practitioners	
Work setting	**Number**	**Average weekly total hours**	**Number**	**Average weekly total hours**
		2010[(b)]		
Hospital	*20,816*	*47.0*	*21,927*	*46.8*
Outpatient services	519	35.4	544	35.4
Other hospital service	20,297	47.3	21,383	47.0
Residential health care services	*125*	*37.1*	*128*	*37.0*
Residential aged care	75	33.7	76	33.4
Residential mental health care service	50	42.1	52	42.2
Commercial/business services	139	32.0	256	35.2
Educational facility	*295*	*46.7*	*1,061*	*42.8*
Tertiary educational facility	287	46.8	969	43.2
School and other educational facility	8	40.6	92	39.1
Correctional services	57	40.1	66	39.1
Defence forces	151	41.9	193	42.4
Other government department or agency	159	34.2	494	36.9
Other	346	35.6	762	34.0
Not stated/Inadequately described	1,986	43.6	2,151	43.5
Total employed	**49,128**	**43.6**	**52,497**	**43.3**

(a) To allow comparison with data from 2010, Queensland and Western Australia have been excluded from the 2006 data. See note (b) below.

(b) 2010 data exclude Queensland and Western Australia due to their registration period closing after the national registration deadline of 30 September 2010. Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who reside overseas.

Sources: AIHW Medical Labour Force Survey 2006; NHWDS: medical practitioners 2010.

3.6 Working hours

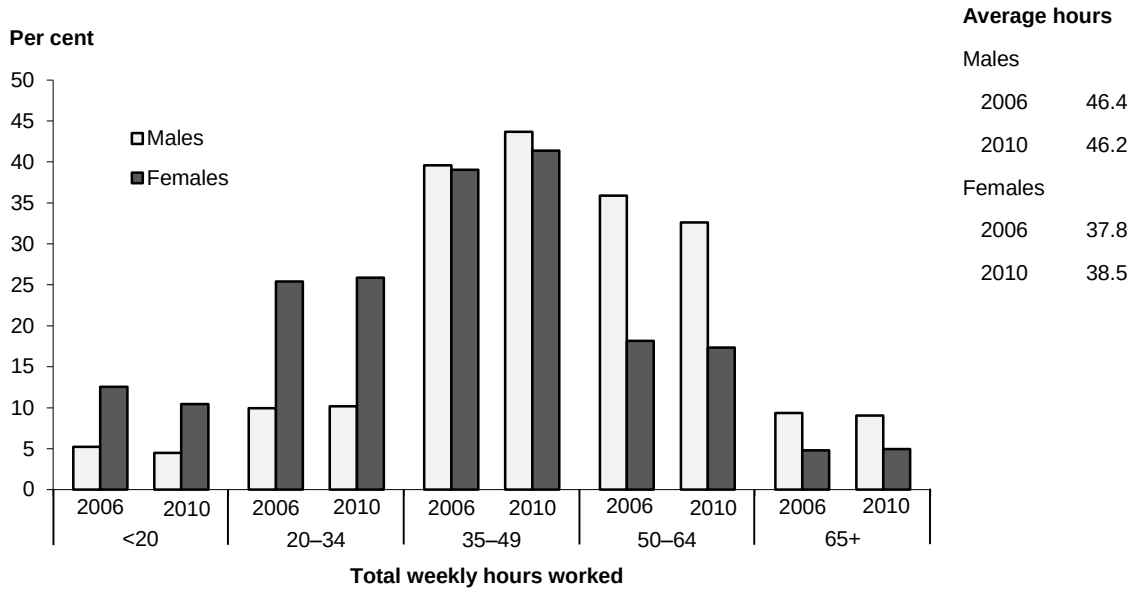
The total number of hours worked per week, in the week before the survey, is reported by medical practitioners in the Medical Workforce Survey 2010, and relates to the number of hours worked in all medical fields. Working hours are presented by field of medicine because many medical practitioners allocate their time across more than one medical field. Clinical hours are the reported hours worked per week as a clinician.

The highest average weekly hours worked, for both clinicians and all specialists, was by intensive care medicine specialists, at 54.8 and 54.2 hours, respectively. The second highest average weekly hours worked was by surgery specialists, at 50.5 for clinicians and 49.8 hours for all specialists (Table 3.5).

For clinicians, the main specialty area with the lowest average weekly hours worked was public health medicine (32.9 hours), but this only represented 12 practitioners. For all specialists, psychiatry had the lowest average weekly hours worked (37.7 hours).

Sex

Earlier medical workforce surveys have shown that male medical practitioners worked more hours per week than female practitioners. This is primarily due to a larger proportion of female medical practitioners working part-time hours of less than 35 hours per week (36.3%), compared with males (14.7%) (Figure 3.3).



(a) To allow comparison with data from 2010, Queensland and Western Australia have been excluded from the 2006 data. See note (b) below.

(b) 2010 data exclude Queensland and Western Australia due to their registration period closing after the national registration deadline of 30 September 2010. Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who reside overseas.

Sources: AIHW Medical Labour Force Survey, 2006; NHWDS: medical practitioners 2010.

Figure 3.3: Employed medical practitioners: total hours worked per week by sex, 2006[(a)] and 2010[(b)]

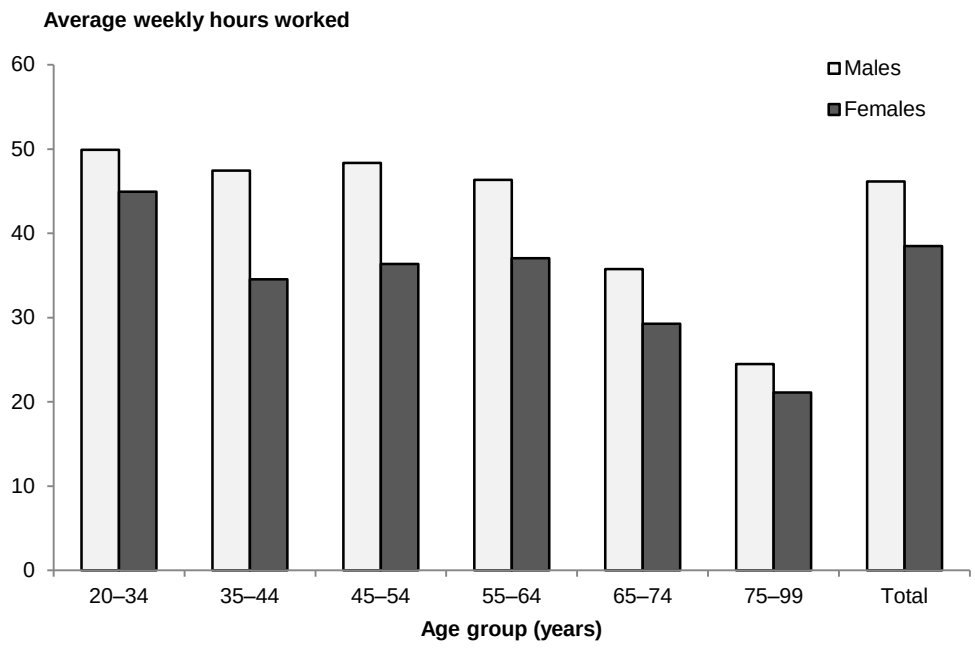
In 2010, male medical practitioners worked an average of 46.2 hours per week, while female medical practitioners worked an average of 38.5 hours per week (Figure 3.3). In 2006 and 2010, males worked an average of 8.6 and 7.7 hours per week more than females, respectively. Males were also more likely to work 35 to 64 hours per week than females.

Despite the shift towards working fewer hours, the distribution of hours worked by male medical practitioners remained skewed towards long working weeks. About 41.7% of male medical practitioners worked 50 or more hours per week in 2010, although the proportion had decreased from 45.2% in 2006. The proportion of females working 50 or more hours per week also decreased slightly, from 23.0% in 2006 to 22.3% in 2010. Three-quarters (76.3%) of male medical practitioners in 2010 reported working on average between 35 and 64 hours per week (Figure 3.3).

Total average hours worked for females have remained relatively flat from 2006 to 2010, while the proportion of females working 35–49 hours has increased slightly over this period. The proportion of females working 50–64 hours has fallen since 2006. The proportion of males working 20–34 hours and 35–49 hours per week remained relatively stable from 2006 to 2010.

Age

Medical practitioners, males and females, aged 20–34 worked the highest average weekly hours in 2010. Males and females aged 65 and over worked the lowest average weekly hours (Figure 3.4). In other age groups, different patterns were observed for males and females, although males worked higher average weekly hours than females in every age group.



(a) Data exclude Queensland and Western Australia due to their registration period closing after the national registration deadline of 30 September 2010. Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who reside overseas.

Source: NHWDS: medical practitioners 2010.

Figure 3.4: Employed medical practitioners: average total weekly hours worked by age group, 2010[(a)]

Males in all age groups had higher average weekly hours than their female counterparts, with the largest difference being for those in the 35–44 and 45–54 age groups (12.9 and 12.0 average weekly hours, respectively).

Average weekly hours worked by males stayed above 45 hours per week for all age groups up to 65. However, average weekly hours for females in the 20–34 age group averaged 44.9 hours (the highest of all age groups), then decreased to 34.6 hours for the 35–44 age group, before increasing in the 45–54 and 55–64 age groups (36.4 and 37.1 hours, respectively). For both males and females, average weekly hours declined in the 65–74 age group, (35.8 hours for males and 29.3 hours for females), with a further decrease in the 75–99 age group. However, all medical practitioners in this oldest age group worked an average of 24.2 hours per week, being more than half of a full-work week of 40 hours (Figure 3.4).

Work setting

The average weekly hours worked for all employed medical practitioners, clinicians and total practitioners, remained stable between 2006 and 2010, varying less than 1 percentage point between groups and over time (Table 3.6).

In 2010, clinicians worked, on average, 43.6 hours per week, which was similar to total practitioners, at 43.3 hours (tables 3.2 and 3.6). Of clinicians, those working in hospitals and educational facilities reported the highest average hours per week (47.0 and 46.7 hours, respectively), with those working in commercial/business services the lowest (32.0 hours)

For those working in private practice, clinicians working in a solo practice worked the highest number of hours (45.0 hours), compared with their clinicians colleagues working in group and locum private practice (39.7 and 35.6 hours, respectively) (Table 3.6).

Among all practitioners working in hospitals, those working in other hospital services worked on average 11.9 hours more per week than those working in outpatient services (47.3 compared with 35.4 hours, respectively).

For all practitioners working in residential health care settings, those in mental health care services worked on average 8.8 hours per week more than those working in aged care facilities (42.2 compared with 33.4 hours, respectively) (Table 3.6).

4 Supply of practitioners

4.1 Overall supply

Data on the size and characteristics of the medical workforce present a valuable profile of medical practitioners, but do not give a complete picture of the overall level of service provided. Some medical practitioners have long working weeks and others work part time, therefore their relative contributions to the level of service need to be taken into account to measure the overall supply effectively.

To do this, information on the number of employed medical practitioners, in combination with their average hours worked, have been used to calculate a 'full-time equivalent' (FTE) number of practitioners, based on a 'standard full-time working week' (Box 4.1).

To take account of population differences across Australia, and across time, Australian Bureau of Statistics estimated resident population figures have been used to convert the FTE number to an FTE rate (FTE per 100,000 population) (see Appendix D).

Box 4.1: Full-time equivalent

The number of full-time equivalent (FTE) medical practitioners is calculated by multiplying the number of medical practitioners by the average weekly hours worked, and dividing by the number of hours in a standard full-time working week.

FTE gives a useful measure of supply, because it takes into account both those working full time and those working part time.

The concept of FTE depends on what may reasonably be regarded as a full-time job, and this varies across occupations. The Australian Bureau of Statistics defines full-time work as being at least 35 hours per week, and many FTE calculations are based on this (ABS 1996). However, people in managerial or professional jobs tend to work more than 35 hours per week and medical practitioners have worked, on average 43.3 hours per week (Table 3.2). Therefore, in this report, a standard week of 40 hours has been used to calculate realistic FTE measures of service delivery by practitioners. That is, FTE measures the number of 40-hour week workloads provided by the medical practitioner workforce.

4.2 Supply of clinicians

A clinician is a medical practitioner mainly involved in the diagnosis, care and treatment of individuals, including recommending preventative action. In this report, medical practitioners who reported spending the majority of their total weekly working hours involved in clinical practice are classed as clinicians.

Across the states and territories reported on in this report, the overall supply of clinicians increased between 2006 and 2010, from 324 FTE per 100,000 population in 2006 to 345 in 2010 (Table 4.1). However, this pattern was not consistent across all fields of practice.

Over this period, the supply of specialists-in-training, specialists, and other clinicians all increased (52 to 61, 114 to 127 and 4 to 8 FTE per 100,000 population, respectively).

The supply of general practitioners decreased between 2006 and 2010, from 115 to 110 FTE per 100,000 population, and the supply of hospital non-specialists remained stable at 39 FTE per 100,000 population (Table 4.1).

The supply of specialist clinicians across the broad specialty groups is provided in Table 4.1. For each broad specialty group, there was a decline in supply between 2006 and 2010. The

supply of physicians decreased the most during this time period, by 14.3% from 33 to 28 FTE per 100,000 population. The exception was other specialties which increased from 51 to 72 FTE per 100,000 population.

Table 4.1: Employed medical practitioners: FTE per 100,000 population[a] by main field of medicine, 2006[b] and 2010[c]

Main field of medicine	2006[b]	2010[c]
Clinician	*323.6*	*345.0*
General practitioner[d]	114.6	109.6
Hospital non-specialist	38.8	38.7
Specialist	*113.7*	*126.7*
Physician	32.9	28.2
Pathology	4.6	4.2
Surgery	25.1	22.1
Other specialties	51.2	72.2
Specialist-in-training	52.5	61.4
Other clinician[d]	4.0	8.3
Non-clinician	*22.7*	*21.4*
Total	**346.4**	**366.1**

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

(b) To allow comparison with data from 2010, Queensland and Western Australia have been excluded from the 2006 data. See note (c) below.

(c) 2010 data exclude Queensland and Western Australia due to their registration period closing after the national registration deadline of 30 September 2010. Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who reside overseas.

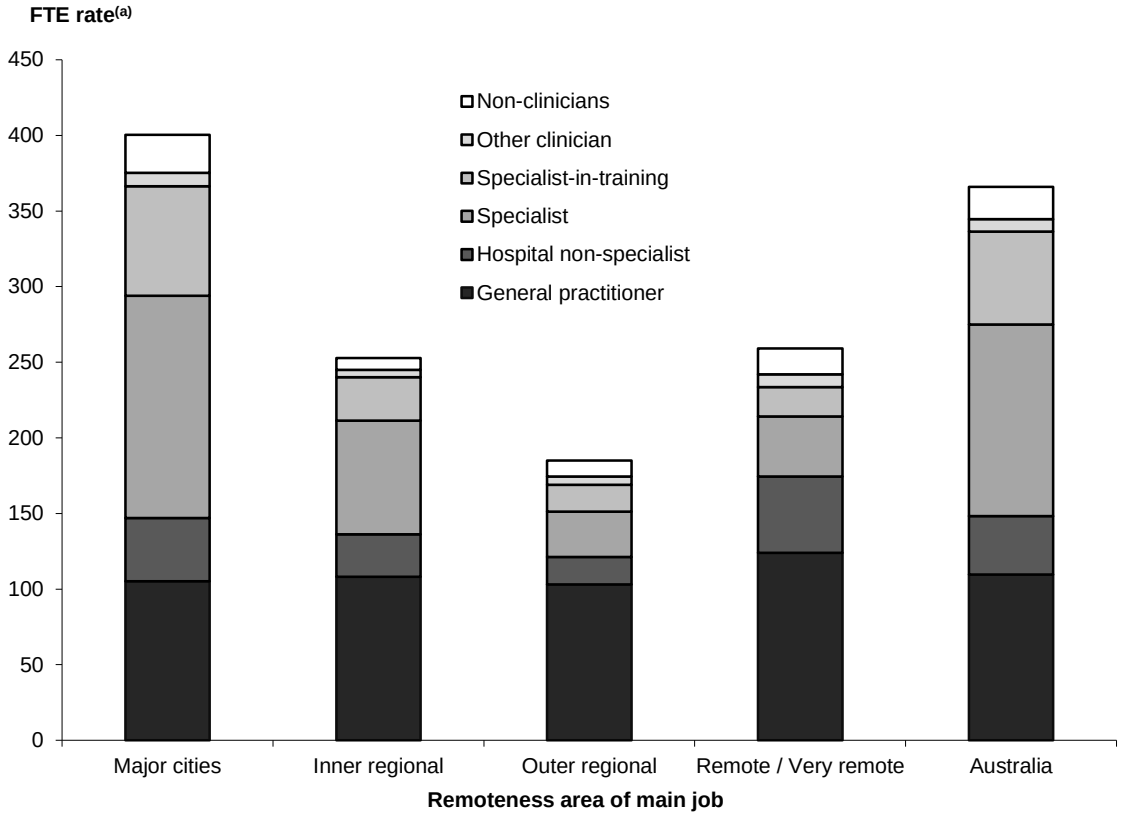
(d) In 2010, primary care practitioners who did not self-identify as general practitioners may be included in 'Other clinician' rather than 'General practitioner'. Therefore, general practitioner data in 2010 are not directly comparable with primary care practitioner data in 2006.

Sources: AIHW Medical Labour Force Survey 2006; NHWDS: medical practitioners 2010.

5 Regional profile of employed medical practitioners

5.1 Remoteness areas of Australia

The distribution of medical practitioners in Australia is of considerable interest to both government and communities. Information on the work location of medical practitioners is collected in the Medical Workforce Survey 2010, providing a means, in combination with other data on hours and population, of examining variability in the supply of practitioners across Australia.



Note: Remote/Very remote includes *Migratory* areas.

(a) FTE rate (number of FTE employed medical practitioners per 100,000 population) is based on a standard full-time working week of 40 hours.

(b) 2010 data exclude Queensland and Western Australia due to their registration period closing after the national registration deadline of 30 September 2010. Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who reside overseas.

(c) In 2010, primary care practitioners who did not self-identify as general practitioners may be included in 'Other clinician' rather than 'General practitioner'.

Source: NHWDS: medical practitioners 2010.

Figure 5.1: Employed medical practitioners: FTE rate per 100,000 population(a), by remoteness area of main job and main field of medicine, 2010(b)

Using the postcode of practitioners main work location, each practitioner is allocated to one of the following in the Australian Standard Geographical Classification Remoteness Area (ASGC RA): *Major cities*, *Inner regional*, *Outer regional*, *Remote*, *Very remote* and *Migratory* (see 'Glossary'). In this report, the *Remote*, *Very remot*e and *Migratory* categories have been combined due to small numbers (Figure 5.1).

Major cities

Of the medical practitioners employed in *Major cities* in 2010, 93.2% were clinicians. Of employed clinicians, 38.5% were specialists, 31.7% were general practitioners, 16.9% specialists-in-training and 10.3% hospital non-specialists (Table 5.1). The proportions of specialists and specialists-in-training were higher in this area than any other remoteness area (RA). The proportion of general practitioners was the lowest of the four RAs, at 31.7%. This indicates that the medical practitioner population is more evenly distributed across clinician types in *Major cities* than in the other RAs, which may be attributed to specialists and specialists-in-training working mainly in *Major cities*.

In 2010, over a third (37.8%) of medical practitioners in *Major cities* were female, which is slightly less than *Remote/Very remote* areas (38.1%), which have the highest proportion of the four RAs. The average age of medical practitioners in *Major cities* was 45.8, which was almost the same as the national average in 2010 of 45.9 (tables 3.2, 5.1 and 5.4).

Between 2006 and 2010, the number of employed medical practitioners in *Major cities* increased by 10.0%. For all states and territories, the population in *Major cities* increased 8.3% over the same period (Table D1). For clinicians overall, the increase was 11.0%. Among clinicians, the largest increase over the same period occurred for other clinicians (113.6%), followed by specialists-in-training and specialists (18.9% and 18.7%, respectively) (Table 5.1).

There was also a rise in the supply of medical practitioners in *Major cities* of 8 FTE per 100,000 population, and in the supply of clinicians of 11 FTE per 100,000 population, from 2006 to 2010. However, over the same period, the supply of general practitioners fell by 10 FTE per 100,000 population to 105 FTE per 100,000 population in 2010.

Table 5.1: Employed medical practitioners in *Major cities*: selected features by main field of medicine of main job, 2006[(a)] and 2010[(b)]

Main field of medicine	Number	Average age	Aged 55 and over (per cent)	Female (per cent)	Average hours	FTE rate[(c)]
			2006[(a)]			
Clinician	34,246	45.3	24.6	34.9	43.7	364.9
Primary care practitioner	12,104	50.6	34.5	38.8	38.9	114.8
Hospital non-specialist	3,949	32.8	4.0	50.9	47.6	45.8
Specialist	12,332	49.6	32.2	22.7	44.9	135.0
Specialist-in-training	5,392	32.7	—	41.2	49.6	65.2
Other clinician	469	43.6	24.0	45.5	35.2	4.0
Non-clinician	2,856	50.5	35.9	32.1	39.8	27.7
Total	***37,102***	***45.7***	***25.5***	***34.7***	***43.4***	***392.6***

(continued)

Table 5.1 (continued): Employed medical practitioners in *Major cities*: selected features by main field of medicine of main job, 2006[(a)] and 2010[(b)]

Main field of medicine	Number	Average age	Aged 55 and over (per cent)	Female (per cent)	Average hours	FTE rate[(c)]
			2010[(b)]			
Clinician	*38,023*	*45.5*	*25.6*	*37.7*	*43.5*	*375.7*
General practitioner[(d)]	12,063	51.5	39.2	41.6	38.4	105.2
Hospital non-specialist	3,905	33.1	3.8	50.4	47.0	41.7
Specialist	14,643	49.6	31.5	26.7	44.2	147.0
Specialist-in-training	6,410	32.8	0.3	46.8	49.8	72.5
Other clinician[(d)]	1,002	42.5	21.1	44.7	39.2	8.9
Non-clinician	*2,779*	*50.2*	*35.2*	*39.1*	*39.6*	*25.0*
Total	***40,802***	***45.8***	***26.3***	***37.8***	***43.2***	***400.4***

Note: In 2010, a total of 184 employed medical practitioners did not report the RA they worked in. While, in 2006, 945 did not report the RA they worked in. Hence the number of employed medical practitioners stated by RA is an underestimate. Due to the update cycle of the Australian Bureau of Statistics, RA population estimates do not balance with the most recent update of state and territory national population estimates.

(a) To allow comparison with data from 2010, Queensland and Western Australia have been excluded from the 2006 data. See note (b) below.

(b) 2010 data exclude Queensland and Western Australia due to their registration period closing after the national registration deadline of 30 September 2010. Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who reside overseas.

(c) Full-time equivalent (FTE) number per 100,000 population. FTE is based on total weekly hours worked (see 'Glossary').

(d) In 2010, primary care practitioners who did not self-identify as general practitioners may be included in 'Other clinician' rather than 'General practitioner'. Therefore, general practitioner data in 2010 are not directly comparable with primary care practitioner data in 2006.

Sources: AIHW Medical Labour Force Survey 2006; NHWDS: medical practitioners 2010.

Inner regional areas

Of the medical practitioners employed in *Inner regional* areas in 2010, 96.3% were clinicians (Table 5.2). As with *Major cities,* a relatively high proportion of these clinicians were specialists (38.5% in *Major cities* and 29.1% in *Inner regional*). However, *Inner regional* areas had a much higher proportion who were general practitioners (48.0% compared with 31.7%), and a lower proportion who were specialists-in-training (10.0%) than *Major cities* (16.9%).

In 2010, medical practitioners employed in *Inner regional* areas worked, on average, similar hours to the national average (43.6 compared with 43.3 hours). However, they were slightly older, with an average age of 46.5 compared with 45.9 nationally. They were also less likely to be female (33.3% compared with 37.0% nationally) (tables 3.2 and 5.2).

Between 2006 and 2010, the number of employed medical practitioners in *Inner regional* areas grew by 19.5%. This was the highest growth rate for all RA's, and higher than the national growth in employed medical practitioners (13.3%). The population in *Inner regional* areas increased 7.7% over this period, for all states and territories. (Table D1). The number of general practitioners in *Inner regional* areas grew by 8.2%. Over the same period, the supply of medical practitioners increased from 222 FTE per 100,000 population in 2006 to 253 FTE per 100,000 in 2010, while average hours worked per week remained the same (43.6 hours).

Table 5.2: Employed medical practitioners in *Inner regional* areas: selected features by main field of medicine of main job, 2006[(a)] and 2010[(b)]

Main field of medicine	Number	Average age	Aged 55 and over (per cent)	Female (per cent)	Average hours	FTE rate[(c)]
			2006[(a)]			
Clinician	*5,777*	*46.8*	*25.7*	*29.2*	*43.9*	*213.7*
Primary care practitioner	3,081	48.1	26.0	34.8	40.7	105.6
Hospital non-specialist	471	36.7	9.1	40.6	47.2	18.7
Specialist	1,699	51.2	36.4	13.9	46.2	66.1
Specialist-in-training	428	33.0	—	34.4	53.8	19.4
Other clinician	98	40.4	19.8	42.0	43.2	3.6
Non-clinician	*257*	*52.4*	*43.7*	*30.3*	*38.9*	*8.4*
Total	**6,034**	**47.1**	**26.4**	**29.3**	**43.6**	**221.6**
			2010[(b)]			
Clinician	*6,940*	*46.2*	*26.5*	*33.2*	*43.8*	*244.9*
General practitioner[(d)]	3,333	48.7	30.3	37.9	40.3	108.2
Hospital non-specialist	744	36.4	8.5	44.0	46.6	27.9
Specialist	2,021	50.8	36.1	18.0	46.2	75.2
Specialist-in-training	695	32.4	0.9	41.3	51.5	28.8
Other clinician[(d)]	147	42.4	19.5	40.0	39.6	4.7
Non-clinician	*270*	*54.1*	*48.3*	*37.8*	*36.4*	*7.9*
Total	**7,210**	**46.5**	**27.3**	**33.3**	**43.6**	**253.3**

Note: In 2010, a total of 184 employed medical practitioners did not report the RA they worked in. While, in 2006, 945 did not report the RA they worked in. Hence the number of employed medical practitioners stated by RA is an underestimate. Due to the update cycle of the Australian Bureau of Statistics, RA population estimates do not balance with the most recent update of state and territory national population estimates.

(a) To allow comparison with data from 2010, Queensland and Western Australia have been excluded from the 2006 data. See note (b) below.

(b) 2010 data exclude Queensland and Western Australia due to their registration period closing after the national registration deadline of 30 September 2010. Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who reside overseas.

(c) Full-time equivalent (FTE) number per 100,000 population. FTE is based on total weekly hours worked (see 'Glossary').

(d) In 2010, primary care practitioners who did not self-identify as general practitioners may be included in 'Other clinician' rather than 'General practitioner'. Therefore, general practitioner data in 2010 are not directly comparable with primary care practitioner data in 2006.

Sources: AIHW Medical Labour Force Survey 2006; NHWDS: medical practitioners 2010.

Outer regional areas

In 2010, 93.8% of employed medical practitioners in *Outer regional* areas were categorised as clinicians. Of these, 60.5% were general practitioners (the highest proportion of the four RAs), 17.1% were specialists, 10.2% hospital non-specialists and 9.0% specialists-in-training (Table 5.3).

Of all employed medical practitioners, 36.1% were female, which was slightly lower than the national proportion of 37.0%. The average age of employed medical practitioners in *Outer regional* areas was similar to the national average (46.1 compared with 45.9) (tables 3.2 and 5.3).

Medical practitioners in *Outer regional* areas in 2010 worked, on average, 2 hours per week more than the national average (45.3 compared with 43.3). General practitioners in *Outer*

regional areas, in particular, worked longer weekly hours than the national average (44.5 compared with 39.2 hours) (tables 3.2 and 5.3).

Between 2006 and 2010, the number of employed medical practitioners in *Outer regional* areas grew by 11.9%, while the population in *Outer regional* areas grew by 6.1% for all states and territories (Table D1). This was below the national average growth in employed medical practitioners (13.3%). There was growth in the overall numbers, as well as overall supply, which increased from 170 FTE per 100,000 population in 2006 to 185 FTE per 100,000 in 2010. This growth was seen in all clinician groups except general practitioners, which declined by 1.3% over the same period.

Table 5.3: Employed medical practitioners in *Outer regional* areas: selected features by main field of medicine of main job, 2006[(a)] and 2010[(b)]

Main field of medicine	Number	Average age	Aged 55 and over (per cent)	Female (per cent)	Average hours	FTE rate[(c)]
			2006[(a)]			
Clinician	*1,630*	*45.8*	*22.6*	*31.1*	*45.5*	*160.6*
Primary care practitioner	1,082	47.5	23.5	30.8	44.6	104.5
Hospital non-specialist	136	33.9	1.8	40.9	48.4	14.3
Specialist	268	49.6	40.5	25.4	46.5	27.0
Specialist-in-training	128	36.5	—	33.0	49.6	13.7
Other clinician	17	48.8	24.3	42.0	28.9	1.1
Non-clinician	*116*	*49.8*	*27.9*	*29.6*	*36.5*	*9.2*
Total	**1,746**	**46.1**	**23.0**	**31.0**	**44.9**	***169.7***
			2010[(b)]			
Clinician	*1,831*	*46.0*	*26.9*	*35.8*	*45.6*	*174.5*
General practitioner[(d)]	1,108	48.1	30.0	34.0	44.5	103.1
Hospital non-specialist	186	35.5	7.1	53.7	47.0	18.3
Specialist	313	52.5	43.2	23.1	45.6	29.8
Specialist-in-training	164	32.6	1.5	51.2	51.8	17.8
Other clinician[(d)]	60	41.7	16.5	37.2	44.4	5.6
Non-clinician	*122*	*48.5*	*30.6*	*40.3*	*41.1*	*10.5*
Total	**1,953**	**46.1**	**27.2**	**36.1**	**45.3**	**185.0**

Note: In 2010, a total of 184 employed medical practitioners did not report the RA they worked in. While, in 2006, 945 did not report the RA they worked in. Hence the number of employed medical practitioners stated by RA is an underestimate. Due to the update cycle of the Australian Bureau of Statistics, RA population estimates do not balance with the most recent update of state and territory national population estimates.

(a) To allow comparison with data from 2010, Queensland and Western Australia have been excluded from the 2006 data. See note (b) below.

(b) 2010 data exclude Queensland and Western Australia due to their registration period closing after the national registration deadline of 30 September 2010. Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who reside overseas.

(c) Full-time equivalent (FTE) number per 100,000 population. FTE is based on total weekly hours worked (see 'Glossary').

(d) In 2010, primary care practitioners who did not self-identify as general practitioners may be included in 'Other clinician' rather than 'General practitioner'. Therefore, general practitioner data in 2010 are not directly comparable with primary care practitioner data in 2006.

Sources: AIHW Medical Labour Force Survey 2006; NHWDS: medical practitioners 2010.

Remote and Very remote areas

In 2010, 93.1% of employed medical practitioners in *Remote/Very remote* areas were categorised as clinicians. Of these, 54.0% worked in general practice (the second highest proportion of the four RAs), 19.3% were hospital non-specialists (the highest of the RAs), 15.0% were specialists (the lowest of the RAs), and 8.5% were specialists-in-training (the lowest of the RAs) (Table 5.4).

The average age of all employed medical practitioners in *Remote/Very remote* areas in 2010 was 45.0, which was slightly younger than the national average of 45.9 (and the youngest of the RAs) (tables 3.2 and 5.4).

Table 5.4: Employed medical practitioners in *Remote/Very remote* areas[a]: selected features by main field of medicine of main job, 2006[b] and 2010[c]

Main field of medicine	Number	Average age	Aged 55 and over (per cent)	Female (per cent)	Average hours	FTE rate[d]
			2006[b]			
Clinician	*471*	*41.1*	*15.6*	*34.6*	*46.4*	*263.4*
Primary care practitioner	243	46.3	23.5	33.3	45.8	134.2
Hospital non-specialist	97	31.5	—	48.1	49.0	57.3
Specialist	80	38.3	20.1	20.2	43.3	41.8
Specialist-in-training	44	40.3	—	29.8	50.5	26.8
Other clinician	6	31.0	—	100.0	40.0	2.9
Non-clinician	*38*	*41.7*	*13.6*	*49.6*	*38.8*	*17.8*
Total	**509**	**41.1**	**15.4**	**35.7**	**45.9**	**281.6**
			2010[c]			
Clinician	*461*	*44.8*	*26.1*	*38.6*	*45.0*	*242.0*
General practitioner[e]	249	48.5	34.3	39.8	42.7	124.0
Hospital non-specialist	89	36.5	12.7	38.0	48.5	50.3
Specialist	69	49.6	29.0	29.5	49.4	39.8
Specialist-in-training	39	32.3	—	54.9	42.9	19.5
Other clinician[e]	14	42.0	24.8	19.0	51.4	8.4
Non-clinician	*34*	*48.1*	*24.4*	*32.7*	*43.3*	*17.2*
Total	**495**	**45.0**	**26.0**	**38.1**	**44.9**	**259.2**

Note: In 2010, a total of 184 employed medical practitioners did not report the RA they worked in. While, in 2006, 945 did not report the RA they worked in. Hence the number of employed medical practitioners stated by RA is an underestimate. Due to the update cycle of the Australian Bureau of Statistics, RA population estimates do not balance with the most recent update of state and territory national population estimates.

(a) Includes *Migratory* areas.

(b) To allow comparison with data from 2010, Queensland and Western Australia have been excluded from the 2006 data. See note (c) below.

(c) 2010 data exclude Queensland and Western Australia due to their registration period closing after the national registration deadline of 30 September 2010. Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who reside overseas.

(d) Full-time equivalent (FTE) number per 100,000 population. FTE is based on total weekly hours worked (see 'Glossary').

(e) In 2010, primary care practitioners who did not self-identify as general practitioners may be included in 'Other clinician' rather than 'General practitioner'. Therefore, general practitioner data in 2010 are not directly comparable with primary care practitioner data in 2006.

Sources: AIHW Medical Labour Force Survey 2006; NHWDS: medical practitioners 2010.

Medical practitioners working in *Remote/Very remote* areas worked, on average, one and a half hours per week more than the national average (44.9 compared with 43.3 hours). General practitioners, in particular, worked longer average hours in *Remote/Very remote* areas than in other RAs. In 2010, this subfield of clinicians in *Remote/Very remote* areas worked, on average, 3.5 hours per week more than the national average (42.7 compared with 39.2 hours).

Between 2006 and 2010, the number of employed medical practitioners in *Remote/Very remote* areas decreased by 2.8% (the only RA to experience a decline). The supply fell from 282 to 260 FTE per 100,000 population, a decrease of 22 FTE over this period. In contrast, for all states and territories, the population in *Remote/Very remote* areas grew by 4.6% over the same period (Table D1).

Despite this decline in the overall supply, the supply of general practitioners in *Remote/Very remote* areas was the largest of all RAs in 2010, at 124 per 100,000 population, 14 FTE more than the national rate of 110 FTE per 100,000 population. Care should be taken in interpreting the Medical Workforce Survey 2010 data for *Remote/Very remote* areas due to the relatively small number of employed medical practitioners who stated that their main job was located in this RA (see 'Data issues' section in Appendix A).

5.2 States and territories of Australia

The following should be noted when comparing state and territory estimates derived from the NHWDS: medical practitioners 2010:

- No employed estimates have been included for Queensland and Western Australia because their closing date for registration renewal was after the official closing date set by AHPRA. Therefore, not all medical practitioners from Queensland and Western Australia had renewed their registration and completed the workforce survey by the official closing date of 30 September (see 'Weighting: estimation for population non-response' and 'Data issues' sections in Appendix A).
- National estimates of employed exclude Queensland and Western Australia, and therefore do not equal the total number of registered medical practitioners in Australia. This is due to the removal of these jurisdictions from the benchmark figures used to weight the survey responses in those jurisdictions.

Between 2006 and 2010, the number of employed medical practitioners increased in all jurisdictions, except the Northern Territory (Table 5.5). Tasmania, South Australia, Victoria and the Australian Capital Territory had increases greater than the national increase of 13.3% (27.2%, 17.1%, 14.5% and 13.7%, respectively). The large increases may, in part, be due to changes in the scope of the benchmark figures (see 'Weighting: estimation for population non-response' and 'Data issues' sections in Appendix A). The FTE rate increased in all jurisdictions, except the Northern Territory where it declined from 452 to 388 FTE medical practitioners per 100,000 population, although this lower rate was still higher than the national average of 366 FTE.

Table 5.5: Employed medical practitioners: selected features by state and territory of principal practice, 2006 and 2010[(a)]

Characteristic	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
					2006[(b)]				
Number	21,182	16,489	. .	. .	5,110	1,350	1,340	866	**46,336**
Average age	*46.6*	*44.9*	. .	. .	*45.9*	*49.1*	*46.4*	*40.6*	***45.9***
Males	48.8	47.2	. .	. .	47.8	51.5	48.5	43.0	**48.1**
Females	42.3	40.2	. .	. .	41.7	44.5	43.1	37.3	**41.5**
Aged 55 and over (per cent)	27.4	23.4	. .	. .	24.8	32.6	24.9	13.8	**25.5**
Females (per cent)	33.5	34.0	. .	. .	31.5	34.1	37.3	41.8	**33.7**
Average hours	43.4	44.2	. .	. .	42.7	41.1	41.2	44.0	**43.5**
FTE rate[(c)]	337.2	355.4	. .	. .	347.9	283.1	413.1	452.3	**346.4**
					2010[(a)]				
Number	23,549	18,883	. .	. .	5,984	1,717	1,523	818	**52,497**
Average age	*46.9*	*45.0*	. .	. .	*45.5*	*46.2*	*45.7*	*42.6*	***45.9***
Males	49.3	47.6	. .	. .	47.6	48.5	48.0	44.9	**48.3**
Females	42.7	40.6	. .	. .	41.6	42.1	42.3	40.0	**41.8**
Aged 55 and over (per cent)	28.5	24.6	. .	. .	25.3	26.9	25.1	18.6	**26.4**
Females (per cent)	36.5	37.6	. .	. .	35.0	36.0	40.7	45.7	**37.0**
Average hours	43.6	43.0	. .	. .	43.0	42.3	43.8	43.6	**43.3**
FTE rate[(c)]	354.9	366.0	. .	. .	391.2	357.7	465.1	388.1	**366.1**

(a) 2010 data exclude Queensland and Western Australia due to their registration period closing after the national registration deadline of 30 September 2010. Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who reside overseas. Therefore, state and territory totals may not sum to the national total.

(b) Queensland and Western Australia are excluded from 2006 data for comparability with 2010 data.

(c) Full-time equivalent (FTE) number per 100,000 population. FTE is based on total weekly hours worked (see 'Glossary').

Sources: AIHW Medical Labour Force Survey 2006; NHWDS: medical practitioners 2010.

Appendix A: Explanatory notes on Medical Workforce 2010 data sources

A.1 National Health Workforce Data Set: medical practitioners

Background

Medical Practitioners are required by law to be registered with the Medical Board of Australia to practice medicine in Australia.

The National Health Workforce Data Set (NHWDS): medical practitioners is a combination of data collected through the medical practitioner registration renewal process. Medical practitioners can either renew their registration online via the AHPRA website or using a paper form provided by AHPRA. For initial registration, medical practitioners must use a paper form and provide supplementary supporting documentation. Registration data collected include demographic information such as age, sex, country of birth, and details of health qualification(s) and registration status (see <http://www.medicalboard.gov.au/Registration/Types.aspx>, select link to registration type then registration form).

When medical practitioners renew their registration online, they are also asked to complete an online version of the Medical Workforce Survey 2010 questionnaire. The questionnaire collects information on the employment characteristics, work locations and work activity of medical practitioners (see <http://www.aihw.gov.au/workforce-publications/> (select link to *Medical workforce 2010*)). AHPRA stores both the online registration data and the survey information in separate databases. They then send these two data sets to AIHW, where they are merged into a de-identified national data set.

When medical practitioners renew their registration on a paper form, they are also asked to complete a paper version of the Medical Workforce Survey 2010 questionnaire. The paper registration and survey forms are sent back to AHPRA, where the paper registration forms are scanned and the data merged with the data obtained from the online process. AHPRA sends the paper survey forms to Health Workforce Australia (HWA) to be scanned into a data set. HWA then sends this data set to the AIHW for merging with the online survey information and registration data, cleansing and adjustment for non-response to form a nationally consistent data set. The final data set is then known as the National Health Workforce Data Set: medical practitioners. The AIHW then produces and releases reports and data tables based on the NHWDS: medical practitioners. These reports and data tables are available from the AIHW website at <http://www.aihw.gov.au/workforce-publications/> (select link to *Medical workforce 2010*).

A.2 National Registration and Accreditation Scheme registration data

The Council of Australian Governments (COAG) at its meeting of 26 March 2008 signed an Intergovernmental Agreement on the Australian health workforce, for the first time creating the National Registration and Accreditation Scheme (NRAS) (see <http://www.coag.gov.au

/coag_meeting_outcomes/2008-03-26/docs/iga_health_workforce.rtf>). Ten health professions were included in the initial national system implemented on 1 July 2010. These were: chiropractors; dental practitioners; medical practitioners; nurses and midwives; optometrists; osteopaths; pharmacists; physiotherapists; podiatrists; and psychologists.

For these professions, practitioners need to be registered with their respective professional boards to practice in Australia. As part of the initial registration and registration renewal process, AHPRA collects information on the registration details and demographic characteristics of practitioners. The information is collectively referred to as the 'registration data'.

In 2010, medical practitioners were the first profession to be included in the NRAS.

Scope and coverage

AHPRA provides the AIHW with an extract of registration data at the end of the annual medical registration renewal process in September. The extract contains details of medical practitioners who, at the end of the renewal process, have a registration status of:

- Cancelled
- Failed to renew
- Registered
- Suppressed
- Surrendered
- Suspended
- Void.

In 2010, a subset of this extract was created to include only medical practitioners with registration status of 'Registered'. This subset of registered medical practitioners was merged with the Medical Workforce Survey 2010 data to create a national data set named the National Health Workforce Data Set (NHWDS): medical practitioners 2010.

In the first year, most medical practitioner registrations in Queensland and Western Australia expired after the official AHPRA closing date of 30 September 2010. Data for these practitioners were migrated from the respective state medical boards. Therefore, registered practitioner numbers for Queensland and Western Australia can be assumed to be complete. However, some differences exist between the migrated data and the historical record. Between 2009 and 2010, the number of Queensland and Western Australia registered practitioners decreased by 865 (–5.2%) and 615 (–7.3%), respectively (Table A1). In prior years, AIHW data showed an increase in almost every jurisdiction in every year, so registered practitioner numbers from these states should be used with caution.

Table A1: Registered medical practitioners, by state and territory, 2008 to 2010[(a)]

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
2008	25,105	19,711	15,235	7,872	6,212	1,793	1,778	964	**78,669**
2009	25,625	20,648	16,526	8,401	6,470	2,204	1,902	1,120	**82,895**
2010[(a)]	25,398	20,309	15,661	7,786	6,376	1,854	1,653	864	**81,639**
Change between 2009 and 2010	–227	–339	–865	–615	–94	–350	–249	–256	**–1,256**
Percentage change between 2009 and 2010	–0.9	–1.6	–5.2	–7.3	–1.5	–15.9	–13.1	–22.9	**–1.5**

(a) 2010 data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who reside overseas. Therefore, state and territory totals may not sum to the national total.

Sources: AIHW Medical Labour Force Survey, 2008 and 2009; NHWDS: medical practitioners 2010.

Data issues

The following data issues need to be considered when interpreting registration data from the NRAS in the NHWDS: medical practitioners 2010 (see the Data Quality Statement and online *User guide for the NHWDS: medical practitioners 2010* available from the AIHW website at <http://www.aihw.gov.au/workforce-publications/> (select link to *Medical workforce 2010*).

- *Incomplete registration data*—(for example, due to migrated data from state and territory medical boards/councils). In particular, date of birth, sex and state and territory of principal practice is an issue because these data items are required for weighting and imputation purposes. Also, country of birth and country of initial medical qualification were incomplete for some records.
- *Invalid response categories*—some data items have allowed invalid responses to be recorded. Some of these responses could not be recoded to a valid category. For example, registration type of 'General and specialist' and registration subtype of 'Recognised specialties (tbc)' was recorded for some records.
- *Issues with overseas residents*—it is not possible to identify many practitioners who reside overseas, so they have been included with medical practitioners who did not state or adequately describe their state or territory of principal practice. Therefore, missing values of state and territory of principal practice cannot be imputed. This affected the calculation of survey weights.
- *Inconsistency between citizenship and residency status responses*—data are not consistent in a number of records; that is, some practitioners reported being both Australian citizens and permanent residents.
- *Issues with multiple registrations*—practitioners may have up to seven registrations, which mean they may have up to seven registered specialties. However, their primary specialty of practice is not identified. Therefore, headcounts of specialists practising in their main field is not possible (see 'Derivation of main specialty' section in 'A5 Comparison with previous AIHW Medical Labour Force Survey data').
- *Invalid country formats*—for a number of records, the country of birth and country of initial qualification fields contained three-character codes rather than the names of countries. Most of the codes were successfully mapped to a country, but there were some for which a country could not be determined.
- *Invalid postcode formats*—postcode of principal practice and residence contained text strings, such as invalid postcodes, suburb names and overseas postal codes. Therefore,

after cleaning and recoding, many of these were still coded to the 'Not stated/Inadequately described' category. As a result, the derivation of ASGC Remoteness Area categories for these records was not possible and hence the quality of the remoteness area data item is reduced.

- *Incomplete date of death*—date of death was not completed for any practitioner, thus has not been used in this report.
- *Invalid year formats*—invalid values entered in data fields relating to years may have affected data items such as year of initial qualification and date of birth.

A.3 Medical Workforce Survey

The Medical Workforce Survey 2010 collected information on the employment characteristics, primary work location and work activity of medical practitioners in Australia who renewed their medical registration with the Medical Board of Australia via the National Registration and Accreditation Scheme (NRAS). This survey data was then combined with the NRAS registration data to form the National Health Workforce Data Set (NHWDS): medical practitioners 2010.

The estimates published in this report are not directly comparable with estimates derived from the earlier AIHW Medical Labour Force Survey data. This is due to a change in the data collection methodology; including the survey design and questionnaire (see 'A.5 Comparison with previous AIHW Medical Labour Force Survey data'). For further information, refer to the Data Quality Statement and the online *User guide for the NHWDS: medical practitioners 2010,* available from the AIHW website at <http://www.aihw.gov.au/workforce-publications/> (select link to *Medical workforce 2010*).

Scope and coverage

The survey is undertaken in association with the NRAS registration renewal process. As such, only practitioners who are on the register at the time of the survey, and who are required to renew their registration receive a questionnaire for completion. Typically, new registrants registering outside the registration renewal period will not receive a survey form. These practitioners will receive a survey form when they first renew their registration.

Estimation procedures

The AIHW uses the NRAS registration data collected in tandem with the Medical Workforce Survey 2010 to derive estimates of the total medical workforce. Not all medical practitioners who receive a survey instrument respond, because it is not mandatory. In deriving the estimates, two sources of non-response to the survey are accounted for:

- *item non-response*– which occurs as some respondents return partially completed questionnaires. Some survey records were so incomplete it was decided to omit them from the reported survey data.
- *population non-response*—which occurs because not all registered medical practitioners who receive a questionnaire respond.

A separate estimation procedure is used for each. Imputation is used to account for item non-response, and weighting for population non-response.

Both of these procedures are described below.

Imputation: estimation for item non-response

The imputation process involves an initial examination of all information provided by a respondent. If possible, a reasonable assumption is made about any missing information based on their responses to other survey questions. For example, if a respondent provides information on hours worked and the area in which they work, but leaves the workforce question blank, it is reasonable to assume that they were, in fact, employed.

Missing values remaining after this process are considered for their suitability for further imputation. Suitability is based on the level of non-response to that item. Imputation is usually only applied in cases where the proportion of missing values is less than 5% of the total.

In imputation, the known probabilities of particular responses occurring are used to assign a response category value to each record using a random number generator. Imputed values are based on the distribution of responses occurring in the responding sample. Therefore, fundamental to imputing missing values for survey respondents who returned partially completed questionnaires is the assumption that respondents who answer various questions are similar to those who do not.

Age and sex values within each state and territory of principal practice are first imputed to account for missing values. Other variables deemed suitable for this process, including total hours worked in medicine last week, principal area of practice and principal role of main job, were then imputed.

Weighting: estimation for population non-response

Each survey record (or respondent) is assigned a weight that is calibrated to align with independent data on the population of interest, referred to as 'benchmarks'. In principle, this weight is based on the population number (the benchmark) divided by the number in the responding sample. The resulting fraction becomes the expansion factor applied to the record, referred to as the 'weight', providing an estimate of the population when aggregate output is generated. Therefore, the weight for each record is based on particular characteristics that are known for the whole population.

The total number of registered medical practitioners in Australia, excluding Queensland and Western Australia, is used to benchmark the survey (see 'Data issues' section below). This is due to the exclusion of Queensland and Western Australia from the workforce survey estimates, because their closing date for registration renewal was after 30 September 2010 (the date deemed by AHPRA as the final date for registration). Therefore, only a limited number of medical practitioners in these states completed their registration renewal before 30 September. As a result, Queensland and Western Australia have been excluded from the survey records and benchmark population, and therefore treated as if they were not in scope of the survey.

The calculation of weights is usually part of the data processing for a sample survey in which the sample is selected before the survey is done. In the Medical Workforce Survey 2010, all registered practitioners were sent a workforce survey questionnaire when registration renewal was due. Therefore, technically, it was a census of medical practitioners. However, because not all renewing practitioners in scope respond to the survey, there is very large 'self-selecting sample' bias in the data. Since the group of respondents in the data set is not random, standard errors are not a suitable means of gauging variability.

The benchmark data used for the weighting are the number of registered practitioners in each state and territory (based on the location of principal practice), by age group and sex within the NRAS registration data supplied by AHPRA.

Producing estimates for the population by weighting the data from respondents does adjust for bias in the responding group of practitioners, but only for *known* population characteristics (such as age and sex, where provided, in the case of the Medical Workforce Survey 2010). If information for a variable is not known for the whole population, the variable cannot be used in the calculation of weights and cannot be used in the adjustment process.

For variables not used in the calculation of weights (for the NHWDS: medical practitioners 2010, that is all variables *other* than state and territory of principal practice, age and sex), it is assumed, for estimation purposes, that respondents and non-respondents have the same characteristics. If the assumption is incorrect, and non-respondents are different from respondents, then the estimates will have some bias. The extent of this cannot be measured without obtaining more detailed information about non-respondents. Therefore, there will be some unquantifiable level of bias in the estimates.

Response rate

The overall response rate to the Medical Workforce Survey 2010 was 78.0%. That is, the number of responses to the survey represented 78.0% of registered medical practitioners (Table A2). Of these responses, 66.5% completed the survey online and 33.5% used the paper form. The 2010 national figure excludes Queensland and Western Australia because the closing date for registration renewal in these states occurred after the national registration deadline of 30 September 2010.

As previously stated, the jurisdiction-based data collection used to collect information on the workforce characteristics of medical practitioners was replaced with a single data collection as part of the national registration scheme introduced on 1 July 2010. As a result, the response rates are not directly comparable due to differences in survey design and methodology.

Table A2: Survey response rate, by state and territory, 2006 to 2010[(a)]

Response rate	NSW	Vic	Qld[(a)]	WA[(a)]	SA	Tas	ACT	NT	Australia
2006	75.4	72.0	79.7	47.6	67.9	64.1	58.7	28.6	70.2
2007	84.3	68.8	64.3	54.2	63.5	59.4	64.9	27.1	69.9
2008	81.7	68.4	65.2	51.6	60.0	59.6	64.5	44.4	68.9
2009	79.1	40.3	31.9	42.8	62.8	46.1	62.5	37.3	53.1
2010[(a)(b)]	75.7	82.3	. .	. .	83.4	76.6	77.7	67.5	78.0

(a) 2010 data exclude Queensland and Western Australia due to their registration period closing after the national registration deadline of 30 September 2010.

(b) 2010 data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who reside overseas. Therefore, state and territory totals may not sum to the national total.

Sources: AIHW Medical Labour Force Survey, 2006, 2007, 2008 and 2009; NHWDS: medical practitioners 2010.

Despite the differences, at a national level, the response rates rose 24.9 percentage points from 53.1% in 2009 to 78.0% in 2010. Rates also increased for states and territories where comparative data were available, except New South Wales, which continued to decrease.

Victoria showed the largest rate increase, with response more than doubling from 40.3% to 82.3% from 2009 to 2010.

Data issues

A number of data issues need to be considered when interpreting medical workforce survey data in the NHWDS: medical practitioners 2010, which are outlined in this section.

Sample

As stated above, many medical practitioners registered in Queensland and Western Australia were not required to renew their registration in September 2010 and hence did not receive the survey. Although there are survey records for a number of Queensland and Western Australia practitioners, their responses have been removed and weight set to zero for the 2010 data set. In addition, Queensland and Western Australia are excluded from the calculation of survey weights, which has been done by removing them from the benchmark population. This exclusion infers Queensland and Western Australia were never in the scope of the survey. Therefore, the national estimates exclude Queensland and Western Australia.

Survey design

In 2010, the online survey questionnaire did not include electronic sequencing of questions to automatically guide the respondent to the next appropriate question based on previous responses to questions.

The order of the response categories to the reason not working in medicine in Australia question appears to be an issue. The question has 'Retired from regular work' after 'Not working in paid employment at all', which may not be logical as practitioners may be retired but may still work irregularly (for example, working as an occasional locum). On this basis, the category 'Retired from regular work' should appear before 'Not working in paid employment at all'. The issue with the order in the 2010 survey questionnaire is that it may lead to an undercount of those retired from regular work and over representation of those not working in paid employment.

Variation between the online and paper surveys has resulted in additional data quality issues for a number of questions. For example, the state and territory of main job question included the category 'Other territories' on the paper form while the same response category in the online form was labelled 'Other'. The data showed a large number in the 'Other' category captured in the online method, which was not similarly found in the paper responses. In addition, both state and territory of principal practice and residence data items do not include the category 'Other territories' or 'Other'. Another issue is that the temporary resident status question is only explicitly asked on the paper survey form (see 'A5 Comparison with previous AIHW Medical Labour Force Survey data').

Data structure

Due to unstructured data entry formats, a number of questions that required a numeric value contained text string responses. Where possible, these were recoded to the appropriate numeric value, but this was not possible in all instances. For example, for a number of records, the postcodes of main job information contained values other than valid postcodes, such as text strings and overseas postal identifiers. Conversely, suburb of main job information contained invalid suburb names and four-digit codes resembling postcodes.

A.4 Data inconsistencies between survey and registration data.

There were a number of inconsistencies between the data sourced from the NRAS registration data and the workforce survey data. It is not known if these are due to differences in the time of the survey compared with the time the registration data was extracted or if they are due to other sources of error.

There were a number of records where the response to question 2 regarding temporary residency visa data was inconsistent with registration data for citizenship and residency status (which were themselves occasionally inconsistent (see the 'Data issues' section in 'A.2 National Registration and Accreditation Scheme registration data'). For example, some citizens and permanent residents reported temporary visas and vice versa.

A number of practitioners self-reported the principal area in their main job to be specialist but had no accredited specialty in their registration details recorded by the NRAS (see Table 3.5—a total of 321 clinicians).

State and territory, and location (postcode and suburb) of principal practice recorded in the registration data were different from the corresponding details of their main job recorded in the survey. Although this is valid for states and territories with common borders, there were some records where the state or territory of the principal practice did not adjoin the state or territory of main job.

A.5 Comparison with previous AIHW Medical Labour Force Survey data

Medical labour force data published by the AIHW before to the establishment of the NRAS were the result of collated jurisdiction-level occupation-specific surveys. The Medical Workforce Survey 2010, the new survey, collects similar data items, but the survey methodology has changed, as has the method of obtaining benchmark data on which the numbers of total registrations are based. With the establishment of AHPRA there is one source of benchmark data instead of eight, and there is less chance of inconsistency between jurisdictions and years in the scope of benchmark data.

The scope and coverage of the Medical Workforce Survey 2010 is also different to that of the previous surveys because in some jurisdictions, prior to 2010, not all types of registered medical practitioners were sent a survey form.

In 2010, medical practitioners renewing their registration could either complete the voluntary Medical Workforce Survey 2010 online (at the end of the formal registration process) or complete the paper form sent to their postal address with their registration form.

The use of online and/or paper surveys varied between jurisdictions and between years with the previous AIHW Medical Labour Force Survey.

Some data items previously collected as part of the AIHW Medical Labour Force Survey, such as date of birth, country of first qualification, specialty of practice and sex, are now data items collected as part of the registration and renewal process. However, the data for some of these items are either incomplete or the data migrated from previous jurisdictional registration systems are inaccurate.

The 2010 survey questionnaire also collects a limited range of workforce information compared with that collected in previous years.

Due to the differences in data collection methods, it is recommended that comparisons between data from the NHWDS: medical practitioners 2010 and previous AIHW Medical Labour Force Survey data be made with caution.

Differences in reporting specialty of medical practitioner

Classification of specialty

There have been significant changes in the classification of specialties used in the NHWDS: medical practitioners 2010 to those used in the earlier AIHW Medical Labour Force Survey. Comparisons should be made with caution because the classifications are not directly comparable. In 2010, there were 23 specialties, a number of which are broad groups (for example, surgery and pathology), while there were over 50 detailed specialty categories available in the previous AIHW Medical Labour Force Survey.

Collection methodology of specialty

Specialty of practice was extracted from the registration data collected by the NRAS in 2010. Specialty information was self-identified by respondents in the earlier AIHW Medical Labour Force Survey.

Derivation of main specialty

Specialty of practice is collected by the NRAS. In 2010, up to seven specialties were recorded for a specialist. The information collected does not identify a specialist's main specialty, and main specialty is derived. The method used to determine the main specialty is based on the proportion of specialists in the AIHW Medical Labour Force Survey 2009 with the same combination of specialties a specialist is registered in.

Differences between the 2010 questionnaire and surveys in previous years

The following data items collected in the 2010 Survey questionnaire were either not collected previously in the AIHW Medical Labour Force Survey or were collected using different questions or response categories.

Question 2—Temporary resident status and visa category number

This question was not collected on a national basis prior to 2010 in the AIHW Medical Labour Force Survey. Some jurisdictions collected temporary resident status, but not visa category number.

The Medical Workforce Survey 2010 collected temporary resident status and visa category number from medical practitioners in both the online and paper form. However, the online question does not ask respondents to answer whether or not they are a temporary resident, but only to enter their visa category number if they self-identify as a temporary resident. The paper form, however, asks respondents to check 'Yes' or 'No' to the temporary resident question, and if 'No' to move on to question 3, or if 'Yes' to provide the visa category number. This may have created some variation in the data between the online and paper respondent groups.

Questions 3 to 5—Employment

The three employment-related questions in the Medical Workforce Survey 2010 questionnaire are nationally consistent. This is an improvement on the previous AIHW Medical Labour Force Survey where the questionnaire varied across jurisdictions, including the questions and definitions of data items collected.

The 2010 questions have been grouped/sequenced logically: the first question relates to the working status of the practitioner, followed by the reason why they are not working in medicine in Australia, and then whether or not they are looking for work.

The new questions in the Medical Workforce Survey 2010 were designed based on a combination of the questions previously used by jurisdictions in the AIHW Medical Labour Force Survey. The redesigned question on working status no longer includes in its explanation of 'Working in medicine' a description of work activity/hours; that is 'worked for a total of one hour or more last week in a job or business (including own business) for pay, commission, payment in kind or profit; or hours usually worked but away from work on leave, or rostered off last week.' Inclusion of the additional explanation may have avoided confusion for medical practitioners who worked in medicine during the survey reference week but in a voluntary capacity.

Question 10—Principal area of main job in medicine

A change in the question response options from 'GP/primary care practitioner' in previous surveys to 'General practitioner (GP)' may have impacts on the comparability of these responses over time, and time series data should be used with caution. This may have led to the observed increase in responses in the 'Other clinician' category.

Question 11—Work setting of main job

Work setting response categories in the 2010 survey are similar to those in previous years. The 2010 response categories are more detailed and directed towards service provision; for example, the 2010 survey has three categories of private practice (solo, group and locum) compared with only one in the AIHW Medical Labour Force Survey. Another example of improvement is the option to collect three educational workplaces (tertiary, school and other) in the 2010 survey compared with one in past surveys.

Question 12—Number of years worked in medicine in Australia

Number of years worked in medicine in Australia was not previously collected by the AIHW Medical Labour Force Survey on a national basis. A small number of jurisdictions collected this information previously as part of their survey questionnaire, but it is now included for all respondents.

Question 13—Number of years practitioner intends to remain in the medical workforce

Number of years practitioner intends to remain in the medical workforce was not previously collected by the AIHW Medical Labour Force Survey on a national basis. A small number of jurisdictions collected this information previously as part of their survey questionnaire, but it is now included for all respondents.

Appendix B: 2010 medical practitioner registration numbers from state and territory medical boards/councils

Until the introduction of the NRAS on 1 July 2010, medical boards (or councils in some jurisdictions) were statutory authorities established in each jurisdiction to register medical practitioners, investigate complaints about medical practitioners and develop guidelines for the profession. They maintained a register of medical practitioners who were licensed to practise in their jurisdiction. All medical practitioners had to be registered to practise in each jurisdiction that they worked in, within Australia.

Medical boards/councils published data on the number of registered medical practitioners in their annual reports prior to their dissolution. Data from the 2009–10 annual reports is contained in Table B1 for comparison purposes.

Table B1: General and conditional medical practitioner registrations reported by state and territory medical boards/councils, 2009–10

Registration type	NSW	Vic	Qld[(a)]	WA	SA	Tas	ACT	NT	Australia
					Number				
General registrations	25,194	18,358	15,894	7,268	6,331	2,327	2,295	1,935	79,582
Conditional registrations	6,231	3,937	2,531	1,854	1,224	623	155	363	16,918
Total registrations[(b)]	**31,425**	**22,295**	**18,425**	**9,122**	**7,555**	**2,950**	**2,298**	**2,298**	**96,500**
					Percentage of total registrations				
General registrations	80.2	82.3	86.3	79.7	83.8	78.9	93.6	84.2	82.5
Conditional registrations	19.8	17.7	13.7	20.3	16.2	21.1	6.4	15.8	17.5
Total registrations[(b)]	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) In Queensland, some registrants hold more than one category of registration.

(b) Excludes student registrations.

Sources: ACTH 2010; MBQ 2010; MBSA 2010; MBWA 2010; MCT 2010; MPBV 2010 and NSWMB 2010. The Northern Territory provided the information via direct correspondence.

Appendix C: Additional information available from the AIHW website

Tables

In addition to the tables in this report, more detailed tabulations from the Medical Workforce Survey 2010 are published on the AIHW website < http://www.aihw.gov.au/workforce-publications/> (select link to *Medical workforce 2010*).

Workforce Survey questionnaire

The questionnaire used in the Medical Workforce Survey 2010 is available from the AIHW website <http://www.aihw.gov.au/workforce-publications/> (select link to *Medical workforce 2010*).

Data Quality Statement: National Health Workforce Data Set: medical practitioners 2010

A full description of the data quality of the data set is contained in a Data Quality Statement available from the AIHW website at <http://www.aihw.gov.au/workforce-publications/> (select link to *Medical workforce 2010*).

User guide for the NHWDS: medical practitioners 2010

A user guide for the NHWDS: medical practitioners 2010, which provides further information on the survey components and data specifications, is available from the AIHW website at <http://www.aihw.gov.au/workforce-publications/> (select link to *Medical workforce 2010*).

Appendix D: Population estimates

This report presents time series information about medical practitioners, using measures such as number per 100,000 population and full-time equivalent (FTE) rate. To derive these measures, the population estimates (often referred to as 'estimated resident population') are obtained from the Australian Bureau of Statistics. The estimates are as at 30 June for each year and based on the 2006 Census of Population and Housing adjusted for population flows, including births, deaths, net migration, and short-term travellers to Australia and absences from Australia.

These figures are used to derive population and FTE rates in tables 3.2–3.4 and 5.1–5.5.

Table D1: Population estimates at 30 June, by remoteness area and state and territory, 2006 to 2010

Remoteness area	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
					2006				
Major cities[(a)]	4,946,348	3,834,245	2,438,355	1,470,503	1,139,198	. .	333,609	. .	14,162,258
Inner regional[(a)]	1,386,564	1,037,150	897,047	258,570	188,761	316,805	510	. .	4,085,407
Outer regional[(a)]	445,099	250,368	621,118	191,557	180,797	162,980	. .	115,385	1,967,304
Remote/ Very remote[(a)(b)]	38,076	4,777	134,388	138,751	59,132	10,166	. .	95,242	480,532
Total[(c)]	**6,816,087**	**5,126,540**	**4,090,908**	**2,059,381**	**1,567,888**	**489,951**	**334,119**	**210,627**	**20,697,880**
					2007				
Major cities[(a)]	5,018,727	3,911,326	2,504,954	1,506,870	1,152,781	. .	340,561	. .	14,435,219
Inner regional[(a)]	1,403,698	1,052,316	919,738	269,602	191,752	319,248	493	. .	4,156,847
Outer regional[(a)]	444,916	252,942	636,431	194,865	181,885	163,695	. .	118,379	1,993,113
Remote/ Very remote[(a)(b)]	37,601	4,726	134,858	141,630	59,376	10,261	. .	96,425	484,877
Total[(c)]	**6,904,942**	**5,221,310**	**4,195,981**	**2,112,967**	**1,585,794**	**493,204**	**341,054**	**214,804**	**21,072,452**
					2008				
Major cities[(a)]	5,105,986	3,996,729	2,573,616	1,550,727	1,166,185	. .	345,799	. .	14,739,042
Inner regional[(a)]	1,423,959	1,069,936	943,299	282,945	195,372	322,171	495	. .	4,238,177
Outer regional[(a)]	447,594	255,577	655,303	199,171	182,697	165,375	. .	122,066	2,027,783
Remote/ Very remote[(a)(b)]	37,348	4,736	136,352	144,137	59,731	10,376	. .	98,437	491,117
Total[(c)]	**7,014,887**	**5,326,978**	**4,308,570**	**2,176,980**	**1,603,985**	**497,922**	**346,294**	**220,503**	**21,498,540**

(continued)

Table D1 (continued): Population estimates at 30 June, by remoteness area by state and territory, 2006 to 2010

Remoteness area	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
					2009				
Major cities[(a)]	5,195,849	4,093,699	2,644,191	1,598,608	1,181,789	. .	351,766	. .	15,065,902
Inner regional[(a)]	1,442,816	1,089,727	970,977	296,159	198,620	325,487	519	. .	4,324,305
Outer regional[(a)]	451,094	258,452	672,876	203,175	183,920	167,378	. .	125,967	2,062,862
Remote/ Very remote[(a)(b)]	37,409	4,734	136,723	146,494	60,183	10,427	. .	100,240	496,210
Total[(c)]	**7,127,168**	**5,446,612**	**4,424,767**	**2,244,436**	**1,624,512**	**503,292**	**352,285**	**226,207**	**21,951,736**
					2010				
Major cities[(a)]	5,279,542	4,171,765	2,699,182	1,632,570	1,196,731	. .	357,931	. .	15,337,721
Inner regional[(a)]	1,461,618	1,109,580	991,310	307,122	202,195	328,815	640	. .	4,401,672
Outer regional[(a)]	453,948	259,869	685,272	205,472	185,061	168,380	. .	128,607	2,086,609
Remote/ Very remote[(a)(b)]	37,481	4,718	138,086	148,346	60,595	10,448	. .	101,104	502,845
Total[(c)]	**7,232,589**	**5,545,932**	**4,513,850**	**2,293,510**	**1,644,582**	**507,643**	**358,571**	**229,711**	**22,328,847**

(a) Final population estimates were unavailable from the ABS when this report was prepared, therefore estimates are preliminary.

(b) Includes *Migratory* areas.

(c) Figures are final population estimates and may not equal the sum of the individual remoteness area estimates.

Source: Unpublished ABS estimated resident population data.

Glossary

Aboriginal: A person of Aboriginal descent who identifies as an Aboriginal and is accepted as such by the community in which he or she lives.

Benchmark data: For the Medical Workforce Survey 2010, excluding Queensland and Western Australia, responses were weighted to the number of registered medical practitioners in each state and territory by sex and age group to take account for non-response. These numbers are referred to as 'benchmarks' throughout this report, and may not be equivalent to that reported in the medical board (or council) annual reports, due to scope and reporting time differences.

Clinician: A clinician is a medical practitioner who spends the majority of his or her time working in the area of clinical practice; that is, the diagnosis, care and treatment including recommended preventative action, of patients or clients. Clinical practice may involve direct client contact or may be practised indirectly through individual case material (as in radiology and laboratory medicine). Clinician includes general practitioner, hospital non-specialist, specialist, specialist-in-training and other clinician.

Conditional registration: If a medical practitioner does not meet the requirements to become a generally registered medical practitioner, he or she may obtain limited or conditional registration. Interns, 'area of need' medical practitioners, overseas-trained medical practitioners undertaking postgraduate or supervised training, overseas-trained specialists, non-practising medical practitioners and medical practitioners facing disciplinary action are generally conditionally registered.

Employed medical practitioner: A medical practitioner who reported he or she worked in medicine in the week before the survey is classified as an employed medical practitioner. In this report, data on employed medical practitioners include those who are:

- practising medicine in Australia (including practitioners on leave for less than three months)
- involved with work that is principally concerned with the discipline of medicine (including medical research, administration, or teaching of medicine).

Field of medicine: Unless otherwise stated in this report, field of medicine refers to the type of medical work undertaken by an employed medical practitioner. Medical fields are divided into two main groups, with categories in each group, as follows:

Clinician: a medical practitioner who spends most of the total weekly working hours engaged in clinical practice (that is, diagnosis and/or treatment including recommending preventative action to patients) is classified as a clinician. It includes:

- general practitioner
- hospital non-specialist
- specialist
- specialist-in-training
- other clinician.

Non-clinician: a medical practitioner who is not a clinician. It includes:

- administrator: employed in medical administration
- teacher/educator: teaching or training persons in medicine
- researcher: engaged in medical research
- other: a job function in medicine which is not one of the above.

Full-time equivalent (FTE) number: FTE number measures the number of standard-hour workloads worked by employed medical practitioners. This provides a useful measure of supply, because it takes into account both the number of medical practitioners who are working and the hours that they work.

FTE number is calculated by: the number of employed medical practitioners in a particular category multiplied by the average hours worked by employed medical practitioners in the category divided by the standard working week hours. In this report, 40 hours is assumed to be a standard working week and equivalent to one FTE.

Full-time equivalent (FTE) rate: The FTE rate (the number of FTE medical practitioners per 100,000 population) is a measure of supply. By defining supply in terms of the FTE rate, meaningful comparisons of supply can be made across geographic areas and over time. FTE rate is calculated as: the number of FTE medical practitioners divided by the relevant population count multiplied by 100,000.

General practitioner: In the Medical Workforce Survey 2010, medical practitioners self-identify as general practitioners. Previously, in the AIHW Medical Labour Force Survey, the term 'primary care practitioner' was used and included general practitioners, who identified being employed in this area of clinical practice at the time of the survey (primary or general care). In this report, the 2006 data on primary care practitioners include general practitioners (see Primary care practitioner).

General registration: General registration is granted to medical practitioners who have fulfilled the full requirements of the Medical Board of Australia to practise. It permits a medical practitioner to work unsupervised in their field.

Hospital non-specialist: A medical practitioner mainly employed in a salaried position in a hospital who does not have a recognised specialist qualification, and who is not in training to gain a recognised specialist qualification. It includes interns, resident medical officers, career medical officers and other salaried hospital practitioners. They are self-identified on the Medical Workforce Survey 2010.

Hours worked: The total number of weekly hours worked is self-reported by medical practitioners and relates to the number of hours worked in all medical fields. In editing survey responses, maximum hours worked accepted were 125 hours per week. Reported hours of greater than 125 are considered unreliable and therefore not included in the analysis of total hours worked by practitioners.

Indigenous: A person of Aboriginal and/or Torres Strait Islander descent who identifies as an Aboriginal and/or Torres Strait Islander and is accepted as such by the community in which he or she lives.

Medical boards/councils: Medical boards (or councils in some jurisdictions) were statutory authorities established under specific legislation in each state and territory. The main purpose of the board was to protect the health and safety of the public of the jurisdiction by providing mechanisms designed to ensure that medical practitioners were fit to practise

medicine. They achieved this by ensuring that only properly trained medical practitioners were registered, and that registered medical practitioners' maintained proper standards of conduct and competence.

The state and territory medical boards/councils were disbanded on 30 June 2011 as part of the rollout of the National Registration and Accreditation Scheme. Jurisdictional boards/councils were replaced by the Medical Board of Australia on 1 July 2011.

Medical practitioner: A person whose primary employment role is to diagnose physical and mental illnesses, disorders and injuries and prescribe medications and treatments that promote or restore good health.

Multi-state registration: Only those medical practitioners who reported that they worked mainly or only in a particular state or territory were included in the AIHW Medical Labour Force Survey prior to 2010 when estimating the numbers of practitioners in a state or territory. Medical practitioners who reported they worked mainly or only in another state or territory were assumed to be registered in another state or territory and had completed the survey in more than one state or territory.

Non-clinician: A medical practitioner who reported spending most of his or her total weekly working hours not involved in the area of a clinical practice. This can include working as an administrator, teacher/educator, researcher, or in another non-clinical area.

Primary care practitioner: In this report, data on primary care practitioners are included in the data on general practitioners. In the AIHW Medical Labour Force Survey, primary care practitioners were defined as medical practitioners who reported that they were employed in this area of clinical practice at the time of the survey (primary or general care). In the new Medical Workforce Survey 2010, practitioners self-identify as general practitioners (see General practitioner).

Remoteness area: The Remoteness Area Structure within the Australian Standard Geographical Classification (ASGC), produced by the Australian Bureau of Statistics, has been used in this report to present regional data for medical practitioners.

The Remoteness Area Structure of the ASGC is based on the Accessibility/Remoteness Index of Australia, where the remoteness index value of a point is based on the physical road distance to the nearest town or service in each of six population size classes based on the 2006 Census of Population and Housing. These classes are:

- *Major cities*
- *Inner regional*
- *Outer regional*
- *Remote*
- *Very remote*
- *Migratory*.

Due to the small numbers in the *Remote*, *Very remote* and *Migratory* classes, they have been combined and reported as *Remote/Very remote* in this report.

Specialist: A medical practitioner with a qualification awarded, or equivalent to one awarded, by the relevant specialist professional college in Australia to treat certain conditions. They are self-identified on the Medical Workforce Survey 2010.

Specialist-in-training: A medical practitioner accepted by a specialist medical college into a training position supervised by a member of the college. They are self-identified on the Medical Workforce Survey 2010.

Specialty: The specialty area of medicine in which an accredited specialist practices. Specialties in this report were approved by the Australian Health Workforce Ministerial Council on 31 March 2010 pursuant to the *Health Practitioner Regulation National Law 2009*.

Specialty field: The sub-specialty of the specialty area of medicine in which a specialist practices. Sub-specialties in this report were approved by the Australian Health Workforce Ministerial Council on 31 March 2010 pursuant to the *Health Practitioner Regulation National Law 2009* (see Specialty).

Torres Strait Islander: A person of Torres Strait Islander descent who identifies as a Torres Strait Islander and is accepted as such by the community in which he or she lives.

References

ABS (Australian Bureau of Statistics) 1996. Standards for labour force statistics. Cat. no. 1288.0. Canberra: ABS.

ABS 2006. ANZSCO—Australian and New Zealand Standard Classification of Occupations, first edition, 2006. Cat. no. 1220.0. Canberra: ABS.

ACTH (ACT Health) 2010. ACT Health annual report 2009–10: Annexed reports. Canberra: ACT Health.

AHPRA (Australian Health Practitioner Regulation Agency) 2011. Viewed 17 February 2012, <http://www.ahpra.gov.au/Health-Professions.aspx>.

AMA (Australian Medical Association) 2008. Becoming a doctor and bonded medical school places—a guide for prospective medical students. Sydney: AMA. Viewed 8 September 2008, <http://www.ama.com.au/node/4130>.

MBQ (Medical Board of Queensland) 2010. Final report for the Medical Board of Queensland and Office of the Medical Board of Queensland, for period 1 July 2009 to 30 June 2010. Brisbane: Medical Board of Queensland.

MBSA (Medical Board of South Australia) 2010. Medical Board of South Australia annual report, year ended 2009–10. Adelaide: Medical Board of South Australia.

MBWA (Medical Board of Western Australia) 2010. Medical Board of Western Australia, 2010 annual report, 30 June 2010. Perth: Medical Board of Western Australia.

MCT (Medical Council of Tasmania) 2010. Medical Council of Tasmania, annual report 2010. Hobart: Medical Council of Tasmania.

MPBV (Medical Practitioners Board of Victoria) 2010. Medical Practitioners Board of Victoria, annual report 2010. Melbourne: Medical Practitioners Board of Victoria.

NSWMB (New South Wales Medical Board) 2010. New South Wales Medical Board, annual report 2010. Sydney: NSW Medical Board.

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