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**Australian Institute of
Health and Welfare**

Medical workforce 2012



NATIONAL HEALTH WORKFORCE SERIES No. 8



Australian Government

**Australian Institute of
Health and Welfare**

*Authoritative information and statistics
to promote better health and wellbeing*

NATIONAL HEALTH WORKFORCE SERIES

no. 8

Medical workforce

2012

Australian Institute of Health and Welfare
Canberra

Cat. no. HWL 54

The Australian Institute of Health and Welfare is a major national agency which provides reliable, regular and relevant information and statistics on Australia's health and welfare. The Institute's mission is authoritative information and statistics to promote better health and wellbeing.

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This publication is part of the Australian Institute of Health and Welfare's National health workforce series. A complete list of the Institute's publications is available from the Institute's website <www.aihw.gov.au>.

ISSN 1446 9820

ISBN 978-1-74249-536-1

Suggested citation

Australian Institute of Health and Welfare 2014. Medical Workforce 2012. National health workforce series no. 8. Cat. no. HWL 54. Canberra: AIHW.

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Published by the Australian Institute of Health and Welfare

Cover art by Ian Mason

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.

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Acknowledgments

This report was prepared by Ian Titulaer with input from Barbara Gray and Adrian Webster. Thanks go to the Australian Health Practitioner Regulation Agency and Health Workforce Australia for the collection and supply of data for review and input to this report.



An Australian Government Initiative

This project was possible due to funding made available by Health Workforce Australia.



- Aboriginal and Torres Strait Islander Health Practice
- Chinese Medicine
- Chiropractic
- Dental
- Medical
- Medical Radiation Practice
- Nursing and Midwifery
- Occupational Therapy
- Optometry
- Osteopathy
- Pharmacy
- Physiotherapy
- Podiatry
- Psychology

Australian Health Practitioner Regulation Agency

The work survey data were provided by the Australian Health Practitioner Regulation Agency.

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
ANZSCO	Australian and New Zealand Standard Classification of Occupations
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
MBA	Medical Board of Australia
NHWDS	National Health Workforce Data Set
NRAS	National Registration and Accreditation Scheme
RA	Remoteness area

Symbols

<	less than
+	and over
—	nil or rounded to zero
-	negative or minus value
..	not applicable (category/data item does not apply)
n.a.	not available
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 B). 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 may not sum to 100 due to rounding.
3. *Italic type* within a table denotes a subtotal.
4. Explicit references to categories of data items are in quotation marks.

Summary

This report presents information on the medical workforce, based on estimates derived from the National Health Workforce Data Set: medical practitioners 2012, the third in this series. It includes data collected as part of the national registration and accreditation process.

How many medical practitioners do we have?

In 2012, there were 91,504 medical practitioners registered in Australia. The Australian medical workforce has grown substantially over recent years. The number of medical practitioners employed in medicine increased by 16.4% between 2008 and 2012, from 68,455 to 79,653. The overall supply of clinicians across all states and territories increased by 10.0% between 2008 and 2012, from 323.2 full-time equivalents per 100,000 population in 2008 to 355.6 in 2012.

The supply of medical practitioners was not uniform across the country, with the supply generally being greater in *Major cities* than in *Remote/Very remote* areas. The supply of general practitioners was highest, however, in *Remote/Very remote* areas, at 134.3 full-time equivalents per 100,000 population, but overall these areas had the lowest supply of medical practitioners in total.

Who are they?

The medical workforce is predominantly male, but women are increasingly represented, growing to 37.9% of employed practitioners in 2012 (up from 34.9% in 2008). Among clinicians, women accounted for 46.5% of hospital non-specialists compared to 26.8% of specialists. The proportion of general practitioners who were female increased over the 5-year period from 38.4% in 2008 to 40.8% in 2012.

In 2012 there were 221 employed medical practitioners who identified as Aboriginal or Torres Strait Islander, representing 0.3% of all employed medical practitioners in Australia.

The average age of medical practitioners differed little between 2008 (45.7) and 2012 (46.0). About two thirds (65.8%) of medical practitioners who answered the relevant question gained their initial medical qualification in Australia.

What types of work do they do?

Of the employed medical practitioners in 2012, 94.5 % (75,258) were working as clinicians, of whom 35.0% were specialists and 34.5% were general practitioners. 'Physician', which includes general medicine, cardiology and haematology, was the largest main speciality of practice (5,918). 'Surgery' was the second largest (4,275). Of employed non-clinicians, more than half were researchers (27.8%) or administrators (24.5%).

The average weekly hours worked by employed medical practitioners remained stable between 2008 and 2012. In 2012, male medical practitioners worked an average of 45.3 hours per week, while female medical practitioners worked an average of 38.3 hours per week. In 2012, both male and female medical practitioners aged 20–34 worked the highest average weekly hours (47.6 hours and 44.0 hours respectively).

1 Introduction

This report provides data on the Australian medical workforce in 2012, and is the third report on this profession using information from the new National Health Workforce Data Set (NHWDS).

The information presented in this report was collected from medical practitioners when they renewed their registration via the renewal of 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. The NHWDS combines data from the National Registration and Accreditation Scheme (NRAS) with health workforce survey data.

Where the data allow, this report compares the 2012 results with estimates derived from surveys conducted in earlier years. Registration data from AHPRA are also presented for comparison.

Box 1.1: Who is a medical practitioner?

Medical practitioners work in various settings using their knowledge and skills as qualified health practitioners. Under the *Health Practitioner Regulation (National Uniform Legislation) Act 2010* (the National Law), a medical practitioner is a person who holds registration with the Medical Board of Australia. The Australian and New Zealand Standard Classification of Occupations revision 1 (ANZSCO) (ABS 2009) provides the following definition:

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.

Sources: ABS 2006, 2009.

1.1 Medical practitioners in Australia

In Australia, under the National Law, a medical practitioner is a protected title for a person who holds registration with the Medical Board of Australia. Medical practitioners may be clinicians, including general practitioners, hospital non-specialists, specialists, specialists-in-training and 'other' clinicians. They may also be non-clinicians, working as administrators; teachers or educators; or researchers (see Box 1.1 and Glossary).

When medical practitioners have completed their studies at university they receive provisional registration and enter the medical workforce as a doctor-in-training. This training is called an internship, and usually lasts for 12 months. It is usually undertaken in a public hospital, although it is expected interns will increasingly spend part of their training in general practice and community-based settings in the future (AMA 2009).

When practitioners have successfully completed their internship they receive general medical registration. However, doctors-in-training can spend more time after their internship working in the public hospital system to gain more broad clinical experience. This period of on-the-job training is known as pre-vocational training.

Vocational training is the required training for a medical practitioner to specialise in a chosen medical field. Medical graduates undergoing this training are known as registrars, and training usually lasts between three and eight years. A large number of specialties are recognised in Australia, including medical administration. Upon completing specialist training, medical practitioners must meet the Medical Board of Australia's (MBA) approved registration standards for specialist registration to be granted specialist registration. (MBA 2011).

1.2 National registration of medical practitioners

All medical practitioners must be registered with the MBA to practise in Australia. This applies to both those who trained in Australia and those who trained overseas. AHPRA provides administrative and policy support to the National Health Practitioners Boards. AHPRA and the Boards replaced jurisdiction-based registration with a single national registration and accreditation system for health professionals from July 2010, or 18 October 2010 in Western Australia.

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 qualification requirements, registration standards and policies set by each Board (see Box 1.2). The outcome of an application is either 'registration', 'registration with conditions' or 'refusal'.

Box 1.2: The Medical Board of Australia

The Medical Board of Australia is the national medical regulator. It is established under the *Health Practitioner Regulation (National Uniform Legislation) Act 2010*, as in force in each state and territory (the National Law).

The role of the MBA is to:

- register medical practitioners and medical students
- develop standards, codes and guidelines for the medical profession
- investigate notifications and complaints
- where necessary, conduct panel hearings and refer serious matters to tribunal hearings
- assess international medical graduates who wish to practise in Australia
- approve accreditation standards and accredited courses of study.

The MBA has established state and territory boards to support its work in the national scheme. The MBA sets policy and professional standards, and the state and territory boards continue to make notification and registration decisions affecting individual medical practitioners, based on the national policies and standards.

Source: MBA 2012.

At 1 July 2012, the NRAS covered registration for 14 health professions (see Box 1.3). The type of registration held by medical practitioners determines the work they are licensed to perform. Registration is granted to medical practitioners who have fulfilled the requirements of the MBA to practise (see Box 1.2). It permits medical practitioners to work in their field. If a medical practitioner does not meet the requirements to become registered, they 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 registration data sourced from AHPRA are used, the information provided in this report focuses on medical 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 medical practitioners released by AHPRA (see Appendix C).

Box 1.3: Which professions are included in the National Registration and Accreditation Scheme?

The following professions are regulated under the national scheme:

- chiropractors
- dental practitioners (including dentists, dental hygienists, dental prosthetists, dental therapists and oral health therapists)
- medical practitioners
- nurses and midwives
- optometrists
- osteopaths
- pharmacists
- physiotherapists
- podiatrists
- psychologists
- Aboriginal and Torres Strait Islander health practitioners
- Chinese medicine practitioners
- medical radiation practitioners
- occupational therapists.

Source: AHPRA 2012.

1.3 Medical Workforce Survey

The Australian Health Ministers' Advisory Council (AHMAC) commissioned the Australian Institute of Health and Welfare (AIHW) 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 a regular survey and of AIHW reports annually 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 the Health Workforce Principal Committee of AHMAC, 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. The new national survey is administered by AHPRA and included as part of the registration renewal process. This survey is voluntary.

The Medical Workforce Survey is used to provide nationally consistent estimates of the medical workforce. It provides data not readily available from other sources, such as on 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 practitioners have 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 2012 was 90.1%, which was the highest survey response rate ever recorded (Table B.2). Victoria, New South Wales and the Australian Capital Territory had the highest response rates at 91.4%, 91.3 % and 90.5%, respectively. The Northern Territory had the lowest response rate at 85.1%.

Responses to the survey have been weighted to benchmark figures to account for non-response. The benchmarks used are the number of medical practitioners registered by state and territory (using principal address) by main specialty of practice, by registration type, by sex and by age group.

Past and present surveys have different collection and estimation methodologies and questionnaire designs. As a result, care should be taken in comparing historical data from the AIHW Medical Labour Force Surveys with data from the Medical Workforce Survey 2012.

A detailed description of the Medical Workforce Survey 2012, including a summary of changes from the 2009 AIHW Medical Labour Force Survey and data collected, is provided in Appendix B.



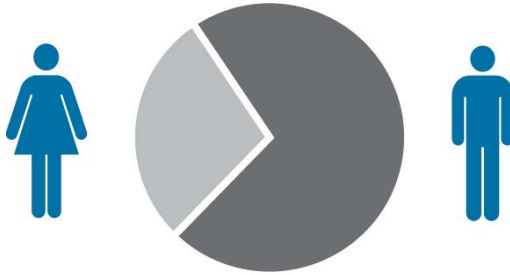




1.4 Additional information

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). These figures are now published by AHPRA, and are available from the AHPRA website at <http://www.ahpra.gov.au/> (see Appendix C).

An electronic version of this report is available from the AIHW website at <http://www.aihw.gov.au/workforce-publications/>. Additional data tables from the NHWDS: medical practitioners 2012 are also available from the website.

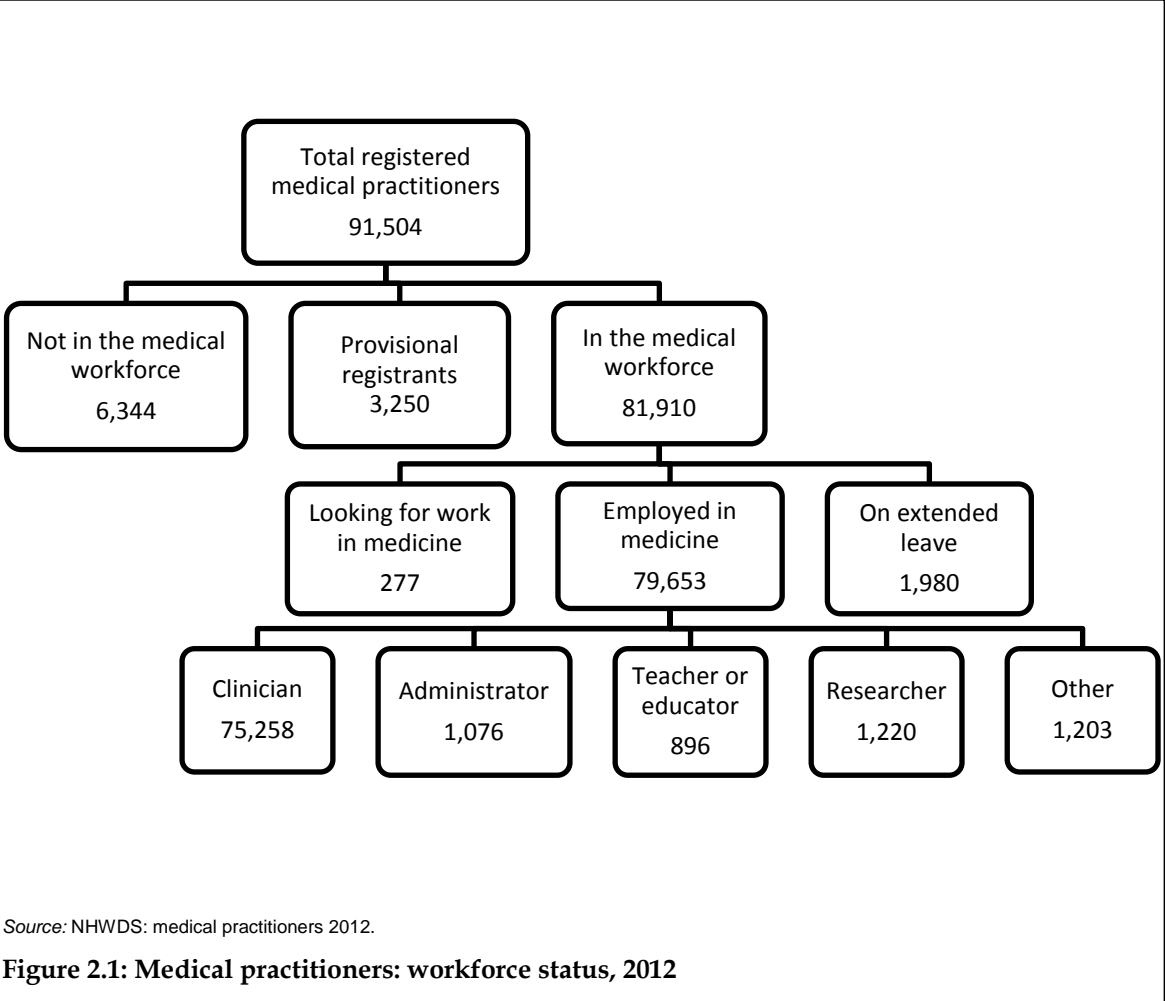
2 Registered medical practitioners

2.1 At a glance

	<p>In 2012, there were 91,504 medical practitioners registered in Australia.</p>
	<p>There were 79,653 medical practitioners employed in medicine in 2012.</p>
	<p>Almost 2 out of 5 employed medical practitioners were women.</p>
	<p>1 in 4 of all employed medical practitioners was aged 55 or older.</p>
	<p>Medical practitioners work on average 42.7 hours per week.</p>
	<p>94.5% of all employed medical practitioners were working in a clinical role.</p>
	<p>In 2012, 3,035 domestic students commenced medical undergraduate training in Australia.</p>

Sources: NHWDS: medical practitioners 2012; DoHA 2012.

The number of registered medical practitioners in 2012 was 91,504 (Figure 2.1). This figure is the number of practitioner registrations provided by AHPRA from the NRAS, which closed on 30 September 2012. Most registered medical practitioners held a general registration while some had provisional registration where graduates are required to perform for a period of time under supervision (Table 2.1). These registrants are required to renew only after completing their first year, and as a result they are less likely to have completed the workforce survey (with a response rate of only 3.6%). There were insufficient survey records received to include provisional registrants in weighted survey data. Due to their provisional status, it was decided to exclude them from counts of employed practitioners and from tables (unless otherwise specified). Previously published data for 2011 and 2010 included provisional registrants in the benchmarks as they were not separately weighted or identified in analysis. As a result, growth between 2011 and 2012 is understated by the order of 3.6%.



Between 2008 and 2012, the number of medical practitioners employed in medicine increased by 16.4% from 68,455 to 79,653 (Table 2.2).

2.2 Registration type

Table 2.1: Registered medical practitioners by registration type

Registration type	Number	Average age	Aged 55 and over (%)	Women (%)
General	26,471	36.6	8.0	49.5
General teaching and assessing	26	62.9	61.5	42.3
General teaching and assessing and specialist	1	n.p.	n.p.	n.p.
General and specialist	46,085	52.2	41.1	32.9
Limited (postgrad training)	3,330	35.4	1.4	43.0
Limited (area of need)	2,342	37.4	7.1	39.3
Limited (public interest)	17	55.8	52.9	23.5
Limited (teaching and research)	28	39.6	17.9	50.0
Limited (unknown)	1	n.p.	n.p.	n.p.
Limited (public interest - occasional practice)	1,115	74.7	96.6	18.4
Non-practicing	2,362	56.8	52.2	38.4
Provisional	3,250	28.1	0.3	55.1
Specialist	6,476	47.1	18.8	31.4
Total	91,504	45.9	27.1	38.9

Source: NHWDS: medical practitioners 2012.

Of the 91,504 registered medical practitioners in 2012, most held a 'general' registration (72,583). Many of these also had a specialist registration (46,085).

2.3 Workforce status

Of the 88,254 non-provisional registered medical practitioners in 2012, 79,653 (90.3%) were employed in medicine in Australia (Table 2.2). This ranged from 94.4% in the Northern Territory to 89.8% in the Australian Capital Territory (Table 2.3).

Table 2.2: Registered medical practitioners: workforce status, 2008 to 2009^(a), 2011 and 2012

Work force status	2008	2009	2010 ^(b)	2011 ^(c)	2012 ^(d)	Change between 2008 and 2012(%)
In the medical work force	70,193	74,260	54,150	81,751	81,910	16.7
Employed in medicine	68,455	72,739	52,497	78,960	79,653	16.4
Looking for work in medicine	572	366	127	247	277	-51.6
Employed elsewhere	71	62	12	15	38	-46.1
Not employed	501	304	114	232	239	-52.4
On extended leave	1,166	1,154	1,526	2,544	1,980	69.8
Not in the medical work force	8,476	8,636	4,042	6,039	6,344	-25.2
Overseas	3,214	3,030	2,128	2,722	2,973	-7.5
Not looking for work in medicine	2,955	3,494	738	1,091	1,274	-56.9
Employed elsewhere	739	840	287	334	463	-37.3
Not employed	2,216	2,654	451	757	811	-63.4
Retired	2,307	2,111	1,176	2,226	2,097	-9.1
Total registered medical practitioners	78,669	82,895	58,192	87,790	88,254	12.2
Apparent multiple registrations	7,487	7,366	..	..	..	..
Total registrations	86,156	90,261	58,192	87,790	88,254	..

(a) For 2008, 2008 and 2009, medical practitioners may have been registered in more than one state or territory; the figures account for this potential source of double counting. See Appendix B for further information.

(b) In 2010, due to transitional arrangements, survey data was not available for Western Australia and Queensland.

(c) Data for 2011 have been revised due to a reallocation of specialties. From 2011, 'Retired' include only those who were retired from regular work. See Appendix B for further information.

(d) From 2012 data exclude provisional registrants – 3,250 records in 2012.

Sources: AIHW Medical Labour Force Survey, 2008, 2008 and 2009; NHWDS: medical practitioners 2012.

Differences between the questionnaires administered by jurisdictions before 2010, as well as changes to the nationally standardised survey tool introduced in 2010, 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 B for further information on significant changes to the three employment-related questions).

While there have been changes to the survey, a number of changes in the results cannot be explained by methodology changes. These include:

- Between 2008 and 2012, medical practitioners reporting being on leave from work for 3 months or more increased from 1,166 to 1,980 or 69.8%.
- There was a decrease in the number and proportion of medical practitioners who were not in the medical workforce, down 25.2% from 8,476 in 2008 to 6,344 in 2012.
- There is a decrease in the number of medical practitioners not looking for work in medicine (down 56.9% from 2,955 to 1,274) (Table 2.2).

Table 2.3: Registered medical practitioners: workforce status and principal role of main job, by state and territory^(a), 2012

Workforce status	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia^(b)
In the medical practitioner workforce	26,277	20,166	16,330	8,149	6,467	1,840	1,611	1,039	81,910
<i>Employed in medical practice</i>	25,566	19,621	15,897	7,906	6,296	1,777	1,569	1,008	79,653
Clinician	24,057	18,406	15,221	7,535	5,996	1,691	1,416	928	75,258
Non-clinician	1,509	1,216	676	372	301	85	153	79	4,395
Administrator	354	244	204	108	64	20	58	24	1,076
Teacher/educator	313	197	161	81	70	27	31	15	896
Researcher	400	485	138	63	86	12	14	21	1,220
Other	443	289	173	119	81	26	50	20	1,203
<i>Looking for work in medical practice</i>	87	69	52	31	17	8	3	2	277
Employed elsewhere	14	13	5	3	—	—	1	—	38
Not employed	73	57	46	28	17	8	2	2	239
On extended leave	625	475	381	212	154	55	39	29	1,980
Not in medical practitioner workforce	1,820	1,144	761	573	300	130	136	29	6,344
Overseas	558	426	273	159	90	39	52	12	2,973
<i>Not looking for work in medical practice</i>	428	308	188	139	77	30	40	11	1,274
Employed elsewhere	174	122	47	48	15	9	18	3	463
Not employed	254	186	141	90	61	21	22	8	811
Retired from regular work	834	410	300	275	133	61	45	5	2,097
Total registered medical practitioners	28,097	21,310	17,091	8,722	6,767	1,970	1,747	1,068	88,254

- (a) Derived from state and territory of main job where available; otherwise, state and territory of principal practice is used as a proxy. If principal practice details are unavailable, state and territory of residence is used. Records with no information on all three locations are coded to 'not stated'.
- (b) Data include employed medical practitioners who did not state or adequately describe their state or territory, and medical practitioners who are overseas. Therefore, state and territory totals may not sum to the national total. In particular, the total for working overseas is noticeably higher than the sum of the state and territory figures.

Source: NHWDS: medical practitioners 2012.

As mentioned previously, medical practitioner registration data in Australia moved from individual state- and territory-based systems to a national registration scheme, the NRAS, in 2010. This has had consequences for the way in which data have been reported by each state and territory. For example, before the NRAS, data were reported by the state in which the medical practitioner was registered. Data obtained since the NRAS are based on the address of the medical practitioner's main location of practice at the time of the survey, unless stated otherwise.

To reflect the most recent contact address of the medical practitioner, the state and territory data used in this report are derived from the location of the main job from the survey. If these data were unavailable, the location of the principal practice or the residence address was used (see Appendix B). For example, if a medical practitioner had a principal practice address in Sydney but at the time of filling in the survey worked in the Northern Territory, they would be included in Northern Territory data in this report.

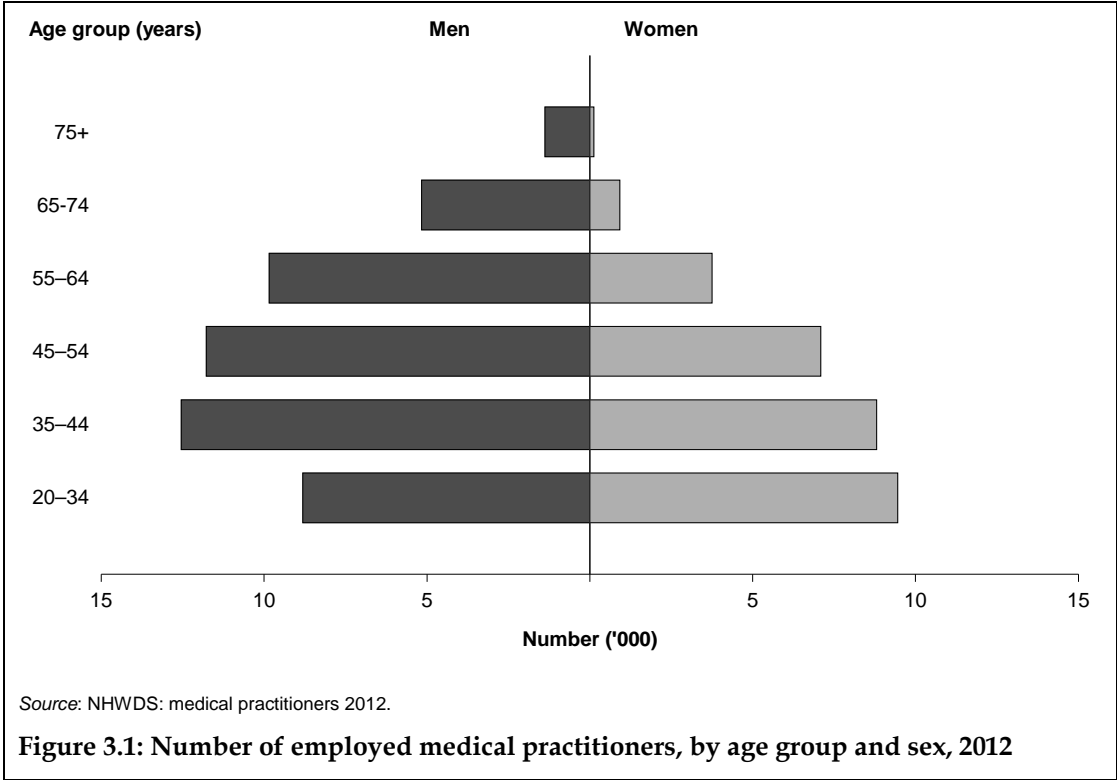
3 Medical practitioners employed in medicine in Australia

A medical practitioner who reported working in medicine in the week before the survey is considered to have been employed in medicine, or to be an employed medical practitioner, at the time of the survey (see Glossary). In 2012, there were 79,653 medical practitioners employed in medicine in Australia (Table 3.1).

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

3.1 Age and sex

In 2012, the average age of employed medical practitioners was 46.0 years, slightly older than the average of 45.7 years in 2008. The proportion of women increased from previous years, from 34.9% of employed medical practitioners in 2008 to 37.9% in 2012. However, as can be seen in Figure 3.1, the age pattern of women and men is different, with substantially more men in the older age groups, peaking at 86.2% for men in the 75-and-older age group, and slightly more women than men in the 20–34 year age group (51.8% are women).



3.2 Aboriginal and Torres Strait Islander medical practitioners

In 2012, there were 221 medical practitioners employed in Australia who identified as Aboriginal or Torres Strait Islander. This represents 0.3% of all employed medical practitioners who chose to provide their Indigenous status (Table 3.1).

Table 3.1: Employed medical practitioners: Indigenous status, by state and territory^(a), 2012

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total ^(b)
Indigenous	79	34	49	27	11	3	5	14	221
Non-Indigenous	25,393	19,516	15,792	7,863	6,264	1,767	1,554	994	79,156
Not stated	95	71	56	17	21	6	9	—	276
Total	25,566	19,621	15,897	7,906	6,296	1,777	1,569	1,008	79,653
Percentage who are Indigenous ^(c)	0.3	0.2	0.3	0.3	0.2	0.2	0.3	1.4	0.3

(a) Derived from state and territory of main job where available; otherwise, state and territory of principal practice is used as a proxy. If principal practice details are unavailable, state and territory of residence is used. Records with no information on all three locations are coded to 'not stated'.

(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 are overseas.

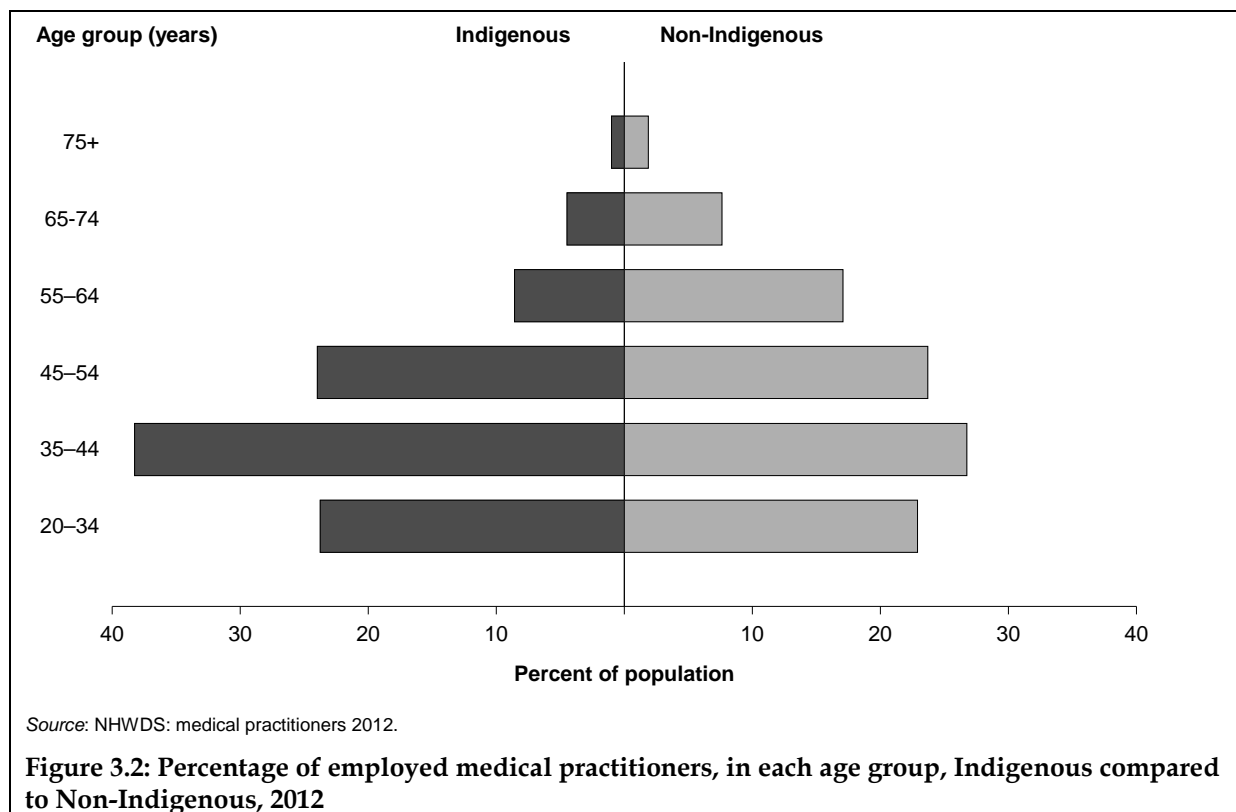
(c) Percentages exclude the 'not stated' category.

Source: NHWDS: medical practitioners 2012.

About 3 in 5 (57.9%) Indigenous medical practitioners were employed in New South Wales and Queensland, the first and third most populous states in Australia and the most populous in terms of the Indigenous population (Table 3.1).

The jurisdiction with the highest proportion of medical practitioners who identified as being of Aboriginal or Torres Strait Islander origin was the Northern Territory, at 1.4%.

The average age of Indigenous medical practitioners was 42.7 years, 3.3 years younger than the average age of non-Indigenous medical practitioners (46.0). The population pyramid (Figure 3.2) shows proportionally fewer Indigenous medical practitioners in the older age groups than in the non-Indigenous medical practitioner population, though the small numbers make more detailed comparisons problematic. Indigenous medical practitioners were also more likely to be women (42.0% compared to 37.8%). Indigenous medical practitioners worked on average 3.3 hours more per week than non-Indigenous medical practitioners (46.0 hours compared to 42.7 hours).

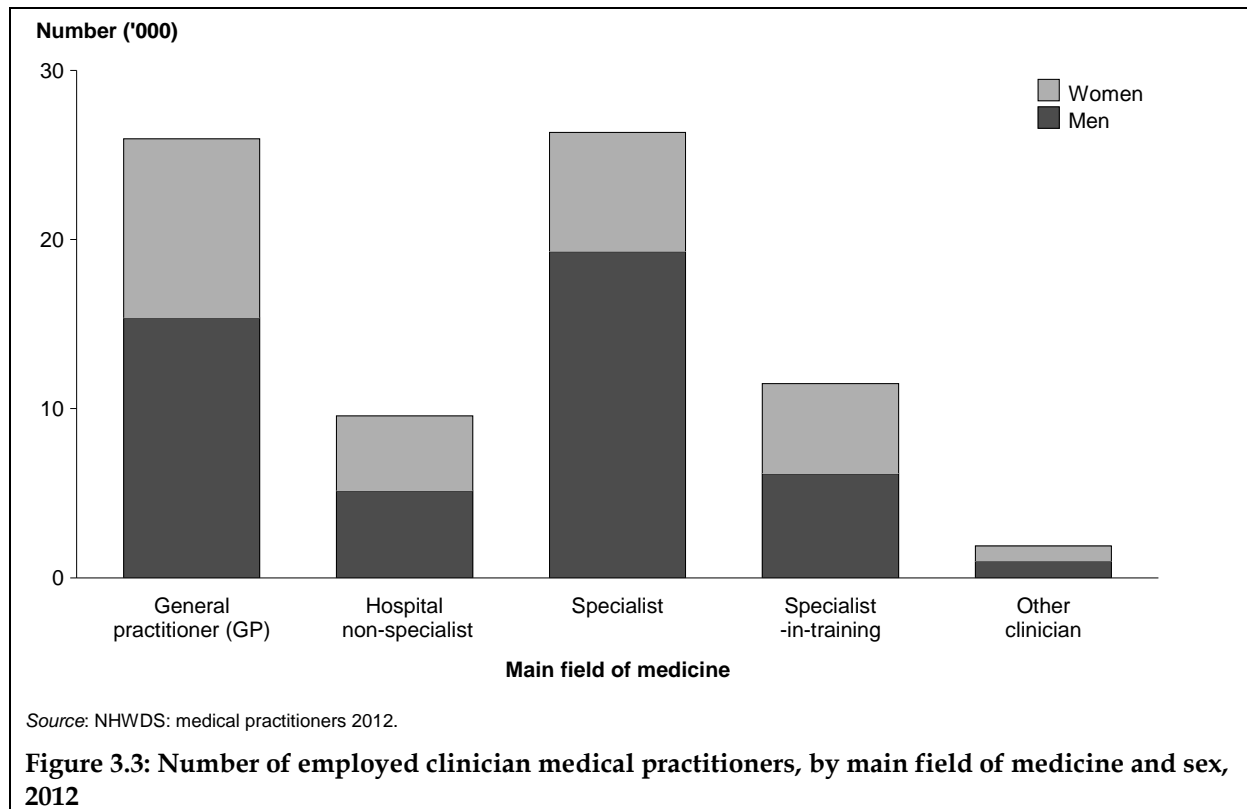


3.3 Field of medicine

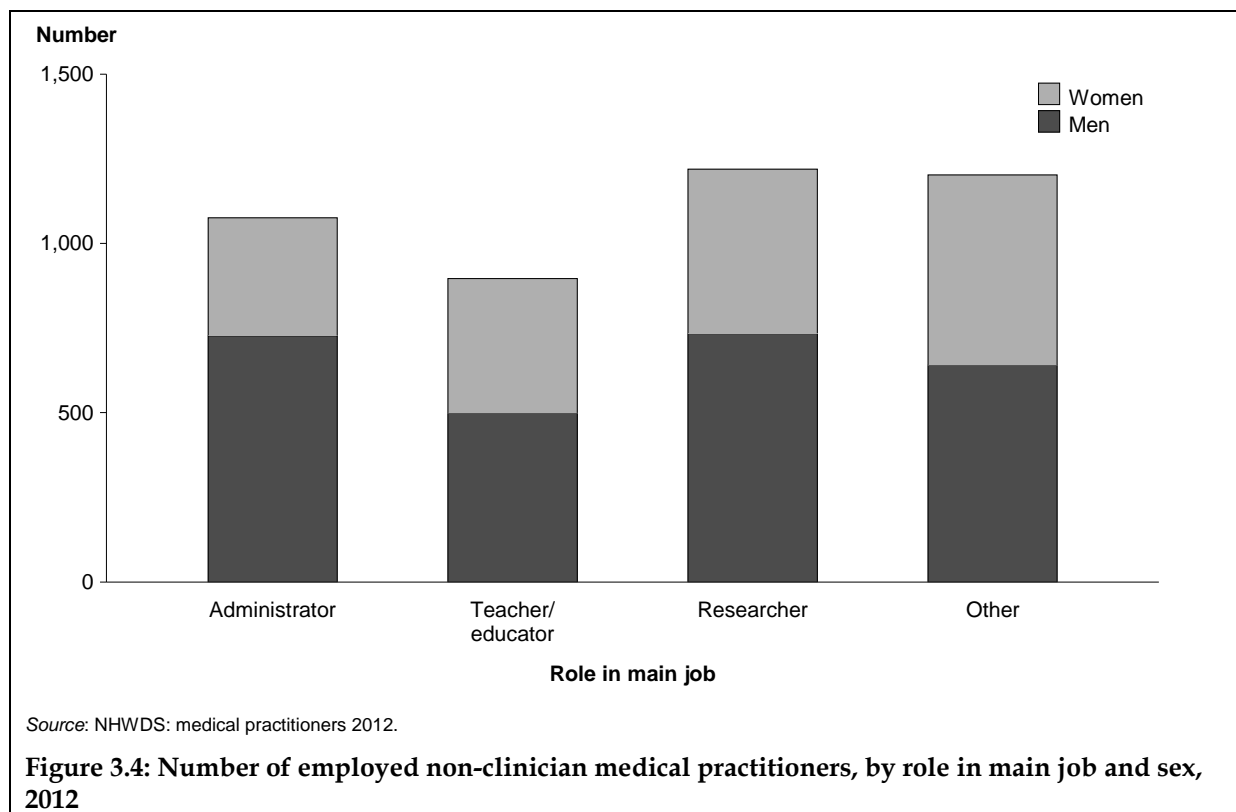
Field of medicine describes the types of medical work undertaken by employed practitioners. The 2012 survey categorised the roles as ‘clinician’, ‘administrator’, ‘teacher/educator’, ‘researcher’ and ‘other’.

Clinicians, the largest group, are mainly involved in the diagnosis, care and treatment of individuals, including recommending preventive 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 2012 were working as clinicians (94.5%). Of these, the largest proportion were specialists (35.0%), followed by general practitioners (34.5%), specialists-in-training (15.3%) and hospital non-specialists (12.7%) (Table A.1, Figure 3.3).



Administrators (24.5%) and researchers (27.8%) made up more than half of the non-clinical workforce, followed by 'other non-clinicians' (27.4%) and teachers/educators (20.4%) (Table A.1, Figure 3.4).



Clinicians

The number of clinicians in Australia grew by 17.8% from 63,889 in 2008 to 75,258 in 2012 (Table A.1). This growth was seen across all areas of the main fields of medicine, with the largest increases observed in 'other clinicians' (213.7%), though this is likely to be highly influenced by the change in survey. This was followed by 'specialists-in-training' (30.8%). Growth in the number of general practitioners from 2008 to 2012 was relatively small (8%) compared with that for other fields of clinical practice, but again this was affected by a change in the survey response category from primary care practitioner to general practitioner (a change which more significantly affected the 'other' category).

General practitioners

An 8.1% growth in general practitioner numbers between 2008 and 2012 (from 24,015 to 25,958) while the Australian population increased by 6.9%, resulted in a slight increase in the general practitioner full-time equivalent (FTE) rates, from 109.1 to 111.8 per 100,000 population (Tables A.1 and E.1). However, a change in the question response options from 'GP/primary care practitioner' in earlier surveys to 'general practitioner' impacts on the comparability of these responses over time, and time series data should be interpreted with caution. This may also have led to some of the observed increase in responses in the 'other clinician' category.

The average age of general practitioners increased slightly between 2008 and 2012 (49.9 and 50.8, respectively). General practitioners had the highest proportion aged 55 and over (37.9%) of all clinician subfields (Table A.1). The proportion of general practitioners who were female also increased over the 5-year period, from 38.4% in 2008 to 40.8% in 2012.

Hospital non-specialists

Between 2008 and 2012 the number of hospital non-specialists grew by 23.5% from 7,754 in 2008 to 9,580 in 2012. This was matched by an increase in FTE from 43.1 in hospital non-specialists per 100,000 population in 2008 to 47.8 in 2012 (Table A.1) (see Glossary and Box 4.1).

The average age for this clinician subfield in 2012 was 34.3, higher than in 2008 (33.2) (Table A.1). Unusually, the proportion of women decreased from 48.6% in 2008 to 46.5% in 2012. This is at odds with the usual observed trends in female participation in medical practice, though the proportion is still high by comparison with general practitioners and specialists. Hospital non-specialists were the second youngest group among clinicians in 2012.

Specialists

Comparison of specialists who are clinicians, and of their specialty of practice in 2012, with data from 2009 and earlier years should be interpreted with caution. This was due to significant changes in the classification of specialties, and in the methodology of collection (see Appendix B).

The number of employed specialist clinicians increased between 2008 and 2012 (from 22,458 to 26,347). From 2008 to 2012, there was a 35.0% increase in specialist numbers, contributing to an increase from of 115.7 to 127.8 FTE specialist clinicians per 100,000 population (Table A.1).

The average age for specialist clinicians was 50.1 in 2012, compared with 49.5 in 2008. In 2012, just over a quarter (26.8%) of specialist clinicians were female, the lowest proportion of all clinician subfields (Table A.1).

Specialists-in-training

The number of respondents who gave 'specialists-in-training' as their main job in medicine increased by 30.8% between 2008 and 2012, from 8,778 to 11,482. This equates to a rise over this period from 50.9 to 60.1 FTE Specialists-in-training\per 100,000 population 2012 (Table A.1).

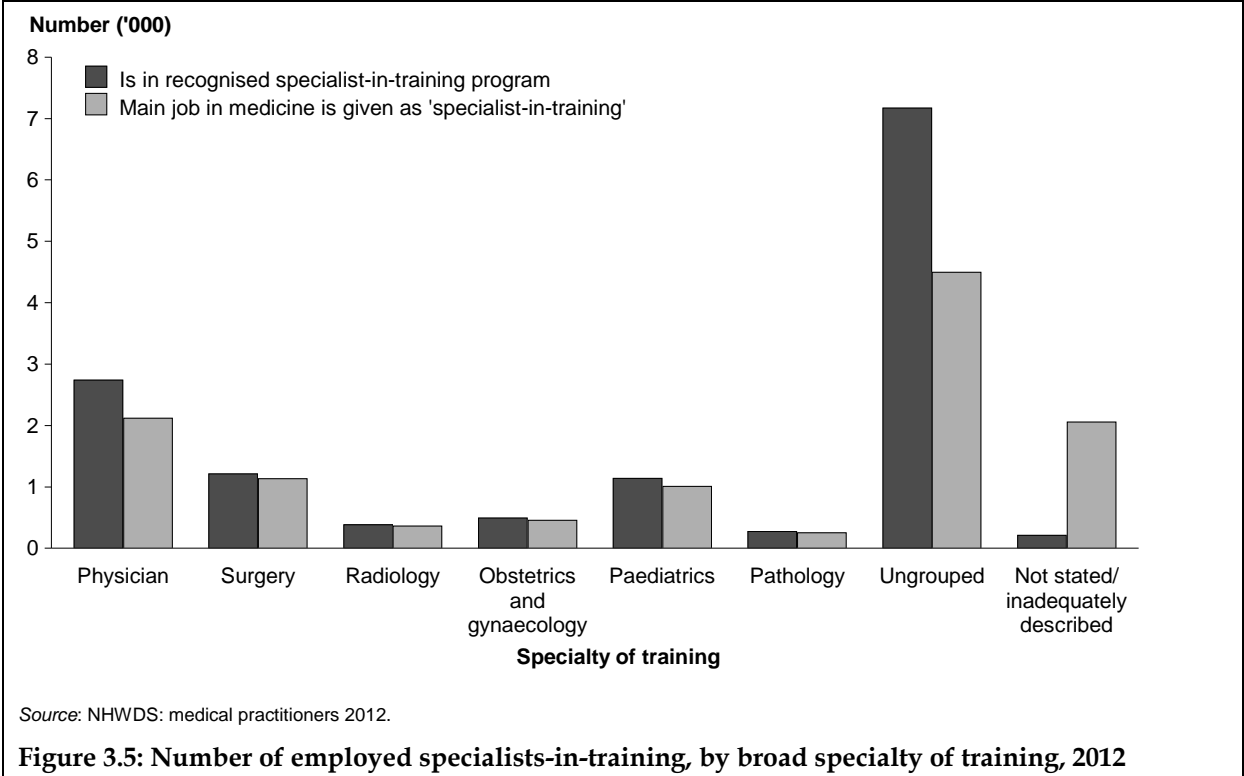
In 2012, 46.4% of specialists-in-training were women; up from 41.8% in 2008 and more than one and a half times the proportion of specialists who were women (26.8%).

The average age of specialists-in-training (33.8 in 2012) was, not surprisingly, relatively young compared with specialists and general practitioners.

For the first time in 2012 a new question has identified the courses those in specialist training programs are studying. In addition to those working as specialists-in-training as their main job in medicine, there were 3,775 practitioners in specialist-in-training programs who selected one of the other main areas of practice as their main job in medicine (for example, 1,615 chose 'general practice'). Conversely 1,049 of the respondents who reported that their main job in medicine was 'specialist-in-training' were not in a recognised specialist training program.

Some respondents completed the 2011 version of the form so the number of medical practitioners in a recognised specialist-in-training program is understated.

The most common main specialty of training fell under the category of 'physician' (20.1% of those in a recognised specialist-in-training program this was 17.8% of those whose main job was specialist-in-training) (Figure 3.5). The largest difference between the groups was in general practice, where 2,199 of those in a recognised specialist-in-training program were training in the field of 'general practice', compared to 306 of those whose main job was given as 'specialist-in-training' (Table A.2).



Non-clinicians

Non-clinician practitioners are medical practitioners who reported in the Medical Workforce Survey 2012 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
- or 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 2012, there were 4,395 employed as 'non-clinician medical practitioners', compared with 75,258 employed clinicians. This equated to 5.5% of medical practitioners employed in medicine in Australia.

The number of employed non-clinician medical practitioners decreased by 3.7% between 2008 and 2012. Among the non-clinical fields, teacher/educators had the highest increase in numbers (up 12.3%), and the category of 'administrator' reported a decrease (16.2%).

Non-clinicians were, on average, older than clinicians (51.1 and 45.7 years, respectively, in 2012). In 2012, 2 in 5 (40.9%) were female, which is slightly higher than the proportion for clinicians (37.7%) (Table A.1).

Specialty of practice

Table A.3 contains an analysis of a range of specialist practice areas, by number and average weekly hours worked. The main specialty of practice categories captured in the NHWDS: medical practitioners 2012 were not the same as those collected in the previous AIHW Medical Labour Force Survey, thus comparisons with results from 2011 and earlier years cannot be made and are not presented in this report. The 2011 survey allocation of main specialty was based on the results of the 2009 survey.

'Physician' was the largest main speciality of practice among both specialists who are clinicians and all specialists (5,438 and 5,918, respectively) (Figure 3.6). These physicians represented 20.6% of clinician specialists and 21.0% of all specialists. The largest identified subgroup of 'physician' was that of 'cardiologist'. 'Surgery' was the second largest main speciality of practice for clinician specialists and all specialists (4,131 and 4,275, respectively), and these surgeons represented 15.7% of clinicians and 15.2% all specialists.

The main specialty of practice with the oldest workers amongst the identified specialities and subspecialties was that of 'general medicine' (with an average age of 58.6 for clinicians and 58.9 for all specialists). The specialty or subspecialty with the youngest average age was that of 'other paediatrics', which included all the sub-specialties of paediatrics other than 'general paediatrics' (with an average age of 44.4 for clinicians and 44.6 for all specialists).

For all specialists, the proportion of women was lowest for orthopaedic surgery at 2.8%, and highest for geriatric medicine (45.4% and 45.6%). The proportion of all specialists aged 55 and over was lowest for emergency medicine (8.5%), and highest for General medicine (66.9%) (Table A.3).

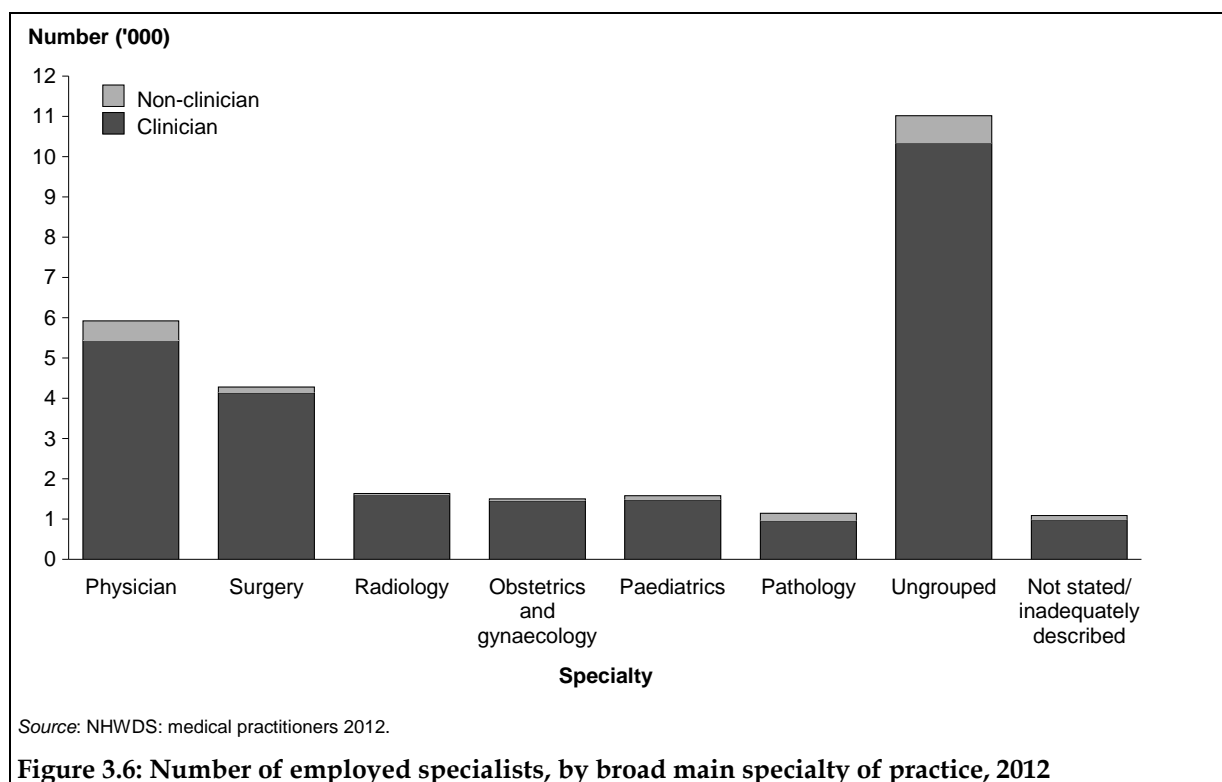


Figure 3.6: Number of employed specialists, by broad main specialty of practice, 2012

The majority of specialists (86.3%) had only one specialty. For those who registered multiple specialties, the main specialty of practice was derived by analysing registered specialties in conjunction with survey responses. This was complicated, as the online survey tool also allowed multiple responses. The group that most commonly identified both specialties were specialists with both 'haematology (physician)' and 'haematology (pathology)' specialties. For some purposes it may be appropriate to consider these groups as separate related entities rather than having them allocated to either the 'physician' or 'pathology' main specialty groupings (Table A.4).

Another area where cross-field grouping was an issue is the distinction between the paediatric and physician or ungrouped categories. Many of those with a general paediatric specialty plus a physician or ungrouped specialty combined their specialties in their survey response. For example, nearly all the specialists with a general paediatric specialty plus a 'cardiology (physician)' specialty chose the 'paediatric cardiology' specialty in the survey. For the purposes of defining a primary specialty, these records were assigned to the general paediatric category.

3.4 Country of initial medical qualification

Information about the country of initial medical qualification was collected in previous AIHW Medical Labour Force surveys. It has been included as a survey question in 2012. As information in the NRAS registration data has now been migrated from some of the previous jurisdiction-based systems which did not contain this information in a consistent manner, it was decided not to include this information in the Medical Workforce 2010 or 2011 reports due to variability in scope and coverage.

It is expected that information in NRAS registration data will improve over time and will be able to be reported more extensively in future years. Practitioners with limited registration

were more likely to fill in the 2011 version of the survey which did not include these questions, and as a result the 'not stated/inadequately described' category may be expected to contain higher numbers of overseas-qualified health professionals.

About two thirds (65.8%) of medical practitioners who answered the question about country of initial medical registration gained their initial medical qualification in Australia. A higher proportion of medical practitioners qualified in Australia were women, and the average of weekly hours worked by overseas-qualified medical practitioners was slightly higher than for Australian-qualified practitioners (Table 3.2).

Table 3.2: Employed medical practitioners: country of initial qualification, selected characteristics, 2012

Country of initial qualification	Number	Average age	Aged 55 and over (%)	Women (%)	Average hours	FTE rate ^(a)
Australia	50,096	46.4	29.2	38.5	42.4	233.8
New Zealand	2,082	44.2	20.8	34.9	44.2	10.1
Other overseas ^(b)	23,900	46.2	23.7	36.1	42.9	112.8
Not stated/inadequately described	3,575	39.8	12.4	42.4	44.2	17.4
Total	79,653	46.0	26.6	37.9	42.7	374.1

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

(b) The only countries specifically identified are Australia and New Zealand. All other countries are captured as 'other overseas'.

Source: NHWDS: medical practitioners 2012.

Specialist medical practitioners were more likely to be qualified in Australia, with about four out of five of medical practitioners (82.1%) gaining their initial specialist medical qualification in Australia. A higher proportion of specialist medical practitioners qualified in Australia were women (Table 3.3).

Table 3.3: Employed specialist medical practitioners: country of initial specialist qualification, selected characteristics, 2012

Country of initial specialist qualification	Number	Average age	Aged 55 and over (%)	Women (%)	Average hours	FTE rate ^(a)
Australia	20,516	49.3	30.1	28.2	44.0	99.5
New Zealand	624	49.4	30.3	22.7	45.5	3.1
Other country	3,851	52.8	39.2	22.8	43.5	18.5
Not stated/inadequately described	3,158	53.7	46.6	26.1	42.3	14.7
Total	28,149	50.3	33.2	27.1	43.8	135.8

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

Source: NHWDS: medical practitioners 2012.

3.5 Employment setting and sector

Employment setting

Medical practitioners were asked to indicate the setting of their main job in medicine in the week before completing the Medical Workforce Survey 2012.

Of all employed clinicians, over two-fifths (46.4%) worked in private practice at the time of the survey. Of those working in private practice, about 7 in 10 were in group practices (71.2%) and 3 in 10 (27.1%) were in solo practices.

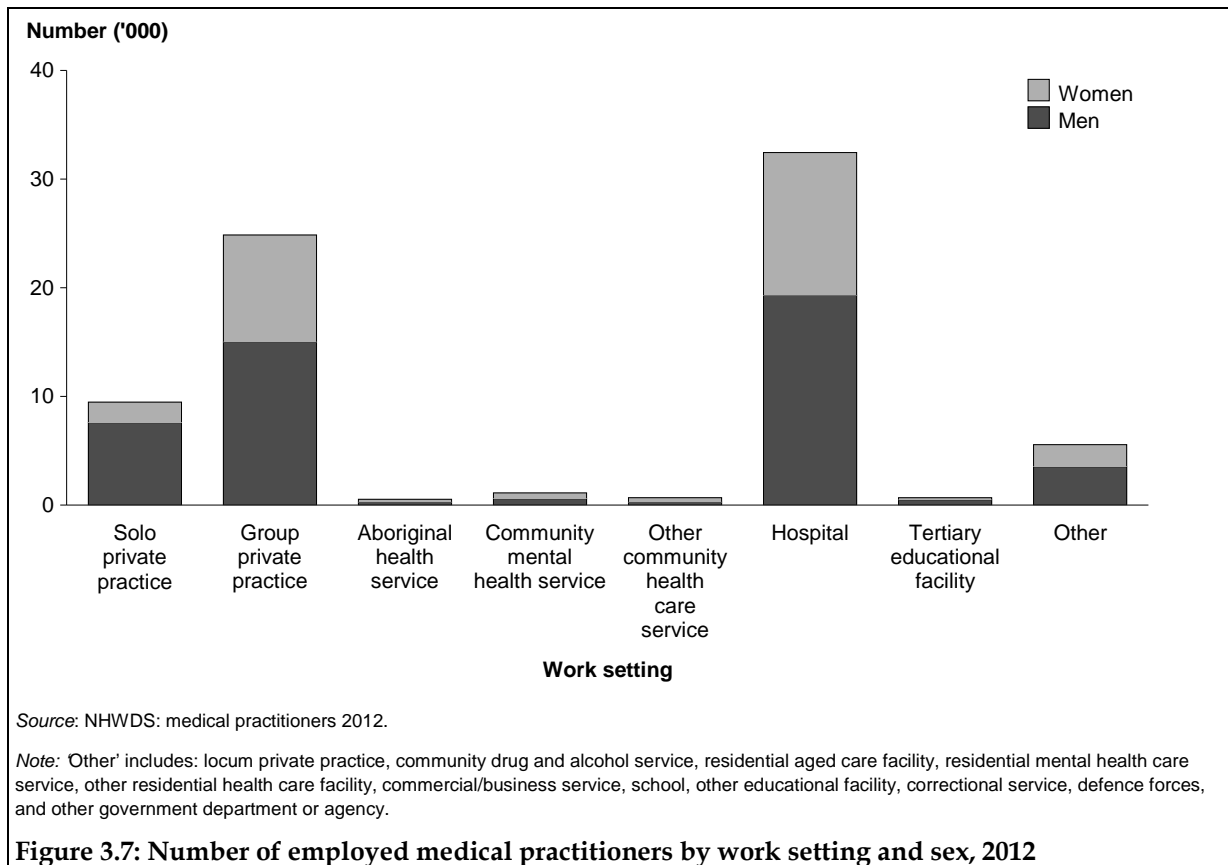
Amongst all those in private practice, women were more likely to be working in group practices than in solo private practice making up 20.0% of all solo private practitioners and 39.7% of all those working in group private practice (Table A.5, Figure 3.7).

'Hospital' was reported as the work setting of the main job for 43.1% of clinicians.

Clinicians working in community health-care services made up only 2.5% of all practitioners employed. Within this small group, 57.8% were working in community mental health service settings, 35.4% in 'other community health-care service' settings and 6.8% in community drug and alcohol service settings (Table A.5).

Educational facilities were the main work setting for 2.1% of all practitioners, but only 0.9% of clinicians reported this as their main work setting. Among all practitioners working in educational facilities, 91.1% were working in tertiary educational facilities.

Because some practitioners divide their time between work settings or aspects of work settings, a new question has been added to split clinical hours between hospital inpatient and outpatient hours in the public sector and those spent in rooms and private hospitals in the private sector (see Table A.5 and Figure 3.8).



Less than 1% of all practitioners were working in each of the following settings:

- locum private practice (0.8%)
- Aboriginal health service (0.7%)
- community drug and alcohol service (0.2%)
- other community health care service (0.9%)
- residential health care services (0.3%)
- commercial/business services (0.4%)
- school and other educational facility (0.2%)
- correctional services (0.1%)
- defence forces (0.3%) and
- other government department or agency (0.8%) (Table A.5).

Employment sector

In 2012, general practitioners worked mostly in the private sector; an FTE number of 17,353 worked in this sector compared with an FTE number of 1,820 in the public sector (Table 3.4). Hospital non-specialists and specialists-in-training worked mostly in the public sector. The FTE number of hospital non-specialists was 7,091 in the public sector compared with 810 in the private sector. The FTE number of specialists-in-training was also higher in the public sector: 10,303 compared with 809 in the private sector. However specialists were more evenly spread through both sectors (FTE numbers of 10,931 in the public sector and 11,510 in the private sector) (Table 3.4).

Table 3.4: Employed medical practitioners: employment sector of hours worked^(a), by principal area of practice^(b), by selected characteristics, 2012

Characteristic		General practitioner	Hospital non-specialist	Specialist	Specialist-in-training	Other clinician	Non-clinician	Total
Private	Number	20,442	1,160	16,981	1,368	937	179	41,066
	Average age	50.2	41.8	50.6	34.5	49.9	51.8	49.6
	Aged 55 and over (%)	35.7	14.6	34.3	0.7	36.9	41.5	33.4
	Women (%)	42.0	39.2	22.2	43.9	44.1	33.9	33.8
	Average weekly clinical hours worked in sector	34.0	28.0	27.1	23.6	25.0	8.6	30.3
	Clinical FTE number ^(c)	17,353	810	11,510	809	586	38	31,107
	Clinical FTE rate	76.4	3.6	50.7	3.6	2.6	0.2	137.0
Public	Number	4,061	6,575	18,485	9,492	944	191	39,747
	Average age	48.4	33.3	48.2	33.3	41.5	49.4	42.0
	Aged 55 and over (%)	31.3	4.7	25.7	0.5	20.8	36.8	16.7
	Women (%)	38.9	47.1	28.8	47.5	51.7	37.1	37.9
	Average weekly clinical hours worked in sector	17.9	43.1	23.7	43.4	33.3	11.1	31.2
	Clinical FTE number ^(c)	1,820	7,091	10,931	10,303	786	53	30,983
	Clinical FTE rate	8.0	31.2	48.1	45.4	3.5	0.2	136.4

(a) Data for each sector include medical practitioners who reported working hours in that sector. Medical practitioners working in more than one sector are counted in each sector.

(b) Because medical practitioners may work in more than one sector and in more than one capacity, they may only work a small number of hours in one or other of these categories. For example, general practitioners may work the majority of their hours in private practice and a small number of hours as a hospital non-specialist in the public sector. In this table those public hours would appear under the 'general practitioner' column.

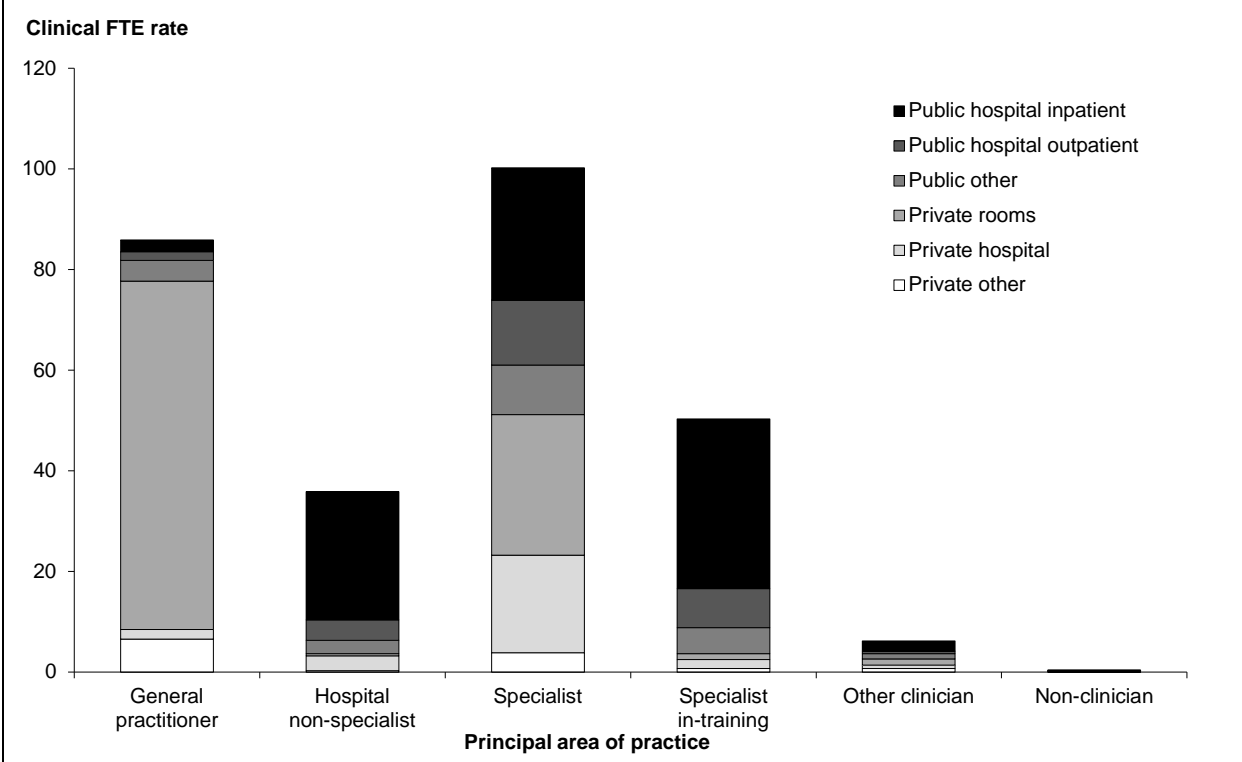
(c) Clinical FTE number is based on clinical weekly hours worked (see Box 4.1 and Glossary).

Source: NHWDS: medical practitioners 2012.

The average age of medical practitioners who had worked in the private sector was higher than for those who worked in the public sector in all categories. Women are more likely to work in the public sector though this may be in part due to the correlation with age, as female medical practitioners are, on average, younger than male medical practitioners. Younger medical practitioners were mostly located in the public sector-dominant 'hospital non-specialists' and 'specialists-in-training' areas.

Due to a change in the survey design we are able to report on the hours worked by medical practitioners across a limited group of settings. The main advantage of this approach is that it helps to divide hours worked by medical practitioners across the different settings so that the workload is not purely calculated based on primary setting as, for example, many medical practitioners divide their time between rooms and hospital settings, or inpatient and outpatient settings.

General practitioners work most extensively in private rooms with 81% of their clinical hours being reported in that setting. Hospital non-specialists reported 71% of their clinical hours in public hospital inpatient areas, 11% in public hospital outpatient areas and 8% in private hospitals. Specialists were divided more evenly across the settings with 28% of their clinical hours reported in private rooms, 26% in public hospital inpatient settings, 19% in private hospitals and 13% in public hospital outpatient settings (Figure 3.8).



Source: NHWDS: medical practitioners 2012.

Figure 3.8 Clinical full-time equivalent medical practitioners per 100,000 population by employment setting by principal area of practice 2012

3.6 Working hours

The total number of hours worked per week is reported by medical practitioners in the Medical Workforce Survey, and relates to the number of hours worked in all medical fields in the week before the survey.

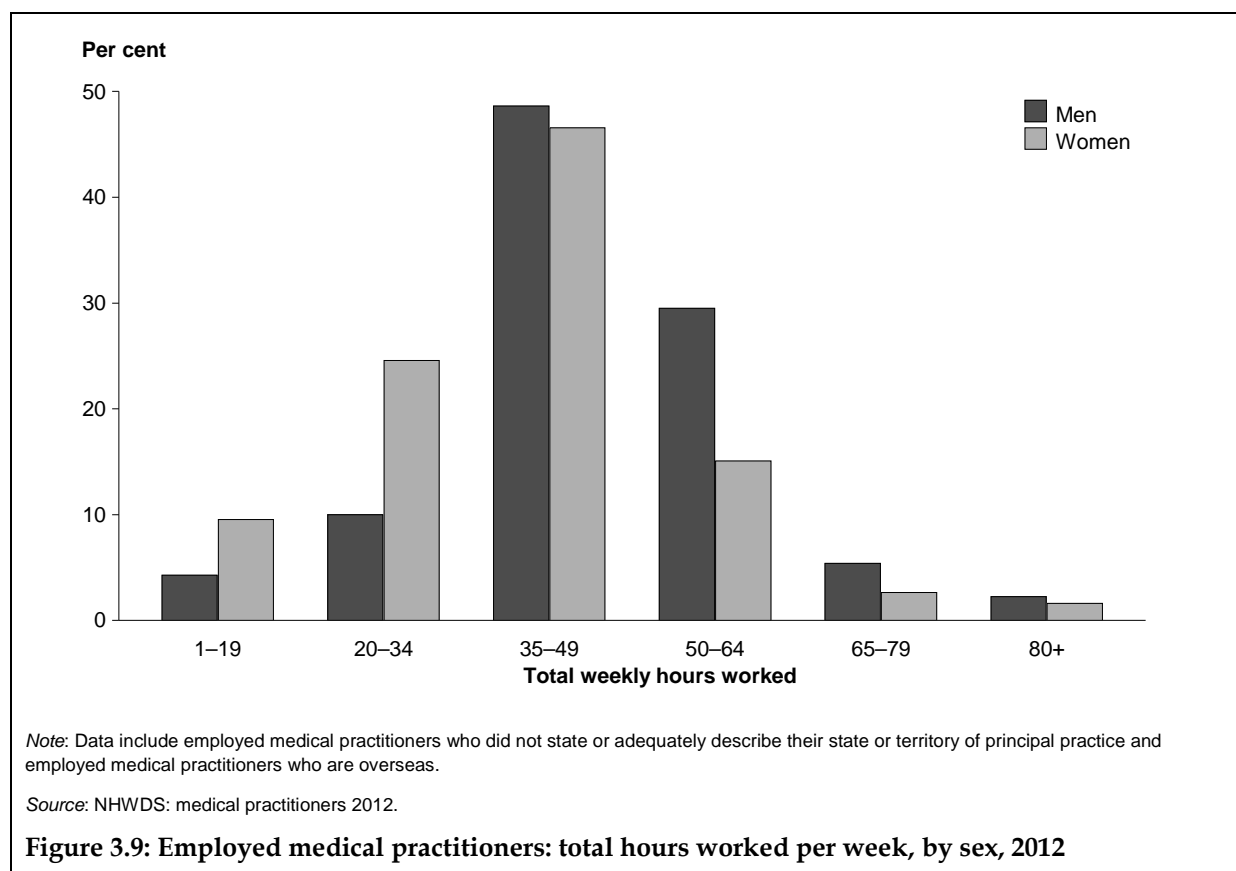
Amongst specialists in the identified specialties and sub-specialties, the highest average weekly hours worked, for both specialist clinicians and all specialists, was by intensive care medicine specialists, at 55.0 and 54.5 hours, respectively. The second highest average weekly hours worked was by cardiologists, at 50.8 and 50.4 hours, respectively (Table A.3).

For clinicians, the main specialty area with the lowest average weekly hours worked was psychiatry (38.6 for specialist clinicians and 38.7 for all specialists).

Sex

Earlier medical workforce surveys have shown that male medical practitioners worked more hours per week than did 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 (34.1%), compared with men (14.2%) (Figure 3.9).

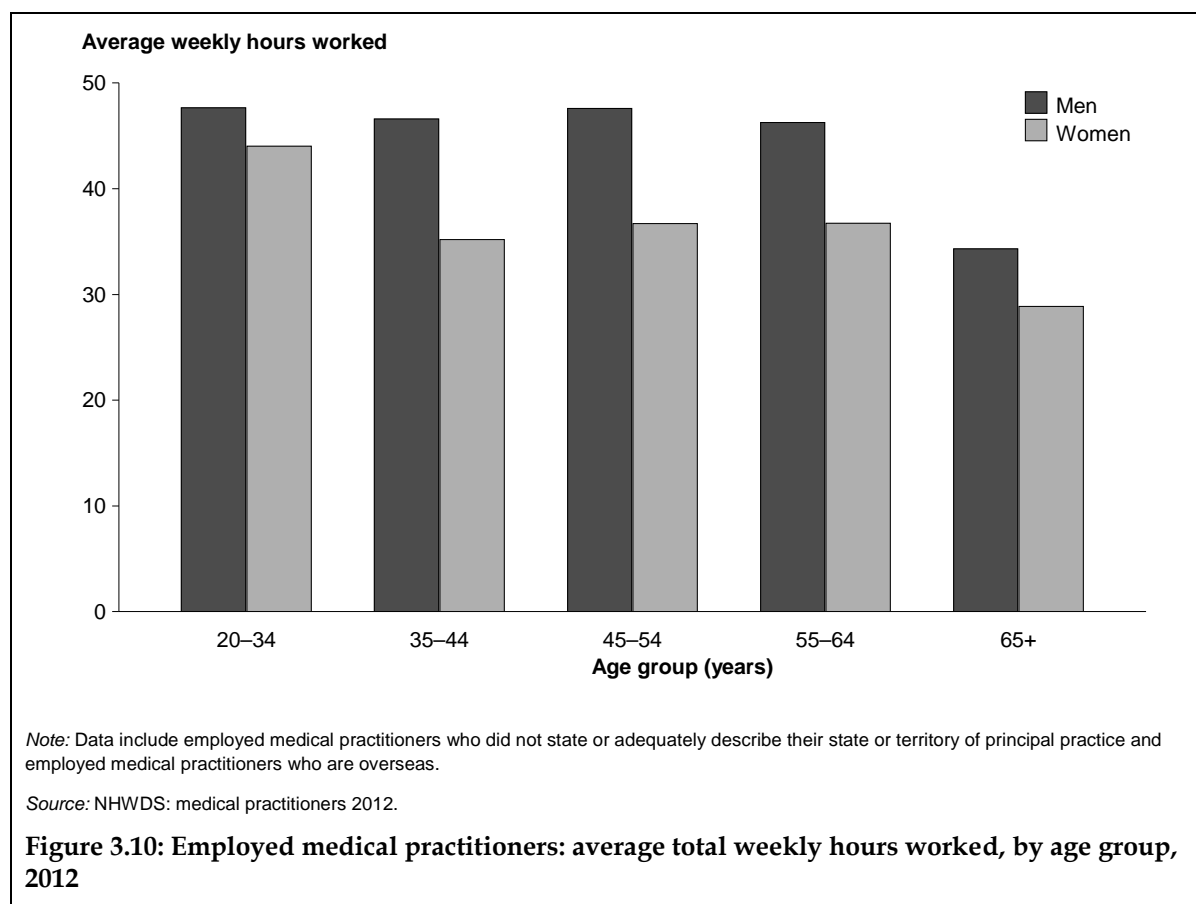


Nationally, in 2012, male medical practitioners worked an average of 45.3 hours per week, while female medical practitioners worked an average of 38.3 hours per week (Table 3.5).

The distribution of hours worked by male medical practitioners is skewed towards higher average hours in a week. About 37.1% of male medical practitioners worked 50 or more hours per week in 2012. The proportion of women working 50 or more hours per week was 19.3% (Figure 3.9).

Age

Medical practitioners aged 20-34, both male and female, worked the highest average weekly hours in 2012. Men and women in the 65-and-over age group worked the lowest average weekly hours (Figure 3.10). In other age groups, different patterns were observed for men and women, although men worked higher average weekly hours than women in every age group.



Men in all age groups reported working higher average weekly hours than did their female counterparts, with the largest difference being for those in the 35–44 and 45–54 age groups (11.4 and 10.9 average weekly hours worked, respectively).

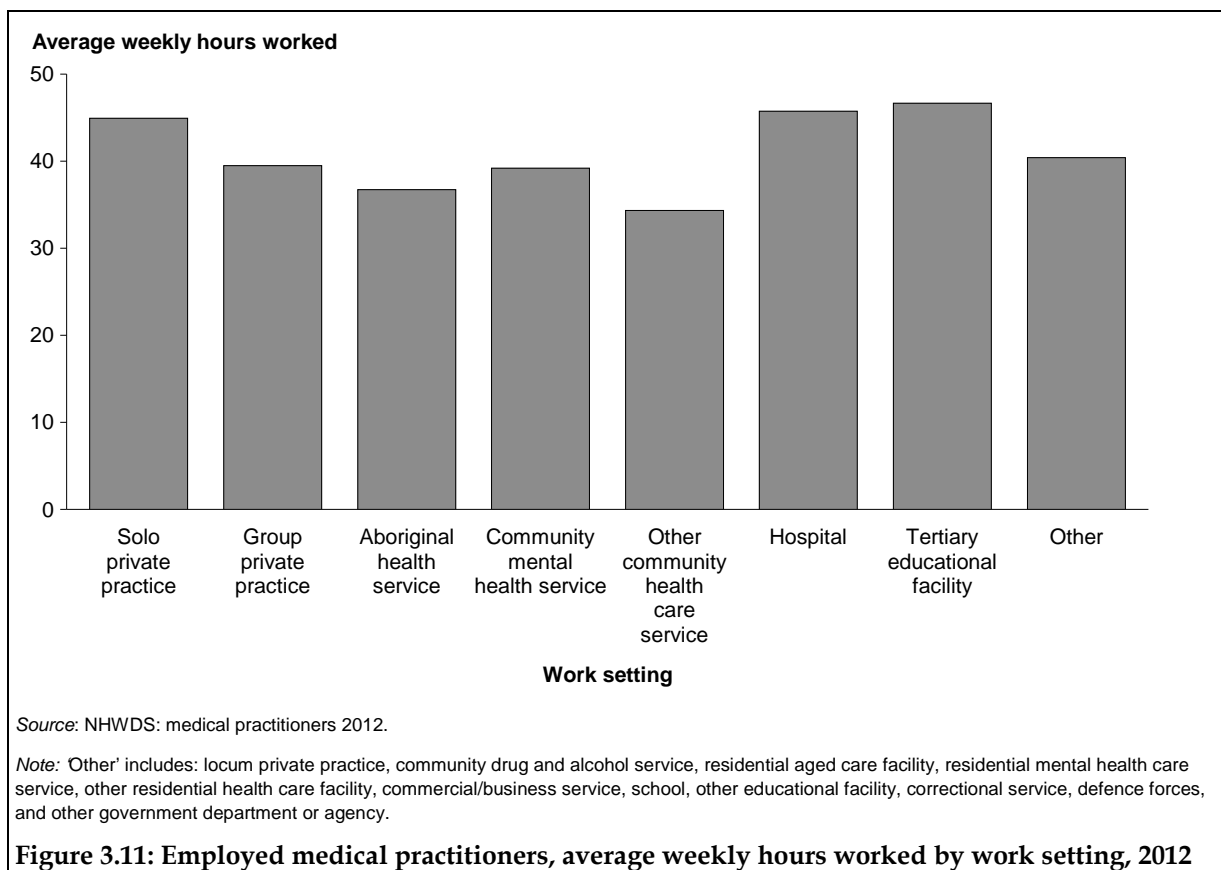
Average weekly hours worked by men stayed above 45 hours per week for all age groups up to 65. However, average weekly hours worked for women in the 20–34 age group averaged 44.0 hours (the highest of all age groups), then decreased to 35.2 hours for the 35–44 age group, before slightly increasing in the 45–54 and 55–64 age groups (36.7 hours for both). For both men and women, average weekly hours worked declined in the 65-and-over age group, to 34.3 hours for men and 28.9 hours for women (Figure 3.10).

Work setting

The average weekly hours worked by all employed medical practitioners remained stable between 2008 and 2012 (Table A.1).

In 2012, clinicians worked on average 42.9 hours per week, which was similar to total practitioners at 42.7 hours (Tables A.1 and 3.4). Clinicians working in educational facilities and hospitals reported the highest average weekly hours worked (46.5 and 45.7 hours, respectively), with those working in ‘other community health care services’ reported the lowest (34.3 hours).

For those working in private practice, clinicians working in a solo practice worked the highest number of hours (45.0 hours), compared with clinicians working in group and locum private practice (39.5 and 37.6 hours, respectively).



For clinicians working in residential health-care services, those in mental health-care services worked, on average, 5.3 hours per week more than those working in aged care facilities (40.1 compared with 34.8 hours, respectively) (Table A.5 and Figure 3.11).

States and territories

Across the jurisdictions, there was some variation in average weekly hours worked by medical practitioners. In 2012, medical practitioners in the Northern Territory and in the Australian Capital worked the highest weekly hours on average (43.6 hours). Medical practitioners in Tasmania worked the lowest weekly hours on average at 41.4 hours.

Between 2008 and 2012, there was very little difference between the hours worked by male medical practitioners in all jurisdictions. The largest difference was a 3.2% decline in Victoria. There was a 1.9% increase in the average hours worked by women over all, with the largest increase being an 8.7% growth in the average hours worked by women in Tasmania (Table 3.5).

Table 3.5: Employed medical practitioners: average total weekly hours^(a) worked, by sex and state and territory, 2008^(b) and 2012^{(c)(d)}

Year/sex	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
2008 Persons	43.4	43.4	41.7	41.8	41.7	40.5	43.5	42.4	42.7
Men	45.8	46.3	44.7	44.7	44.4	43.9	46.4	44.4	45.4
Women	38.8	38.2	35.9	36.7	36.2	34.4	39.1	40.3	37.6
2012 Persons	43.2	42.1	42.9	42.3	42.2	41.4	43.6	43.6	42.7
Men	45.8	44.8	45.5	45.2	44.9	44.0	46.8	45.2	45.3
Women	39.0	37.7	38.3	37.6	37.5	37.4	39.2	41.7	38.3

- (a) Care should be taken in interpreting change in the estimates on hours worked due to changes in the question on hours worked between 2008 and 2012.
- (b) State and territory estimates for 2008 are based on state or territory of registration and should be treated with caution due to low response rates in some jurisdictions, particularly in the Northern Territory (44.4%). See Appendix B for further information.
- (c) Derived from state and territory of main job where available; otherwise, state and territory of principal practice is used as a proxy. If principal practice details are unavailable, state and territory of residence is used. Records with no information on all three locations are coded to 'not stated'.
- (d) Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice, and employed medical practitioners who are overseas.

Sources: AIHW Medical Labour Force Survey, 2008; NHWDS: medical practitioners 2012.

Remoteness areas

The Remoteness Areas (RA) from the Australian Standard Geographical Classification (ASGC) (ABS 2011) have been used in this report to show data by geographic category (see Glossary for further information).

Table 3.6: Employed medical practitioners: average total weekly hours^(a) worked, by sex and by remoteness area^(b) of main job, 2008 and 2012^(c)

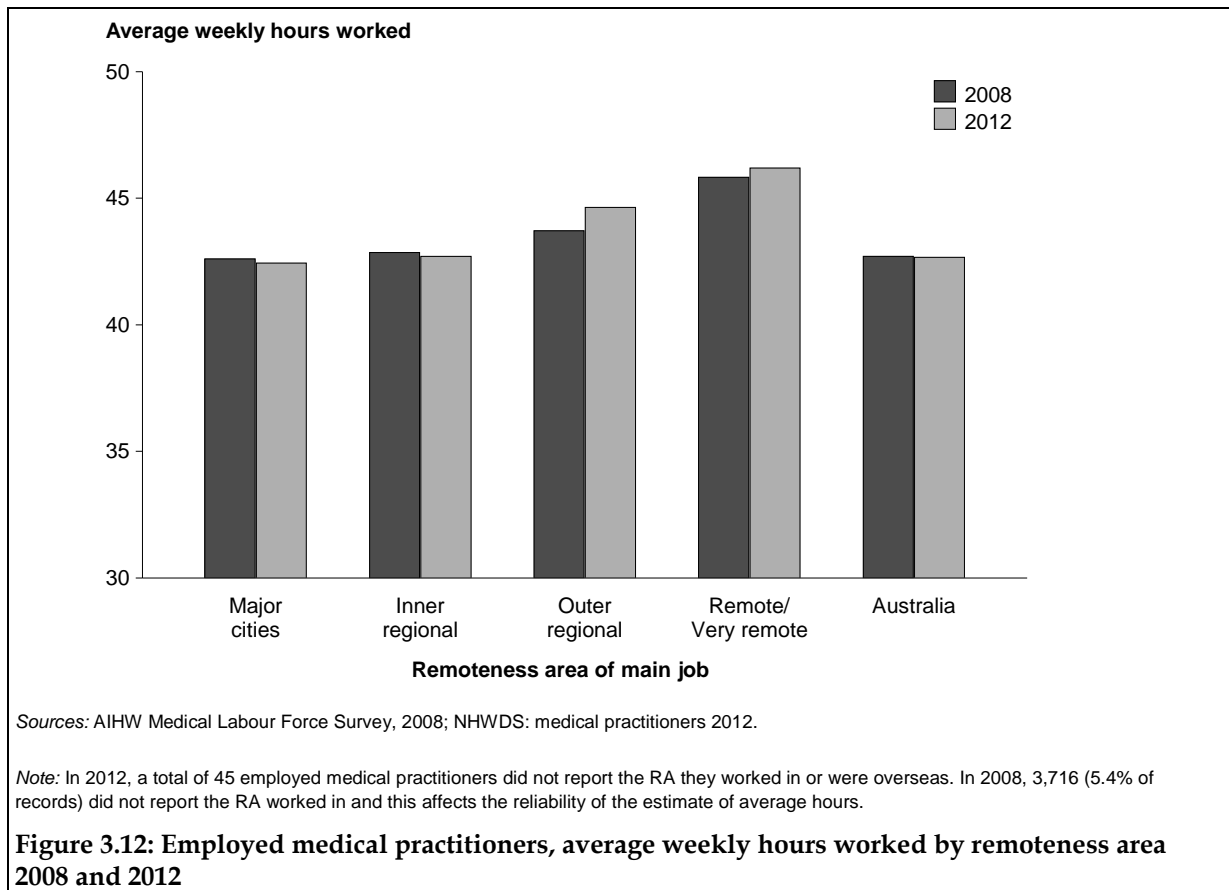
Year/sex	Major cities	Inner regional	Outer regional	Remote/ Very remote ^(d)	Australia
2008 Persons	42.6	42.9	43.7	45.8	42.7
Men	45.4	45.4	46.7	48.2	45.4
Women	37.6	37.0	38.0	41.8	37.6
2012 Persons	42.4	42.7	44.6	46.2	42.7
Men	45.2	44.9	46.9	48.2	45.3
Women	38.0	38.3	40.9	42.7	38.3

- (a) Care should be taken in interpreting change in the estimates on hours worked due to changes in the question on hours worked from 2008 to 2012.
- (b) Derived from Remoteness Area of main job where available; otherwise, Remoteness Area of principal practice is used as a proxy. If Remoteness Area details are unavailable, Remoteness Area of residence is used. Records with no information on all three locations are coded to 'not stated'.
- (c) Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice, and employed medical practitioners who are overseas.
- (d) Includes *Migratory*.

Note: In 2012, a total of 45 employed medical practitioners did not report the RA they worked in or were overseas. In 2008, 3,716 (5.4% of records) did not report the RA they worked in and this affects the reliability of the estimate of average hours.

Sources: AIHW Medical Labour Force Survey, 2008; NHWDS: medical practitioners 2012.

In 2012, medical practitioners in *Remote/Very remote* areas worked longer hours than the national average: an average of 46.2 hours per week, compared with of 42.7 hours (Table 3.6).



Medical practitioners in *Outer regional* areas increased their average weekly working hours by 0.9 hours between 2008 and 2012, although national working hours did not change in this period (Figure 3.12, Table 3.6). Over this same period, male practitioners in these areas increased their working hours on average by 0.2 hours, from 46.7 hours in 2008 to 46.9 hours in 2012, while female practitioners worked on average 2.9 weekly hours more (Table 3.6).

4 Supply of medical 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 work a large number of hours each week 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 weekly hours worked, has been used to calculate an FTE number of practitioners, based on a 'standard full-time working week' (see Box 4.1).

Box 4.1: Full-time equivalent

The number of full-time equivalent (FTE) medical practitioners is now calculated by dividing the total number of hours worked by the number of hours in a standard full-time working week. In previous reports, because of incomplete response this was estimated by multiplying the number of medical practitioners by the average weekly hours worked, and dividing the result 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 and, for tables split by sector, Clinical hours and setting, it divides the work done by individuals across multiple settings into partial FTEs in each of those settings.

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 (ABS) 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, 42.6 hours per week (Table 3.5). In this report, in line with National Healthcare Agreement reporting, 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.

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

4.2 Supply of employed clinicians

A clinician is a medical practitioner mainly involved in the diagnosis, care and treatment of individuals, including recommending preventive action. In this report, medical practitioners who chose 'clinician', in the question on their principal role in their main job in medicine, are classified as clinicians.

Across all states and territories, the overall supply of clinicians increased between 2008 and 2012, from 323.2 FTE per 100,000 population in 2008 to 355.6 in 2012 (Table 4.1). However, this pattern was not consistent across all clinician sub-fields.

Over this period, the supply of general practitioners increased between 2008 and 2012, from 109.1 to 111.8 FTE per 100,000 population (Table 4.1). However a change in the question response options from 'GP/primary care practitioner' in earlier surveys to 'general practitioner' impacts on the comparability of these responses over time, and time series data should be interpreted with caution. This may also have led to some of the observed increase in responses in the 'other clinician' category.

The supply of specialists-in-training, specialists, hospital non-specialists and other clinicians all increased (50.9 to 60.1, 115.7 to 127.9, 43.1 to 47.9 and 3.9 to 7.9 FTE per 100,000 population, respectively).

Table 4.1: Employed medical practitioners: FTE per 100,000 population^(a), by main field of medicine, 2008 to 2012^(b)

Main field of medicine	2008	2009	2011	2012 ^(d)	Change in FTE rate between 2008 and 2012 (%)
Clinician	323.2	331.2	360.9	355.6	10.0
General practitioner (GP) ^(b)	109.1	113.5	109.8	111.8	2.5
Hospital non-specialist ^(c)	43.1	40.6	49.2	47.9	11.2
Specialist	115.7	122.3	122.7	127.9	10.5
Specialist-in-training	50.9	51.2	68.7	60.1	18.1
Other clinician ^(b)	3.9	3.3	10.5	7.9	103.0
Non-clinician	21.0	23.3	20.6	18.4	-12.0
Total	343.9	353.8	381.5	374.1	8.8

(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) Prior to 2011 this category was 'primary care practitioner'. In 2011 and 2012, 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 2012 are not directly comparable with primary care practitioner data in 2008.

(c) In 2011 the online survey forms this category was 'hospital non-specialist (salaried)' which may have affected comparability between years.

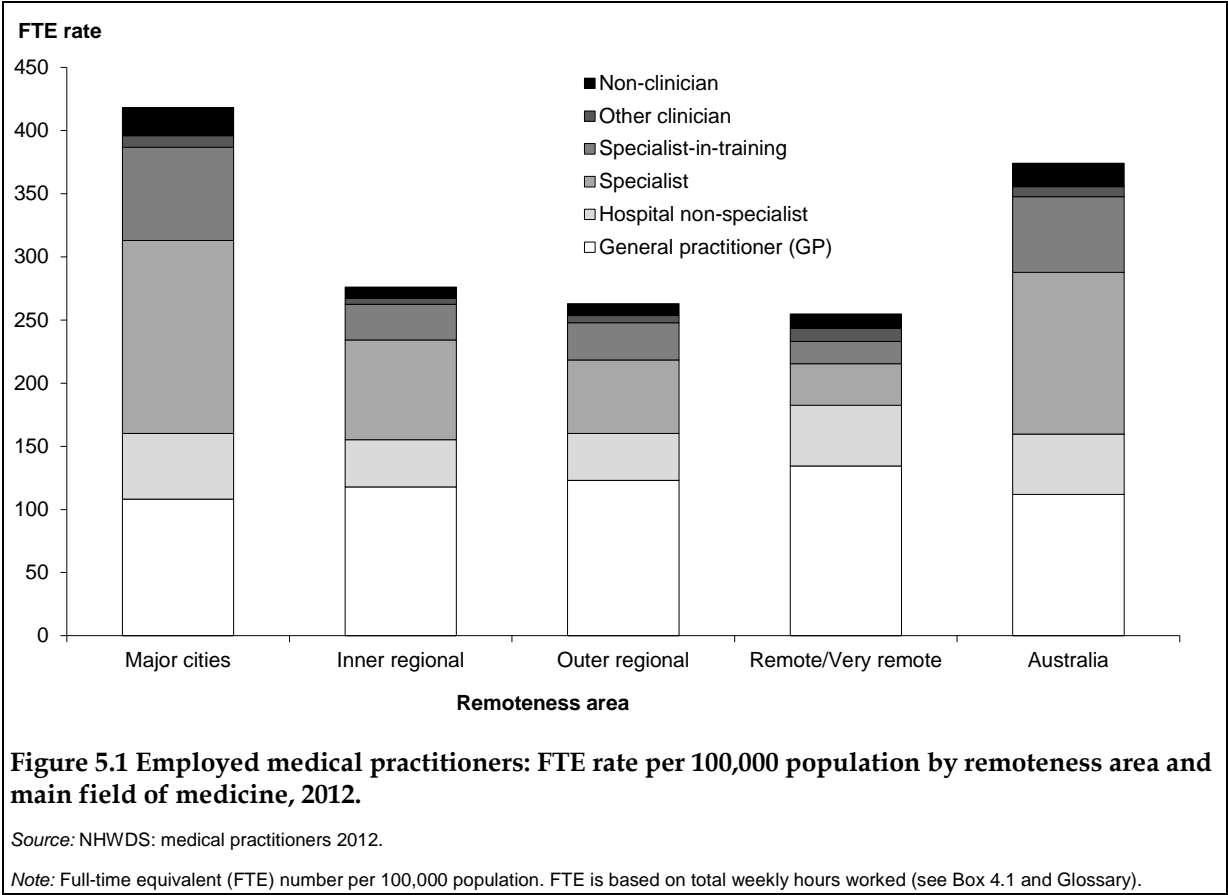
(d) From 2012 data exclude provisional registrants – 3,250 records in 2012.

Source: AIHW Medical Labour Force Survey 2008; NHWDS: medical practitioners 2012.

5 Geographic 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, providing a means, in combination with other data on hours and population, of examining variability in the supply of medical practitioners across Australia.



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

Major cities

Of the medical practitioners employed in *Major cities* in 2012, 94.1% were clinicians. Of employed clinicians, 37.6% were specialists, 30.7% were general practitioners, 16.7% specialists-in-training and 12.4% hospital non-specialists (Table 5.1).

Table 5.1: Employed medical practitioners in *Major cities*: selected features, by main field of medicine of main job, 2012^{(a)(b)}

Characteristic	Number	Average age	Aged 55 and over (%)	Women (%)	Average weekly hours worked	FTE rate ^(c)
<i>Clinician</i>	59,156	45.6	25.8	38.5	42.7	395.8
General practitioner (GP)	18,170	51.7	40.7	42.3	38.0	108.2
Hospital non-specialist	7,313	33.6	4.1	48.1	45.4	52.0
Specialist	22,249	49.9	32.0	27.8	43.8	152.8
Specialist-in-training	9,896	33.8	0.6	46.7	47.6	73.8
Other clinician	1,529	44.7	26.8	49.8	37.4	9.0
<i>Non-clinician</i>	3,731	50.8	39.0	41.2	38.1	22.3
Total	62,887	45.9	26.6	38.7	42.4	418.1

(a) Derived from remoteness area of main job where available; otherwise, remoteness area of principal practice is used as a proxy. If remoteness area details are unavailable, remoteness area of residence is used. Records with no information on all three locations are coded to 'not stated'.

(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 are overseas.

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

Note: In 2012, a total of 45 employed medical practitioners did not report the RA they worked in or were overseas.

Source: NHWDS: medical practitioners 2012.

The proportions of specialists and specialists-in-training were higher in *Major cities* than in any other remoteness area. This indicates that the medical practitioner population is more evenly distributed across clinician types in *Major cities* than in the other RAs, which is likely to be a result of specialists and specialists-in-training working mainly in *Major cities*.

More than one-third (38.7%) of medical practitioners in *Major cities* were female, which is slightly more than the national average (37.9%). The average age of medical practitioners in *Major cities* was 45.9, which was about the national average (46.0) in 2012 (Tables 3.2, 5.1 and 5.5).

Inner regional areas

Of the medical practitioners employed in *Inner regional areas*, 96.2% were clinicians (Table 5.2). As with *Major cities*, a relatively high proportion of these clinicians were specialists (37.6% in *Major cities* and 28.2% in *Inner regional*). However, *Inner regional areas* had a much higher proportion who were general practitioners (46.7% compared with 30.7%), and a lower proportion who were specialists-in-training (9.5%) than for *Major cities* (16.7%).

In 2012, medical practitioners employed in *Inner regional areas* worked, on average, the same hours as the national average (42.7 hours). However, they were slightly older, with an average age of 46.6 compared with 46.0 nationally. They were also less likely to be female (33.6% compared with 37.9% nationally) (Tables A.1 and 5.2).

Table 5.2: Employed medical practitioners in *Inner regional* areas: selected features, by main field of medicine of main job, 2012^{(a)(b)}

Characteristic	Number	Average age	Aged 55 and over (%)	Women (%)	Average weekly hours worked	FTE rate ^(c)
<i>Clinician</i>	10,327	46.3	27.0	33.6	43.0	267.2
General practitioner (GP)	4,826	49.0	32.9	37.3	40.5	117.8
Hospital non-specialist	1,394	36.5	8.8	41.2	44.6	37.5
Specialist	2,912	50.8	35.2	20.4	44.9	78.8
Specialist-in-training	985	33.9	0.2	41.4	47.5	28.2
Other clinician	210	43.6	24.7	42.2	39.1	4.9
<i>Non-clinician</i>	405	53.7	48.8	35.3	36.2	8.8
Total	10,732	46.6	27.8	33.6	42.7	276.1

(a) Derived from remoteness area of main job where available; otherwise, remoteness area of principal practice is used as a proxy. If remoteness area details are unavailable, remoteness area of residence is used. Records with no information on all three locations are coded to 'not stated'.

(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 are overseas.

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

Note: In 2012, a total of 45 employed medical practitioners did not report the RA they worked in or were overseas. Hence the number of employed medical practitioners stated by RA is an underestimate.

Source: NHWDS: medical practitioners 2012.

Outer regional areas

In 2012, 96.0% of employed medical practitioners in *Outer regional* areas were clinicians. Of these, 50.4% were general practitioners (the second-highest proportion of the four RAs), 22.2% were specialists, 14.1% hospital non-specialists and 11.1% specialists-in-training (Table 5.3).

Of all employed medical practitioners, 37.2% were female, which is slightly lower than the national proportion of 37.9%. The average age of employed medical practitioners in *Outer regional* areas was lower than the national average (45.3 compared with 46.0) (Tables A.1 and 5.3).

Medical practitioners in *Outer regional* areas worked, on average, 1.9 hours per week more than the national average (44.6 hours compared with 42.7). General practitioners in *Outer regional* areas, in particular, worked more weekly hours than the national average (43.2 hours compared with 39.1) (Tables A.1 and 5.3).

Table 5.3: Employed medical practitioners in *Outer regional* areas: selected features, by main field of medicine of main job, 2012^{(a)(b)}

Characteristic	Number	Average age	Aged 55 and over (%)	Women (%)	Average weekly hours worked	FTE rate ^(c)
<i>Clinician</i>	4,628	45.1	23.3	36.7	44.8	253.5
General practitioner (GP)	2,331	47.9	28.3	37.5	43.2	123.0
Hospital non-specialist	652	35.6	6.5	43.2	46.6	37.1
Specialist	1,026	50.8	33.4	23.3	46.4	58.2
Specialist-in-training	514	33.9	2.1	50.2	47.0	29.5
Other clinician	105	42.5	21.7	43.7	43.7	5.6
<i>Non-clinician</i>	194	51.1	41.5	49.2	40.0	9.5
Total	4,823	45.3	24.0	37.2	44.6	263.0

(a) Derived from remoteness area of main job where available; otherwise, remoteness area of principal practice is used as a proxy. If remoteness area details are unavailable, remoteness area of residence is used. Records with no information on all three locations are coded to 'not stated'.

(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 are overseas.

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

Note: In 2012, a total of 45 employed medical practitioners did not report the RA they worked in or were overseas hence the number of employed medical practitioners stated by RA is an underestimate.

Source: NHWDS: medical practitioners 2012.

Remote and very remote areas

In 2012, 95.2% of employed medical practitioners in *Remote/Very remote* areas were clinicians. Of these, 56.1% worked in general practice (the highest proportion of the four reported RA categories), 19.6% were hospital non-specialists (the highest of the RAs), 12.8% were specialists (the lowest of the RAs), and 7.5% 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 2012 was 45.4 which was slightly lower than the national average (46.0) (Tables A.1 and 5.4).

Medical practitioners in *Remote/Very remote* areas worked, on average, 3.5 hours per week more than the national average (46.2 hours compared with 42.7). General practitioners in *Remote/Very remote* areas, in particular, worked more weekly hours than the national average (45.6 hours compared with 39.1) (Tables A.1 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 2012^{(b)(c)}

Characteristic	Number	Average age	Aged 55 and over (%)	Women (%)	Average weekly hours worked	FTE rate ^(d)
<i>Clinician</i>	1,110	45.1	24.7	36.8	46.3	243.2
General practitioner (GP)	622	48.1	31.6	38.0	45.6	134.3
Hospital non-specialist	217	38.5	12.8	36.3	46.8	48.1
Specialist	142	49.5	28.7	27.6	49.0	33.0
Specialist-in-training	83	35.2	1.3	40.9	44.7	17.5
Other clinician	45	40.6	16.9	44.5	48.2	10.4
<i>Non-clinician</i>	56	51.1	43.6	30.3	43.4	11.5
Total	1,166	45.4	25.6	36.5	46.2	254.7

(a) Includes *Migratory*.

(b) Derived from remoteness area of main job where available; otherwise, remoteness area of principal practice is used as a proxy. If remoteness area details are unavailable, remoteness area of residence is used. Records with no information on all three locations are coded to 'not stated'.

(c) Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice, and employed medical practitioners who are overseas.

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

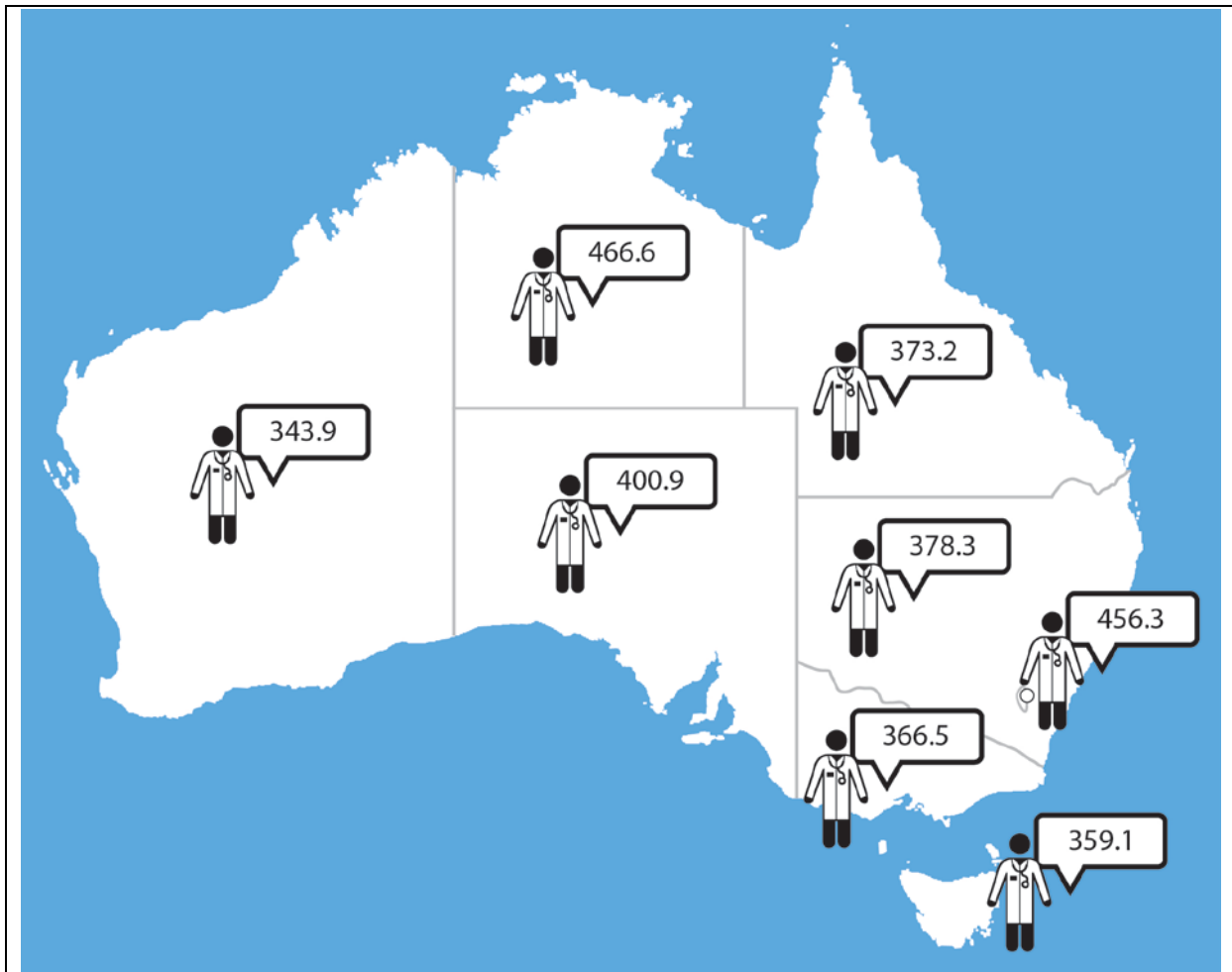
Note: In 2012, a total of 45 employed medical practitioners did not report the RA they worked in or were overseas. Due to the update cycle of the Australian Bureau of Statistics, RA population estimates do not balance with the most recent update of state and territory national population estimates.

Source: NHWDS: medical practitioners 2012.

The supply of general practitioners in *Remote/Very remote* areas was the highest of all RAs in 2012, at 134.3 FTE per 100,000 population, 22.5 FTE more than the national rate of 111.8. Care should be taken in interpreting the Medical Workforce Survey 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.

5.2 States and territories

Between 2008 and 2012, the number of employed medical practitioners increased in all jurisdictions, except in the Australian Capital Territory (Table 5.5). Queensland, New South Wales, Tasmania and the Northern Territory had increases greater than the national increase of 16.3% (19.5%, 18.5%, 18.5% and 21.2% respectively). The large increases may, in part, be due to changes in the scope of the benchmark figures (see the 'Weighting: estimation for population non-response' and 'Data issues' sections in Appendix B). The FTE rate increased in all jurisdictions, except in the Australian Capital Territory where it declined from 488.2 to 456.30 FTE medical practitioners per 100,000 population.



Notes

1. Data are derived from state and territory of main job where available; otherwise, state and territory of principal practice is used as a proxy. If principal practice details are unavailable, state and territory of residence is used. Records with no information on all three locations are coded to 'not stated'.
2. Data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice, and employed medical practitioners who are overseas.
3. Full-time equivalent (FTE) number per 100,000 population. FTE is based on total weekly hours worked (see Box 4.1 and Glossary).

Source: NHWDS: medical practitioners 2012.

Figure 5.2: Full time equivalent employed medical practitioners, by state and territory, 2012

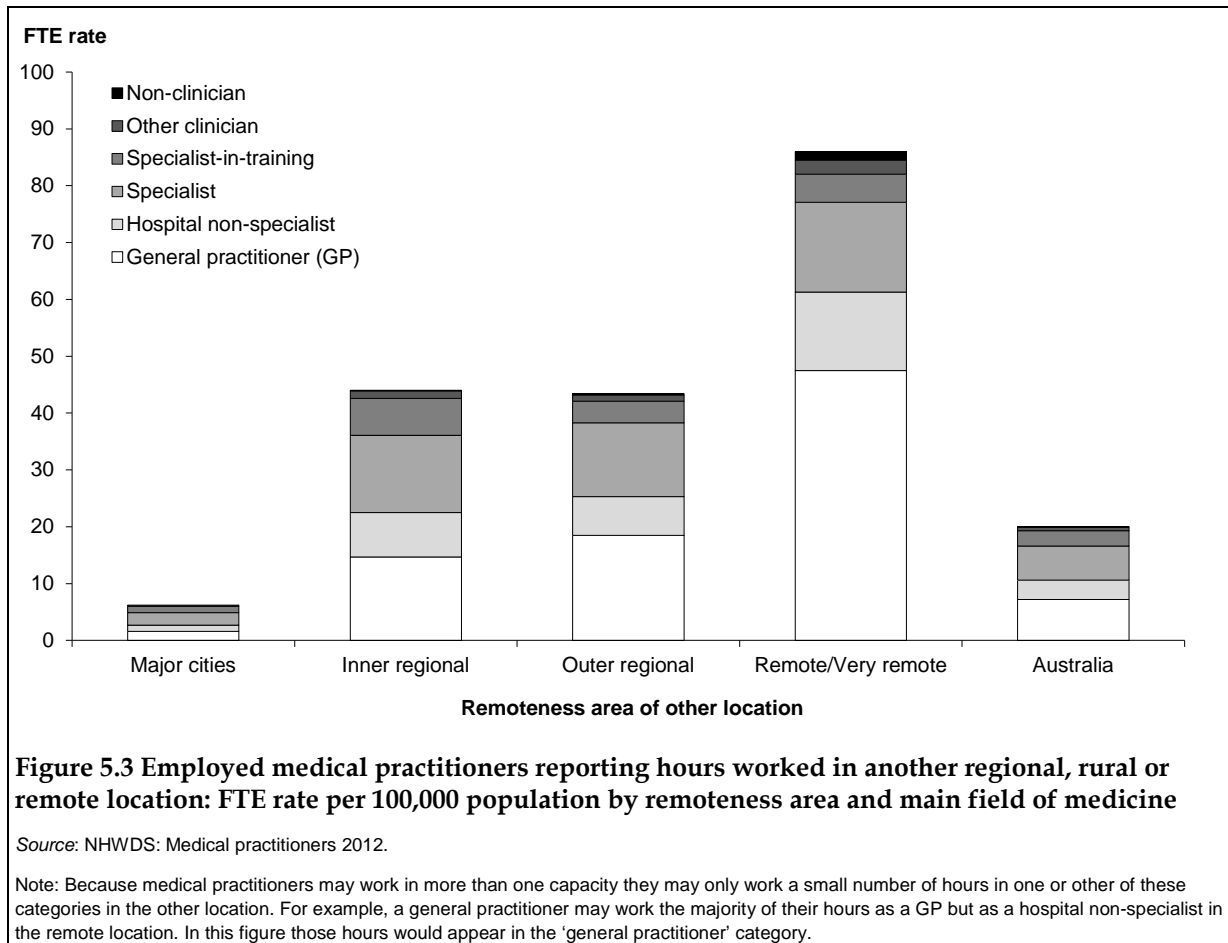
Table 5.5: Employed medical practitioners: selected features, by state and territory, 2008^(a) and 2012^{(b)(c)}

Characteristic	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
	2008								
Number	21,570	17,303	13,299	6,857	5,535	1,500	1,559	832	68,455
Average age	46.0	45.3	46.7	44.0	45.4	49.1	44.2	42.2	45.7
Males	48.4	47.6	48.5	46.1	47.3	51.3	46.7	44.6	47.9
Females	41.6	40.9	43.2	40.0	41.7	45.1	40.6	39.6	41.6
Aged 55 and over (%)	26.5	24.3	25.8	21.1	24.7	31.3	20.7	15.7	25.0
Females (%)	34.6	35.3	34.2	34.5	33.3	35.0	40.0	47.4	34.9
Average hours	43.4	43.4	41.7	41.8	41.7	40.5	43.5	42.4	42.7
FTE rate ^(d)	335.5	354.7	324.7	328.9	361.2	304.6	488.2	399.2	341.8
	2012								
Number	25,566	19,621	15,897	7,906	6,296	1,777	1,569	1,008	79,653
Average age	47.1	45.7	45.1	44.9	45.9	46.7	46.1	43.6	46.0
Males	49.5	48.2	47.0	47.4	48.1	49.2	48.1	46.2	48.3
Females	43.1	41.6	41.7	41.0	42.1	42.6	43.3	40.6	42.1
Aged 55 and over (%)	29.9	26.2	23.1	23.9	27.1	28.1	26.0	21.6	26.6
Females (%)	37.8	38.5	36.7	38.0	36.7	38.8	41.6	45.5	37.9
Average hours	43.2	42.1	42.9	42.3	42.2	41.4	43.6	43.6	42.7
FTE rate ^(d)	378.3	366.5	373.2	343.9	400.9	359.1	456.3	466.6	374.0

- (a) State and territory estimates for 2008 are based on state or territory of registration and should be treated with caution due to low response rates in some jurisdictions, particularly the Northern Territory (44.4%). See Appendix B for further information.
- (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 are overseas. Therefore, state and territory totals may not sum to the national total.
- (c) Derived from state and territory of main job where available; otherwise, state and territory of principal practice is used as a proxy. If principal practice details are unavailable, state and territory of residence is used. Records with no information on all three locations are coded to 'not stated'.
- (d) Full-time equivalent (FTE) number per 100,000 population. FTE is based on total weekly hours worked (see Box 4.1 and Glossary).

Source: AIHW Medical Labour Force Survey 2008; NHWDS: medical practitioners 2012.

5.3 Medical practitioners working in another regional, rural or remote location.



The 2012 version of the survey included a question on working in other regional, rural, or remote locations. These data show that 9,289 practitioners worked some clinical hours in a location other than that of their main job. Because these hours were only part of their work load, this was equivalent to 4,528 full time workers.

The largest numbers of these provided services in *Inner regional* areas (3,792). However, due to the smaller population, the clinical full-time equivalent staff per 100,000 population in *Remote/Very remote* areas was nearly double that of the next highest region. The average age of medical practitioners providing services in another regional, rural or remote location was slightly higher than the national average (47.4 years and 46.0 years respectively) and the proportion who were women was lower than the overall national average (30.1% women and 37.9% women respectively).

Table 5.6: Employed medical practitioners reporting hours worked in another regional, rural or remote location: selected features, by remoteness area of other location, 2012

Characteristic	Major cities	Inner regional	Outer regional	Remote/Very remote^(a)	Not stated/overseas^(b)	Australia
Number	2,250	3,792	1,931	867	448	9,289
Average age	47.6	46.5	48.1	48.6	48.2	47.4
Aged 55 and over (%)	29.1	26.6	30.0	35.0	32.3	29.0
Women (%)	34.1	28.6	27.4	30.2	33.7	30.1
Average clinical weekly hours worked	17.6	19.2	18.4	21.0	33.4	19.5
Clinical FTE Number	988	1,822	888	455	375	4,528
Clinical FTE rate	6.2	43.9	43.4	86.0	.	19.9

(a) While the survey question stipulated that only clinical hours be reported, it was noted in answering other questions that respondents frequently reported total hours which were able to be reallocated in other questions. This possibility should be taken into account when interpreting the above.

(b) Includes broad region descriptions like 'All of north west'.

Source: NHWDS: Medical practitioners 2012.

6 Sources of new entrants and re-entrants to the medical workforce

There are three sources of potential entrants to any workforce: new entrants, re-entrants and migrants. The main source of medical practitioners is new entrants via the training of new medical graduates. The time required for students to complete training and enter the workforce is long, and any acute change in the demand for medical practitioners cannot be met by this group. The second source of entrants includes those medical practitioners who have maintained their registration or enrolment but who are not currently employed in medicine. The third source of recruits to the medical workforce is through the migration of overseas-trained people. This chapter discusses data relevant to the first two of these sources.

While immigration is being used as a source of new medical practitioners, the data on this group of medical practitioners are currently not robust enough for reporting, but this will improve as the NRAS matures and details of new entrants are included at each registration renewal.

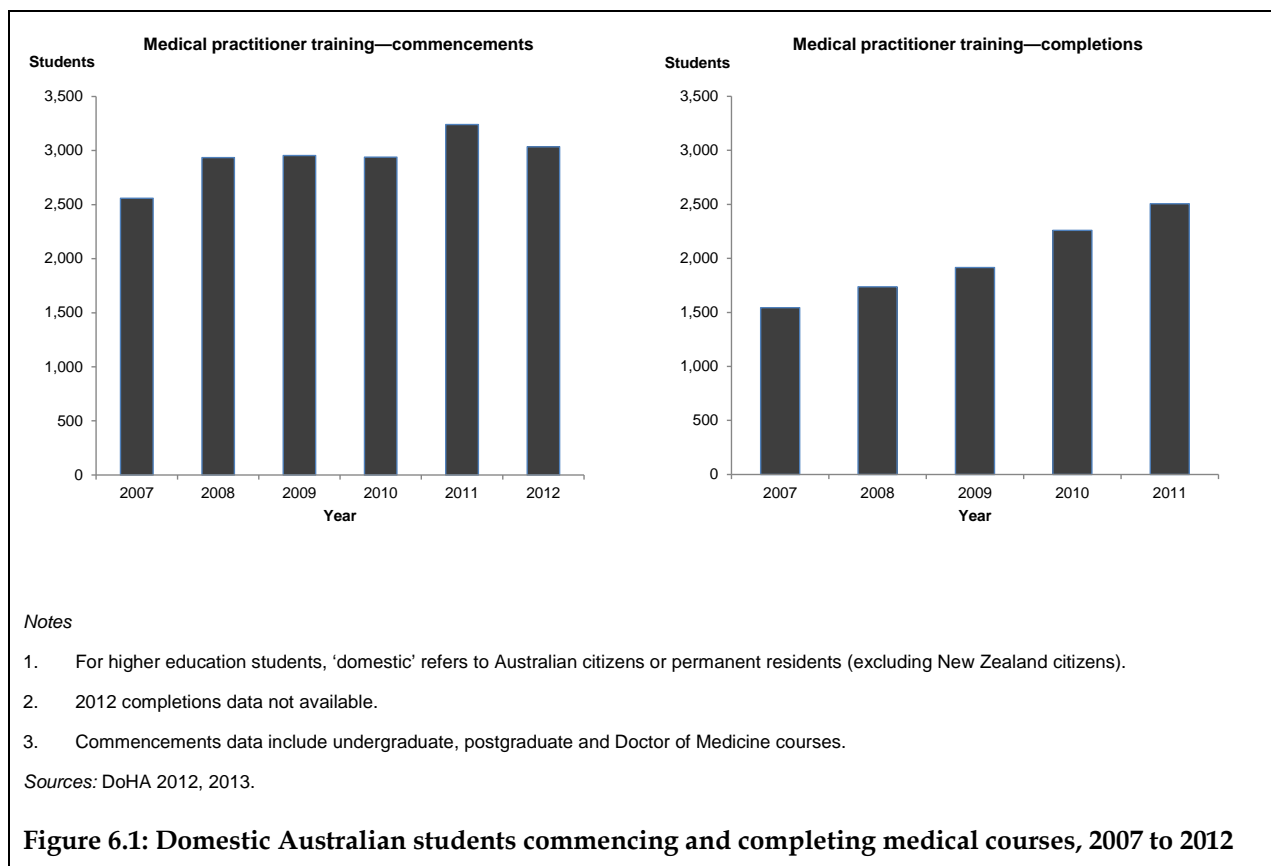
6.1 Medical practitioner training

To become a medical practitioner, a student must study medicine at a university. When offered as an undergraduate course, medical education is five to six years of full-time study. Following completion of the undergraduate course, graduates must undertake one year of full-time employment (internship) at a recognised teaching hospital to be able to gain full registration as a medical practitioner with the Medical Board of Australia (MBA 2012).

Postgraduate medical courses are four years of full-time study. Postgraduate entry requires a completed bachelor degree in any discipline, then application into a graduate-entry medical degree.

Entry to the various specialisations requires medical qualifications followed by postgraduate study, experience in approved hospitals and the passing of examinations leading to membership of the appropriate professional college.

The number of domestic commencements in medicine increased between 2007 and 2012 by 18.6%. From 2007 to 2008, student commencements increased 14.6%. Between 2008 and 2010, commencements remained steady, and then rose by 10.2% from 2010 to peak at 3,241 students in 2011, before falling 6.4% between 2011 and 2012. Completions have also grown over the same period (by 62.4%, from 1,544 domestic completions in 2007 to 2,507 in 2011) (Figure 6.1).



6.2 Medical practitioners not employed in medicine

The Medical Workforce Survey collects some basic information on those medical practitioners who are registered, but who are not actively employed in medicine in Australia: that is, medical practitioners on extended leave, working overseas, employed elsewhere or not employed. This does not include medical practitioners who are not registered at the time of the survey.

In 2012, there were 8,601 medical practitioners not actively employed in medicine in Australia (Table 6.1). Of these, just over a third were overseas qualified (34.6%), 23.0% were on extended leave and 24.4% were retired from regular work. A further 14.8% were not looking for work in medicine, with about two thirds of these (63.7%) not employed. The remaining 3.2% stated that they were looking for work in medicine.

Medical practitioners on extended leave or not employed and not looking for work in medicine were more likely to be women (64.8% and 58.8% respectively). Medical practitioners on extended leave were, on average, younger than other medical practitioners (42.9 years versus 46.0 years for those employed in medicine), while those who were retired were the oldest group (73.2 years) (Table 6.1).

Table 6.1: Medical practitioners not actively employed in medicine in Australia: selected characteristics, 2012

Workforce status	Number	Average age	Aged 55 and over (%)	Women (%)	Metropolitan residence (%)^{(a)(b)}
On extended leave	1,980	42.9	23.1	64.8	90.8
<i>Looking for work in medical practice</i>	<i>277</i>	<i>42.2</i>	<i>22.2</i>	<i>56.2</i>	<i>91.5</i>
Employed elsewhere	38	46.3	34.1	41.9	94.3
Not employed	239	41.5	20.3	58.4	91.1
Overseas	2,973	45.6	24.0	32.7	42.2
<i>Not looking for work in medical practice</i>	<i>1,274</i>	<i>47.3</i>	<i>28.9</i>	<i>58.8</i>	<i>89.9</i>
Employed elsewhere	463	48.6	29.0	44.7	88.8
Not employed	811	46.6	28.8	66.8	90.5
Retired from regular work	2,097	73.2	96.9	22.6	94.0
<i>Total medical practitioners not actively employed in medical practice in Australia</i>	<i>8,601</i>	<i>51.9</i>	<i>42.2</i>	<i>42.3</i>	<i>74.7</i>
Total employed medical practitioners	79,653	46.0	26.6	37.9	92.4

(a) Based on postcode of residence matched to Australian Standard Geographical Classification (ASGC) regions (see Glossary).

(b) Percentage calculations exclude 'not stated' values for ASGC region of residence. 'Metropolitan' includes *Major cities* and *Inner regional* areas.

Source: NHWDS: medical practitioners 2012.

Appendix A: Data Tables

Table A.1: Employed medical practitioners: selected features, by main field of medicine, 2008 and 2012^(a)

Main field of medicine	Number	Average age	Percentage aged 55 and over	Women (%)	Average hours	FTE rate ^(a)	Change in FTE rate between 2008 and 2012 (%)
2008							
<i>Clinician</i>	63,889	45.3	24.2	35.0	43.0	323.2	
Primary care practitioner	24,015	49.9	32.9	38.4	38.6	109.1	
Hospital non-specialist	7,754	33.2	5.0	48.6	47.2	43.1	
Specialist	22,458	49.5	30.9	23.6	43.8	115.7	
Specialist-in-training	8,778	33.1	0.0	41.8	49.3	50.9	
Other clinician	885	43.4	23.6	44.4	37.6	3.9	
<i>Non-clinician</i>	4,566	50.8	36.3	33.0	39.0	21.0	
Administrator	1,284	50.8	34.5	30.4	43.4	6.6	
Teacher/Educator	798	50.9	34.6	43.8	34.6	3.2	
Researcher	1,130	45.5	22.7	35.2	42.7	5.7	
Public health physician	437	49.2	28.0	39.7	39.8	2.0	
Occupational health physician	309	52.8	45.6	20.9	36.2	1.3	
Other	607	61.1	69.3	21.9	29.6	2.1	
Total	68,455	45.7	25.0	34.9	42.7	343.9	
2012							
<i>Clinician</i>	75,258	45.7	25.8	37.7	42.9	355.6	10.0
General practitioner ^(b)	25,958	50.8	37.9	40.8	39.1	111.8	2.5
Hospital non-specialist	9,580	34.3	5.1	46.5	45.4	47.9	11.2
Specialist	26,347	50.1	32.4	26.8	44.1	127.9	10.5
Specialist-in-training	11,482	33.8	0.6	46.4	47.6	60.1	18.0
Other clinician ^(b)	1,891	44.3	26.1	48.5	38.2	7.9	101.8
<i>Non-clinician</i>	4,395	51.1	40.1	40.9	38.1	18.4	-12.2
Administrator	1,076	53.5	45.2	32.4	40.5	4.8	-26.8
Teacher/educator	896	54.3	48.4	44.4	32.3	3.2	-1.5
Researcher	1,220	46.4	29.0	39.9	42.6	5.7	0.4
Other ^(c)	1,203	51.5	40.5	46.7	35.7	4.7	..
Total	79,653	46.0	26.6	37.9	42.7	374.1	8.8

(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) In 2012, 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 2012 are not directly comparable with primary care practitioner data in 2008.

(c) In 2012, 'Other' may include public health physician and occupational health physician, which were previously reported as separate categories.

Source: AIHW Medical Labour Force Survey 2008; NHWDS: medical practitioners 2012.

Table A.2: Specialists-in-training: selected features by main specialty of training 2012

Main specialty of training	Is in recognised specialist-in-training Program ^(a)				Main job in medicine is as specialist-in-training.			
	Number	Average age	Women (%)	Average weekly hours worked	Number	Average age	Women (%)	Average weekly hours worked
Cardiology	217	32.8	19.1	52.3	197	33.1	19.0	51.9
Endocrinology	113	32.8	70.9	45.3	100	32.8	70.4	46.0
Gastroenterology and hepatology	116	32.5	26.8	51.4	102	32.0	26.6	51.5
General medicine	955	32.9	43.7	46.4	584	32.4	43.5	47.6
Geriatric medicine	181	35.7	46.3	44.4	161	35.6	46.9	44.5
Haematology (physician)	144	32.9	51.0	46.2	134	33.0	48.7	46.0
Infectious diseases	102	33.6	51.0	49.5	94	33.3	54.5	49.3
Medical oncology	147	33.1	51.1	46.3	133	33.0	50.1	45.9
Nephrology	91	33.7	54.8	48.4	82	33.8	54.8	48.8
Neurology	82	33.5	47.2	51.1	70	33.4	49.0	51.4
Respiratory and sleep medicine	99	33.8	31.4	47.7	90	33.8	30.1	48.1
Specialist physician	391	31.3	50.2	48.1	276	31.4	49.7	48.1
Other physicians	99	33.0	53.8	44.3	96	33.1	53.4	44.2
<i>Physicians total</i>	<i>2,739</i>	<i>33.0</i>	<i>44.7</i>	<i>47.4</i>	<i>2,119</i>	<i>32.9</i>	<i>44.5</i>	<i>47.8</i>
General surgery	474	33.2	33.6	58.8	439	33.1	34.9	59.0
Orthopaedic surgery	226	34.0	9.2	61.5	217	33.6	9.6	61.8
Plastic surgery	80	34.1	28.8	68.3	75	33.7	29.3	68.7
Urology	108	32.5	23.1	58.1	101	32.6	19.6	58.3
Other surgery	324	33.9	28.2	60.6	304	33.6	29.0	60.9
<i>Surgery total</i>	<i>1,213</i>	<i>33.5</i>	<i>26.4</i>	<i>60.3</i>	<i>1,136</i>	<i>33.3</i>	<i>26.8</i>	<i>60.6</i>
Diagnostic radiology	368	32.3	35.9	47.8	353	32.2	35.4	47.8
Other radiology	15	37.2	28.5	45.0	10	36.4	22.6	45.0
<i>Radiology total</i>	<i>383</i>	<i>32.5</i>	<i>35.6</i>	<i>47.7</i>	<i>362</i>	<i>32.3</i>	<i>35.1</i>	<i>47.7</i>
Specialist obstetrician and gynaecologist	418	34.0	72.5	51.0	399	33.8	72.2	51.0
Other obstetrics and gynaecology	71	37.2	64.4	49.4	55	36.6	61.2	50.4
<i>Obstetrics and gynaecology total</i>	<i>490</i>	<i>34.5</i>	<i>71.3</i>	<i>50.8</i>	<i>454</i>	<i>34.1</i>	<i>70.9</i>	<i>50.9</i>
General paediatrics	785	32.7	72.4	43.4	691	32.4	74.0	43.8
Other paediatrics	353	34.5	63.6	44.5	319	34.6	64.4	44.4
<i>Paediatrics total</i>	<i>1,138</i>	<i>33.2</i>	<i>69.7</i>	<i>43.7</i>	<i>1,010</i>	<i>33.1</i>	<i>70.9</i>	<i>44.0</i>

(continued)

Table A.2 continued: Specialists-in-training: selected features by main specialty of training 2012

Main specialty of training	Is in recognised specialist-in-training program ^(a)				Main job in medicine is as specialist-in-training.			
	Number	Average age	Women (%)	Average weekly hours worked	Number	Average age	Women (%)	Average weekly hours worked
Anatomical pathology	219	33.8	60.4	41.8	197	33.6	61.3	41.6
Other pathology	57	36.4	68.4	40.2	54	35.4	68.5	40.3
<i>Pathology total</i>	<i>276</i>	<i>34.3</i>	<i>62.0</i>	<i>41.4</i>	<i>251</i>	<i>34.0</i>	<i>62.9</i>	<i>41.3</i>
General practice	2,199	35.3	61.0	38.8	306	33.5	65.3	37.9
Anaesthesia	1,097	33.2	42.8	47.2	1,014	32.9	43.7	47.2
Psychiatry	927	36.7	56.3	43.4	844	36.6	56.3	43.6
Emergency medicine	1,622	34.3	40.2	41.9	1,257	34.3	41.6	41.6
Ophthalmology	127	33.6	37.3	48.5	118	33.3	38.3	48.4
Dermatology	100	33.9	59.7	43.2	96	33.7	59.0	43.9
Intensive care medicine	479	34.2	28.8	53.1	404	34.1	30.0	53.3
Rehabilitation medicine	127	35.4	72.5	40.7	112	35.2	74.6	40.7
Radiation oncology	127	32.2	51.7	44.9	124	32.2	52.2	45.2
Other ungrouped	366	40.1	44.5	42.7	223	37.9	51.2	41.8
<i>Ungrouped total</i>	<i>7,171</i>	<i>35.0</i>	<i>49.5</i>	<i>42.9</i>	<i>4,497</i>	<i>34.4</i>	<i>47.3</i>	<i>44.4</i>
Not stated/ inadequately described	208	39.5	46.6	45.1	2,057	34.5	41.5	47.9
Total	13,617	34.3	48.8	45.9	11,887	33.9	46.7	47.4

Source: NHWDS: medical practitioners 2012.

(a) Some respondents used the 2011 form so the number of medical practitioners in a recognised specialist-in-training program is understated.

Note: It was noted in the processing of the specialty questions that some practitioners erroneously chose categories similar to their accredited specialties. For example choosing 'nuclear medicine' in the physician group when they held a nuclear medicine specialty in the radiology group. This possibility should be taken into account when interpreting the above.

'Other physicians' includes: clinical genetics (physician), clinical pharmacology, Immunology and allergy, nuclear medicine (physician) and rheumatology.

'Other surgery' includes: cardio-thoracic surgery, neurosurgery, otolaryngology (head and neck surgery), oral and maxillofacial surgery, paediatric surgery, vascular surgery, specialist surgeon.

'Other radiology' includes: nuclear medicine and diagnostic ultrasound.

'Other obstetrics' and gynaecology includes: gynaecological oncology, maternal-fetal medicine, obstetrics and gynaecological ultrasound, reproductive endocrinology and infertility, and urogynaecology.

'Other paediatrics' includes: clinical genetics, community child health, neonatal and perinatal medicine, paediatric cardiology, paediatric emergency medicine, paediatric endocrinology, paediatric gastroenterology and hepatology, paediatric haematology, paediatric immunology and allergy, paediatric infectious diseases, paediatric intensive care medicine, paediatric medical oncology, paediatric nephrology, paediatric neurology, paediatric palliative medicine, paediatric rehabilitation medicine, paediatric respiratory and sleep medicine, paediatric rheumatology, specialist paediatrician.

'Other pathology' total includes: haematology, general pathology, chemical pathology, immunology, microbiology, forensic pathology and specialist pathologist.

'Other ungrouped' includes: public health medicine, occupational and environmental medicine, medical administration, palliative medicine, sport and exercise medicine, sexual health medicine, addiction medicine, pain medicine.

Table A.3: Employed specialists: selected features, by main specialty of practice, 2012

Main specialty of practice	Specialist Clinician					All Specialists				
	Number	Average age	Aged 55 and over (%)	Women (%)	Average weekly hours worked	Number	Average age	Aged 55 and over (%)	Women (%)	Average weekly hours worked
Cardiology	864	49.0	26.9	11.5	50.8	915	48.7	26.7	12.0	50.4
Endocrinology	387	47.6	27.3	46.7	40.7	438	47.8	28.8	45.4	41.3
Gastroenterology and hepatology	577	48.5	26.8	17.9	46.6	612	48.3	26.4	18.3	46.7
General medicine	636	58.6	65.3	16.0	44.8	692	58.9	66.9	16.4	44.1
Geriatric medicine	405	47.2	21.2	45.4	40.3	427	47.2	21.8	45.6	40.2
Medical oncology	352	45.8	16.2	38.6	47.1	382	45.5	16.2	38.5	47.0
Nephrology	315	47.8	24.9	23.7	46.7	348	47.5	24.0	25.2	46.8
Neurology	378	51.1	39.0	19.9	45.8	408	51.2	38.6	20.0	45.5
Respiratory and sleep medicine	428	48.3	26.8	21.7	47.2	463	48.3	27.6	22.2	47.0
Rheumatology	245	51.3	38.2	35.1	41.9	276	51.2	37.3	35.3	41.6
Other physicians	851	50.7	31.6	28.9	43.7	958	50.6	31.4	29.5	43.6
<i>Physicians total</i>	<i>5,438</i>	<i>50.0</i>	<i>32.3</i>	<i>25.4</i>	<i>45.7</i>	<i>5,918</i>	<i>50.0</i>	<i>32.5</i>	<i>25.8</i>	<i>45.3</i>
General surgery	1,258	52.2	40.6	12.6	49.7	1,319	52.8	42.4	12.4	48.8
Orthopaedic surgery	1,095	51.6	35.6	2.8	48.8	1,131	52.1	37.2	2.8	48.2
Otolaryngology – head and neck surgery	392	52.9	42.1	9.1	45.7	402	53.1	42.7	9.1	45.3
Plastic surgery	362	51.9	35.3	12.9	46.8	367	51.9	35.3	12.7	46.7
Urology	342	49.8	29.9	7.9	48.4	344	49.9	30.3	7.8	48.3
Other surgery	682	51.4	34.2	9.8	49.9	713	51.9	35.5	9.7	49.3
<i>Surgery total</i>	<i>4,131</i>	<i>51.7</i>	<i>37.0</i>	<i>8.8</i>	<i>48.8</i>	<i>4,275</i>	<i>52.2</i>	<i>38.3</i>	<i>8.8</i>	<i>48.1</i>
Diagnostic radiology	1,575	49.9	32.5	24.2	42.0	1,615	50.1	33.2	23.9	41.8
Other Radiology	20	52.4	35.0	30.0	45.1	20	52.4	35.0	30.0	45.1
<i>Radiology total</i>	<i>1,595</i>	<i>49.9</i>	<i>32.5</i>	<i>24.3</i>	<i>42.0</i>	<i>1,635</i>	<i>50.1</i>	<i>33.3</i>	<i>24.0</i>	<i>41.9</i>
Specialist obstetrician and gynaecologist	1,239	52.3	39.1	36.3	47.3	1,272	52.5	39.7	36.2	46.9
Other obstetrics and gynaecology	212	51.3	34.4	40.1	49.3	226	51.7	36.3	39.4	49.7
<i>Obstetrics and gynaecology total</i>	<i>1,451</i>	<i>52.2</i>	<i>38.4</i>	<i>36.8</i>	<i>47.6</i>	<i>1,498</i>	<i>52.4</i>	<i>39.2</i>	<i>36.6</i>	<i>47.3</i>

(continued)

Table A.3 continued: Employed specialists: selected features, by main specialty of practice, 2012

Main specialty of practice	Specialist Clinician					All Specialists				
	Number	Average age	Aged 55 and over (%)	Women (%)	Average weekly hours worked	Number	Average age	Aged 55 and over (%)	Women (%)	Average weekly hours worked
Anatomical pathology	559	49.8	31.1	41.7	41.4	657	50.3	32.6	43.7	41.2
General paediatrics	1,201	50.9	35.3	41.8	43.5	1,283	51.1	36.1	42.3	43.1
Other paediatrics	273	44.4	10.6	45.2	43.8	295	44.6	11.5	45.0	43.4
<i>Paediatrics total</i>	<i>1,474</i>	<i>49.7</i>	<i>30.7</i>	<i>42.4</i>	<i>43.5</i>	<i>1,578</i>	<i>49.9</i>	<i>31.5</i>	<i>42.8</i>	<i>43.2</i>
Other pathology	392	53.7	47.2	34.6	41.4	485	54.2	48.8	34.2	40.7
<i>Pathology total</i>	<i>951</i>	<i>51.4</i>	<i>37.7</i>	<i>38.8</i>	<i>41.4</i>	<i>1,142</i>	<i>51.9</i>	<i>39.5</i>	<i>39.7</i>	<i>41.0</i>
General practice	132	52.2	38.6	34.2	45.2	140	52.1	37.8	34.4	44.8
Anaesthesia	3,477	48.3	27.2	26.2	42.3	3,519	48.3	27.4	26.2	42.2
Psychiatry	2,721	52.5	41.6	35.9	38.6	2,913	52.7	42.0	35.3	38.7
Emergency medicine	1,065	44.8	8.5	29.9	41.5	1,132	45.0	8.9	30.0	41.7
Ophthalmology	813	52.7	38.2	17.7	42.5	832	52.8	38.7	18.1	42.4
Dermatology	416	51.0	35.9	40.3	40.5	424	50.9	35.9	40.5	40.4
Intensive care medicine	470	46.4	16.7	15.5	55.0	494	46.5	17.2	16.2	54.5
Rehabilitation medicine	305	49.6	28.5	40.5	40.1	315	50.0	30.1	40.2	39.8
Radiation oncology	266	46.5	20.1	35.5	44.4	273	46.7	20.6	35.3	44.4
Public health medicine	52	55.2	58.7	44.4	40.1	156	53.9	48.8	43.6	41.1
Other ungrouped	620	53.0	47.1	31.4	40.8	816	53.4	48.1	32.1	41.3
<i>Ungrouped total</i>	<i>10,337</i>	<i>49.8</i>	<i>31.2</i>	<i>29.7</i>	<i>41.7</i>	<i>11,016</i>	<i>50.0</i>	<i>32.0</i>	<i>29.9</i>	<i>41.6</i>
No current specialty	971	42.7	13.8	33.7	43.6	1,086	43.8	17.3	33.4	42.5
Total	26,347	50.1	32.4	26.8	44.1	28,149	50.3	33.2	27.1	43.8

Source: NHWDS: medical practitioners 2012.

'Other physicians' includes: clinical genetics (physician), clinical pharmacology, haematology (physician), immunology and allergy, infectious diseases, nuclear medicine (physician), and specialist physician.

'Other surgery' includes: cardio-thoracic surgery, neurosurgery, oral and maxillofacial surgery, paediatric surgery, vascular surgery, and specialist surgeon.

'Other radiology' includes: nuclear medicine and diagnostic ultrasound.

'Other obstetrics and gynaecology' includes: gynaecological oncology, maternal-fetal medicine, obstetrics and gynaecological ultrasound, reproductive endocrinology and infertility, and urogynaecology.

'Other paediatrics' includes: clinical genetics, community child health, neonatal and perinatal medicine, paediatric cardiology, paediatric emergency medicine, paediatric endocrinology, paediatric gastroenterology and hepatology, paediatric haematology, paediatric immunology and allergy, paediatric infectious diseases, paediatric medical oncology, paediatric nephrology, paediatric neurology, paediatric rehabilitation medicine, paediatric respiratory and sleep medicine, paediatric rheumatology, and specialist paediatrician.

'Other pathology' includes: haematology, general pathology, chemical pathology, immunology, microbiology, forensic pathology, and specialist pathologist.

'Other ungrouped' includes: occupational and environmental medicine, medical administration, palliative medicine, sport and exercise medicine, sexual health medicine, addiction medicine, and pain medicine.

**Table A.4 Twenty most frequent combinations of specialties:
Employed specialists: number 2012**

Combined registered specialties	Number
Haematology (physician) plus haematology (pathology)	251
Anaesthesia plus intensive care medicine	204
General pathology plus anatomical pathology	184
Anaesthesia plus pain medicine	114
General surgery plus vascular surgery	113
Gastroenterology and hepatology (physician) plus general medicine (physician)	99
General medicine (physician) plus geriatric medicine (physician)	99
Diagnostic radiology (radiology) plus nuclear medicine (radiology)	96
General medicine (physician) plus respiratory and sleep medicine (physician)	90
Cardiology(physician) plus general medicine (physician)	88
Endocrinology (physician) plus general medicine (physician)	70
General medicine (physician) plus nephrology (physician)	66
General paediatrics plus neonatal and perinatal medicine (paediatrics)	64
Infectious diseases (physician) plus microbiology (pathology)	59
General medicine (physician) plus rheumatology (physician)	52
Immunology and allergy (physician) plus immunology (pathology)	51
Emergency medicine plus intensive care medicine	46
Psychiatry plus addiction medicine	43
Cardio-thoracic surgery plus general surgery	40
General surgery plus plastic surgery	37
Total employed specialists with more than one specialty	3,861
Total employed specialists	28,149

Source: NHWDS: medical practitioners 2012.

Note: The above counts do not include persons where there are additional combinations that include the specialties mentioned. For example there are a further 30 employed specialists with a combination of haematology (physician) plus general pathology plus haematology (pathology).

Table A.5: Employed medical practitioners: number of and average weekly hours worked, by work setting 2012^(a)

Work setting	Clinicians					Total practitioners				
	Number	Average age	Aged 55 and over (%)	Women (%)	Average weekly hours worked	Number	Average age	Aged 55 and over (%)	Women (%)	Average weekly hours worked
<i>Private practice</i>	34,920	51.4	39.3	34.2	40.9	35,351	51.5	39.5	34.2	40.8
Solo private practice	9,457	56.4	55.6	19.8	45.0	9,638	56.5	55.9	20.0	44.6
Group private practice	24,852	49.5	33.1	39.7	39.5	25,090	49.5	33.2	39.7	39.5
Locum private practice	611	50.7	39.5	32.9	37.6	623	50.7	39.3	32.8	37.5
Aboriginal health service	514	48.0	30.4	51.5	36.7	546	48.1	31.0	51.8	36.7
<i>Community health care services</i>	1,902	45.5	22.9	52.4	37.3	1,983	45.8	23.6	52.0	37.2
Community mental health service	1,100	44.1	17.7	46.9	39.2	1,129	44.2	18.1	46.7	39.2
Community drug and alcohol service	130	50.7	38.9	44.1	35.9	138	51.1	39.6	43.0	35.9
Other community health care service	673	46.8	28.2	63.1	34.3	716	47.2	29.3	62.3	34.1
Hospital	32,439	39.4	11.1	40.5	45.7	33,994	39.7	11.9	40.5	45.5
<i>Residential health care services</i>	260	51.1	40.9	38.1	37.5	269	51.3	41.4	39.9	37.5
Residential aged care facility	129	57.5	60.5	34.6	34.8	134	57.6	60.5	36.3	34.7
Residential mental health care service	131	44.7	21.5	41.7	40.1	135	45.1	22.3	43.4	40.4
Commercial/business services	195	51.0	43.1	27.8	35.4	326	52.3	44.3	27.2	34.5
<i>Educational facility</i>	696	41.5	14.7	33.9	46.5	1,701	47.6	31.5	40.0	41.4
Tertiary educational facility	676	41.3	13.9	33.5	46.7	1,549	47.4	31.1	38.8	42.2
Other educational facility	20	48.6	41.2	46.4	41.9	152	50.2	34.8	52.9	32.4

(continued)

Table A.5 continued: Employed medical practitioners: number of and average weekly hours worked, by work setting 2012^(a)

Work setting	Clinicians					Total practitioners				
	Number	Average age	Aged 55 and over (%)	Women (%)	Average weekly hours worked	Number	Average age	Aged 55 and over (%)	Women (%)	Average weekly hours worked
Correctional services	83	49.2	37.2	33.9	39.6	88	49.6	37.4	34.4	39.6
Defence forces	226	46.9	28.0	32.6	40.5	276	47.1	27.1	33.8	41.3
Other government department or agency	276	50.6	39.2	42.0	38.5	638	52.4	42.2	43.6	38.2
Other	3,745	46.2	27.1	37.3	41.7	4,479	47.5	30.4	37.7	40.8
Total	75,258	45.7	25.8	37.7	42.9	79,653	46.0	26.6	37.9	42.7

(a) Includes school and 'other educational facility'.

Source: NHWDS: medical practitioners 2012.

Appendix B: Explanatory notes on Medical Workforce 2012 data sources

B.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 practise in Australia.

The National Health Workforce Data Set (NHWDS): medical practitioners is a combination of data collected through the registration renewal process for medical practitioners. The majority of medical practitioners are due to renew their registrations on 30 September each year. Limited and provisional registration renewals occur on an anniversary basis, the anniversary of when the individual practitioner last registered/renewed. Medical practitioners can renew their registration either online via the AHPRA website or by using a paper form provided by the AHPRA.

The AIHW then undertakes 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 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 2012*).

B.2 National Registration and Accreditation Scheme registration data

AHPRA provides the AIHW with an extract of registration data at the end of the annual medical practitioner registration renewal process.

Data from annual registration records were merged with the Medical Workforce Survey 2012 data to create a national data set, the NHWDS: medical practitioners 2012.

Between 2008 and 2012, the number of medical practitioners registered in Australia increased by 9,585 (12.2%) (Table B.1).

Table B.1: Registered medical practitioners, by state and territory, 2008 to 2012

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
2008 ^(a)	24,810	19,509	13,928	8,247	6,113	1,846	1,720	1,020	77,193
2008 ^(a)	25,105	19,711	15,235	7,872	6,212	1,793	1,778	964	78,669
2009 ^(a)	25,625	20,648	16,526	8,401	6,470	2,204	1,902	1,120	82,895
2010 ^(b)	26,994	20,437	15,973	7,831	6,669	1,989	1,662	848	84,513
2011 ^{(c)(d)}	27,745	21,084	16,853	8,444	6,795	2,018	1,705	1,041	87,734
2012 ^{(c)(e)}	28,097	21,310	17,091	8,722	6,767	1,970	1,747	1,068	88,254

- (a) Before 2010, the AIHW Medical Labour Force Survey collected state and territory of registration and reported in this table. The survey was administered by individual state and territory health departments or authorities; therefore the estimates above include a factor to remove the effect of medical practitioners who were registered in more than one jurisdiction.
- (b) Derived from state and territory of principal practice where available; otherwise, 'state and territory of main job' is used as a proxy. If principal practice details unavailable, 'state and territory of residence' is used. Records with no information on all three locations are coded to 'not stated'.
- (c) Derived from state and territory of main job where available; otherwise, state and territory of principal practice is used as a proxy. If principal practice details unavailable, state and territory of residence is used. Records with no information on all three locations are coded to 'not stated'.
- (d) 2011 data has been revised due to revisions to specialty allocation.
- (e) From 2012 excludes provisional registrants – 3,250 records in 2012.

Source: AIHW Medical Labour Force Survey, 2008 to 2009; NHWDS: medical practitioners, 2010 to 2012.

Data issues

There is a range of considerations and context relevant to the interpretation of registration data from the NRAS in the NHWDS: medical practitioners 2012 (see the Data Quality Statement at Appendix F).

B.3 Medical Workforce Survey

The Medical Workforce Survey 2012 collected information on the employment characteristics, primary work location and work activity of medical practitioners in Australia who renewed their registration with the Medical Board of Australia via the NRAS. This survey data was then combined with the NRAS registration data to form the NHWDS: medical practitioners 2012.

The estimates published in this report are not always 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. For further information, refer to the Data Quality Statement (Appendix F) and the *Data dictionary: medical practitioners 2012*, available on request from AIHW.

Scope and coverage

The Medical Workforce Survey is undertaken in association with the NRAS registration renewal process. As such, only medical practitioners who are required to renew their registration, receive a questionnaire for completion. New registrants will not receive a survey form. These new medical practitioners will receive a survey form when they first renew their registration.

Estimation procedures

The AIHW uses NRAS registration data collected in tandem with data from the Medical Workforce Survey 2012 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 that 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 at all.

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 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 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.

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 were then imputed. These include 'principal role of main job', 'setting of main job' and 'principal area of main job'.

Many of the hours variables – 'public hospital (inpatients)', 'public hospital (outpatients)', 'public other', 'private rooms', 'private hospital', 'private other', 'clinical', 'non-clinical' and 'total hours worked in medicine the week before the survey' (Questions 8 and 9) – were imputed using a structured randomised hot deck procedure. Clinical and non-clinical hours were adjusted to balance with the total hours for a small number of records. Component categories – 'public hospital (inpatients)', 'public hospital (outpatients)', 'public other', 'private rooms', 'private hospital', 'private other' – were also forced into balance with the clinical hours for a larger number of records. This was because respondents failed to make these six categories add up to the total. There were also a number of respondents who balanced their answers with total hours rather than clinical hours and these have been adjusted on a pro rata basis to balance with clinical hours. For further details are available from AIHW, a data dictionary is available on request.

The new variables: 'clinical hours worked in another regional/remote area' (Question 11) and 'hours worked in the main specialty field' (Question 17) were not imputed or adjusted. The data collected for 'hours worked as a specialist' was subject to a number of reporting problems and preliminary analysis showed a poor level of alignment with the other hours variables in the survey – for example, 11% reported higher hours worked in the main specialty field than in the 'all hours worked' questions.

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 is used to benchmark the survey (Table B.3).

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 2012, all renewing registrants 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 registrants in scope responded to the survey, there is a 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 medical practitioners in each state and territory (based on the location of principal practice), by the derived primary specialty, 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 2012). 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 2012, that is all variables *other* than the derived primary specialty, registration type, 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 2012 was 90.1%; that is, the number of responses to the survey represented 90.1% of registered medical practitioners

(Table B.2). Of these responses, 88.7% completed the 2012 version of the survey online, 0.04% completed the 2011 version of the survey online, 10.5% completed the 2012 version of the survey on paper and 0.8% completed the 2011 version of the survey on paper.

The jurisdiction-based data collection previously 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 B.2: Survey response rate, by state and territory of principal practice, 2008 to 2012

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT ^(a)	Australia
2007 ^(b)	84.3	68.8	64.3	54.2	63.5	59.4	64.9	27.1	69.9
2008 ^(b)	81.7	68.4	65.2	51.6	60.0	59.6	64.5	44.4	68.9
2009 ^(b)	79.1	40.3	31.9	42.8	62.8	46.1	62.5	37.3	53.1
2010 ^{(c)(d)(e)}	73.3	82.7	..	..	81.8	75.2	80.0	69.1	76.6
2011 ^{(d)(e)}	87.7	85.9	83.1	82.5	86.7	84.2	83.6	82.4	85.3
2012 ^{(d)(e)(f)}	91.3	91.4	89.8	84.7	88.3	89.5	90.5	85.1	90.1

(a) The response rate for the Northern Territory is affected by the transient nature of the workforce in that jurisdiction.

(b) Before 2010, the AIHW Medical Labour Force Survey collected state and territory of registration as reported in this table. The survey was administered by individual state and territory boards; therefore, some medical practitioners were registered in more than one jurisdiction and are thus double-counted in this table.

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

(d) 2010 to 2012 data include employed medical practitioners who did not state or adequately describe their state or territory of principal practice and employed medical practitioners who are overseas. Therefore, state and territory totals do not sum to the national total.

(e) Derived from state and territory of principal practice where available; otherwise, state and territory of residence is used as a proxy. If residence details are unavailable, state and territory of main job is used. Records with no information on all three locations are coded to 'not stated'.

(f) From 2012 data excludes provisional registrants who had a response rate of less than 10% – 3,250 records in 2012.

Sources: AIHW Medical Labour Force Survey, 2008, 2008 and 2009; NHWDS: medical practitioners, 2010, 2011 and 2012.

There was a deal of variation in the location data with differences between location of principal practice and place of residence recorded in the registration data, and location of their main job as self-reported by practitioners in the survey. For generating weights, the principal state or territory was derived using their principal practice location, residential address and main job location, in that order. Except where otherwise stated, a derived location was used for tables, based firstly on main job information, then on principal practice location if the main job location was missing, and subsequently on residential address if the principal practice location was also missing.

Table B.3: Medical practitioners: comparison of different location variables, by state and territory, 2012

		NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Other ^(a)	Australia
Employed	Derived (used in tables unless stated otherwise)	25,566	19,621	15,897	7,906	6,296	1,777	1,569	1,008	13	79,653
	Main Job	24,948	19,037	15,387	7,676	6,112	1,727	1,523	975	2,267	79,653
	Principal practice(derived for weights)	25,602	19,842	15,843	7,835	6,365	1,750	1,543	860	13	79,653
	Principal practice(original)	25,565	19,822	15,799	7,819	6,356	1,748	1,544	852	150	79,653
	Residence	20,916	17,824	12,935	6,722	5,402	1,418	1,207	420	12,809	79,653
Registered	Derived (used in tables unless stated otherwise)	28,097	21,310	17,091	8,722	6,767	1,970	1,747	1,068	1,482	88,254
	Main Job	25,450	19,431	15,694	7,853	6,235	1,772	1,559	998	9,262	88,254
	Principal practice(derived for weights)	28,140	21,548	17,038	8,637	6,836	1,943	1,718	912	1,482	88,254
	Principal practice(original)	28,066	21,507	16,981	8,598	6,818	1,940	1,717	903	1,725	88,254
	Residence	22,832	19,117	13,825	7,336	5,752	1,562	1,313	432	16,086	88,254

(a) Other includes 'other territories', 'overseas', 'not stated', 'invalid' and (for state or territory of main job) 'people without a main job'.

Source: NHWDS: medical practitioners 2012.

Data issues

A number of data issues need to be considered when interpreting medical workforce survey data in the NHWDS: medical practitioners 2012. These issues are outlined in this section.

Sample

The NHWDS: medical practitioners will be produced annually during the national registration renewal process, conducted from early August to 30 September (the renewal date) each year. While the reference time is notionally the renewal date, legislation allows for a one month late period beyond the registration expiry date. Thus the official registration closure date is one month after the renewal date. For completeness purposes a further two weeks are allowed for mail and data entry delays. As a result, for maximum completeness, the extraction of data (the extraction date) is at a point in time a month and a half after the renewal date. Ages are calculated as at the official registration closure date.

Practitioners with limited registration are due for renewal on the anniversary of their first registration and can thus renew and complete a survey at any time throughout the year.

Survey design

In 2012, 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. However survey answers were restricted by entry type, so for example only numbers between 0 and 125 could be selected for questions relating to hours. This was a significant improvement on the 2010 survey where many fields were free form text.

The order of the response categories to the 'reason not working in medicine in Australia' question appears to be an issue. The question offers the response option 'retired from regular work' after 'not working in paid employment at all', which may not be logical because medical practitioners may be retired but still work irregularly (for example, as an occasional locum). On this basis, the response option 'retired from regular work' should appear before 'not working in paid employment at all'. The issue with the order in the 2012 survey questionnaire is that it may lead to an undercount of those retired from regular work and an over-representation of those not working in paid employment.

In Question 16 and Question 21, which related to collecting 'specialty field of practice' and 'specialty field of study', the paper survey allowed only a single response while the online survey allowed a single response to be picked from each of seven possible drop-down lists. As a result, many respondents using the online form picked combinations such as 'haematology' from the physician list and as well as 'haematology' from the pathology list, while the paper form only allowed respondents to choose one.

Other variations between the online and paper surveys have resulted in only minor data issues for some questions. One minor difference, unlikely to cause compatibility issues between online and paper forms this year, was in Question 11 'As part of your main job, do you also work in a(nother) regional, remote or rural location?' The online answer was 'Yes. Provide the location details below' while the paper-form response was 'Yes. Provide the location below'.

(See 'B.4: 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. In 2012 these were largely restricted to the paper survey forms. 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, 4-digit codes resembling postcodes and even complete street addresses. These issues are complicated where people reported inconsistent combinations of working in particular Australian states, postcodes similar to Australian postcodes, and suburbs that were clearly not in Australia – for example, in Auckland, New Zealand. Where state and postcode information did not agree, the suburb was used to look up a postcode and this was used to decide which of the two were more likely to be correct. Apparent overseas locations had their postcode manually set to 9998.

Issues with the online survey such as sequencing and allowing invalid values will continue to be improved in future iterations of the data collection. Similarly, the layout of paper forms have been updated to include, for example, 3 small square boxes to report hours in rather than a long box with enough room for longer entries.

B.4 Comparison with previous AIHW Medical Labour Force Survey data

Differences between the 2012 questionnaire and surveys in previous years

The following data items collected in the 2012 Medical Workforce 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 before 2010 in the AIHW Medical Labour Force Survey. Some jurisdictions collected temporary resident status, but not visa category number.

The Medical Workforce Survey 2012 collected temporary resident status and visa category number from medical practitioners in both the online and paper forms. In 2011 and previously, the online version of the question did not ask respondents to answer whether or not they were a temporary resident, but only to enter their visa category number if they self-identified as a temporary resident. The paper form, however, asked 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. There was also a significant amount of reporting of permanent visa category numbers in response to this question.

Questions 5 to 7—Employment

The three employment-related questions in the Medical Workforce Survey from 2010 to 2012 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 current questions have been grouped and sequenced logically: the first question relates to the working status of the medical practitioner, followed by the reason if they are not working in medicine in Australia, and then whether or not they are looking for work in medicine.

The current questions in the Medical Workforce Survey 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 1 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 9—‘Clinical hours worked in each sector of medicine’

Previously the most similar question in the survey asked for a split between public and private sector hours. This question has been amended to include details for six separate response categories: ‘private hospitals’, ‘private rooms’, ‘private other’, ‘public hospitals (inpatients)’, ‘public hospitals (outpatients)’ and ‘public other’. The question also limited the question to clinical hours only. This question also has implications for Question 14 (work setting of main job) where the split between ‘hospital outpatient’ and ‘hospital other’ was discarded, with only a single ‘Hospital’ category being in the response pick list. The

responses to this question required a significant amount of cleaning. Many respondents reported hours to these variables that balanced with total hours rather than clinical hours. However, as most respondents only worked clinical hours, this was less of a problem than it might have been. There were also a significant number of respondents who were unable to make their responses to this question add up to either their total hours or their clinical hours. For the most part this was probably due to rounding as many responses were within a narrow range of the appropriate total.

Question 11—‘Location of main job in medicine’

In this new question, respondents were asked to identify the main location where they also worked in a(nother) regional, rural or remote location and the hours worked there.

Question 12—Principal role of main job in medicine

Supplementary explanation was added to the ‘clinician’ and ‘administrator’ categories that was not included in the 2011 survey:

- Clinician (*including managers also providing clinical services*)
- Administrator (*including managers not providing clinical services*).

Question 13—‘Principal area of main job in medicine’

The question response options used before 2010 in the AIHW Medical Labour Force Survey were different from those used in the 2012 Medical Workforce Survey.

Supplementary explanation was added to the ‘specialist’ category that was not included in the 2011 survey: ‘Specialist (other than GP)’.

Question 14—‘Work setting of main job in medicine’

Work setting response categories in the 2012 survey are similar to those collected by the AIHW Medical Labour Force Survey before 2010. However, the 2012 response categories are more detailed and directed towards service provision; for example, the 2012 survey has three categories of private practice (‘solo private practice’, ‘group private practice’ and ‘locum private practice’) compared with only one in the pre-2010 AIHW Medical Labour Force Survey. Another example of improvement is the option to collect three educational workplaces (‘tertiary educational facility’, ‘school’ and ‘other education facility’) in the 2012 survey, compared with only one in the AIHW Medical Labour Force Survey.

As stated above’ the distinction between ‘hospital outpatient’ and ‘hospital other’ was discarded in the 2012 survey with only a single ‘hospital’ category included in the response list.

Question 15 and 16—Specialist registrations

Questions 15 and 16 were introduced to help identify the main specialty that specialists were practicing in to allow the allocation of a primary specialty of practice. As stated above the online and paper versions of the survey were different. The paper survey only allowed a single response while the online survey allowed a single response to be picked from each of seven drop-down lists. As a result, many respondents completing the online form picked combinations such as ‘haematology’ from the physician list as well as ‘haematology’ from the pathology list, while the paper form only allowed respondents to choose one.

These questions allowed all 84 possible legally recognised specialties while the 2009 version of the survey had 55 categories, not all of them legally defined. For example: obstetricians and gynaecologists are now divided into ‘gynaecological oncology’, ‘maternal-fetal medicine’, ‘obstetrics and gynaecological ultrasound’, ‘reproductive endocrinology and infertility’, ‘urogynaecology’ and ‘specialist obstetrician and gynaecologist’, which are the legally recognised specialties. In the 2009 survey the categories in the survey were obstetrics and gynaecology, obstetrics only, and gynaecology only, which are not legally defined.

Question 17—‘Clinical hours worked in main specialty’

This questions asked specialists to report the number of clinical hours worked in their specialty using the same response categories as for Question 9: ‘private hospitals’, ‘private rooms’, ‘private other’, ‘public hospitals (inpatients)’, ‘public hospitals (outpatients)’ and ‘public other’. Unfortunately the responses to this question did not align well with the answers to Question 9, with a significant minority of respondents reporting more hours in this question than in the preceding question, when it seems apparent that the clinical hours worked as a specialist should be less than or equal to the number of clinical hours in total.

Questions 18 to 21—Specialists-in-training.

These questions on specialty of training have been reinstated in the survey. The categories match the specialists categories currently collected (just as the categories in the 2009 survey matched the specialist categories collected in that survey). The online and paper surveys also had the same difference in reporting categories as the specialty question, with the paper survey having space for a single response while the online survey allowed a single response to be picked from each of seven drop-down lists. There are also some new questions on the year training was commenced and the ‘year of training’.

Question 22—‘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 23—‘Number of years practitioner intends to remain in the medical workforce’

‘Number of years a medical 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 C: 2012 medical practitioner registration numbers from the Australian Health Practitioner Regulation Agency

Numbers of registrations from the Australian Health Practitioner Regulation Agency are contained in Table C.1 for comparison purposes.

Table C.1: Registered practitioners by profession: principal place of practice and registration type, reported by the Australian Health Practitioner Regulation Agency, 30 September 2012

Registration type	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Not stated	Australia
	Number									
General registrations	8,419	6,438	5,464	2,370	1,920	506	527	350	633	26,627
General and Specialist registrations	15,576	12,096	8,336	3,984	3,885	1,044	876	342	511	46,650
Limited registrations (including public interest — occasional practice)	2,245	1,270	1,362	1,248	528	178	137	124	38	7,130
Non-practising registrations	582	504	221	189	139	33	35	5	707	2,415
Provisional registrations	961	783	716	315	273	75	70	47	5	3,245
Specialist registrations	1,401	1,294	1,716	899	430	191	127	94	284	6,436
Total registrations	29,184	22,385	17,815	9,005	7,175	2,027	1,772	962	2,178	92,503
	Percentage of total registrations									
General registrations	28.8	28.8	30.7	26.3	26.8	25.0	29.7	36.4	29.1	28.8
General and Specialist registrations	53.4	54.0	46.8	44.2	54.1	51.5	49.4	35.6	23.5	50.4
Limited registrations (including public interest — occasional practice)	7.7	5.7	7.6	13.9	7.4	8.8	7.7	12.9	1.7	7.7
Non-practising registrations	2.0	2.3	1.2	2.1	1.9	1.6	2.0	0.5	32.5	2.6
Provisional registrations	3.3	3.5	4.0	3.5	3.8	3.7	4.0	4.9	0.2	3.5
Specialist registrations	4.8	5.8	9.6	10.0	6.0	9.4	7.2	9.8	13.0	7.0
Total registrations	100	100	100	100	100	100	100	100	100	100

Source: AHPRA 2012.

Appendix D: Additional information available from the AIHW website

Tables

In addition to the tables in this report, more detailed tabulations from the Medical Workforce Survey 2012 are published on the AIHW website <<http://www.aihw.gov.au/workforce-publications/>> (select link to *Medical workforce 2012*).

Workforce Survey questionnaire

The questionnaire used in the Medical Workforce Survey 2012 is available from the AIHW website <<http://www.aihw.gov.au/workforce-publications/>> (select link to *Medical workforce 2012*).

Data Quality Statement: NHWDS: medical practitioners 2012

A full description of the data quality of the data set is contained in 'Appendix F: Data Quality Statement: National Health Workforce Data Set: medical practitioners 2012' or available from the AIHW's Meteor website at <<http://meteor.aihw.gov.au>>.

Appendix E: 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 (ABS). The estimates are as at 30 June for each year and based on the 2011 Census of Population and Housing adjusted for population flows, including births, deaths, net migration, short-term travellers to Australia and absences from Australia.

These figures are used to derive population and FTE rates in tables 3.2, 3.3, 3.6, 4.1, 5.1–5.6, and A.1 and in Figures 5.1 and 5.2.

Table E.1: Population estimates at 30 June: by remoteness area, by state and territory, 2008 to 2012

Remoteness Area	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia ^(a)
2008									
Major cities	5,107,881	3,976,629	2,596,788	1,651,846	1,158,970	..	347,876	..	14,839,990
Inner regional	1,358,406	1,029,931	863,106	193,417	168,947	325,472	492	..	3,940,141
Outer regional	438,057	244,902	626,646	176,221	201,593	161,844	..	121,210	1,970,473
Remote	30,662	4,913	76,757	94,847	44,693	8,695	..	46,749	307,316
Very remote ^(b)	8,455	..	56,208	55,369	14,462	2,557	..	51,915	191,279
Total	6,943,461	5,256,375	4,219,505	2,171,700	1,588,665	498,568	348,368	219,874	21,249,199
2009									
Major cities	5,199,864	4,077,255	2,669,132	1,706,996	1,175,640	..	354,266	..	15,183,153
Inner regional	1,374,502	1,044,258	884,321	200,099	171,992	329,558	519	..	4,005,616
Outer regional	440,229	245,560	641,253	178,802	201,796	163,617	..	125,315	1,996,572
Remote	30,742	4,861	77,182	96,141	44,909	8,657	..	47,856	310,348
Very remote ^(b)	8,418	..	56,883	58,212	14,565	2,521	..	52,856	195,964
Total	7,053,755	5,371,934	4,328,771	2,240,250	1,608,902	504,353	354,785	226,027	21,691,653
2010									
Major cities	5,272,006	4,151,390	2,720,602	1,747,535	1,190,175	..	361,187	..	15,442,895
Inner regional	1,390,676	1,059,274	898,003	205,605	175,167	332,918	579	..	4,062,597
Outer regional	442,435	245,605	650,952	179,986	202,148	164,819	..	127,829	2,013,774
Remote	30,743	4,832	77,543	97,243	45,071	8,615	..	48,524	312,571
Very remote ^(b)	8,432	..	57,644	60,476	14,761	2,495	..	53,425	199,913
Total	7,144,292	5,461,101	4,404,744	2,290,845	1,627,322	508,847	361,766	229,778	22,031,750

(continued)

Table E.1 (continued): Population estimates at 30 June: by remoteness area, by state and territory, 2008 to 2012

Remoteness Area	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia ^(a)
2011									
Major cities	5,327,695	4,214,469	2,767,344	1,797,336	1,199,324	..	367,144	..	15,673,312
Inner regional	1,401,348	1,070,317	907,773	209,612	177,128	334,969	608	..	4,102,142
Outer regional	443,112	244,962	661,086	181,414	201,543	165,317	..	129,062	2,026,496
Remote	30,762	4,778	78,615	99,396	45,176	8,459	..	48,512	315,698
Very remote ^(b)	8,551	..	59,280	64,457	15,061	2,450	..	53,757	206,285
Total^(c)	7,218,529	5,537,817	4,476,778	2,353,409	1,639,614	511,483	367,985	231,292	22,340,024
2012									
Major cities	5,395,212	4,291,705	2,824,102	1,860,348	1,212,757	..	373,993	..	15,958,117
Inner regional	1,411,527	1,081,461	923,908	217,334	179,258	335,731	665	..	4,150,274
Outer regional	444,247	245,596	672,561	184,642	202,178	165,510	..	131,678	2,046,412
Remote	30,808	4,730	79,900	101,699	45,468	8,368	..	48,878	319,851
Very remote ^(b)	8,551	..	59,588	66,229	15,117	2,410	..	54,280	208,919
Total^(c)	7,301,134	5,629,122	4,565,529	2,432,706	1,656,299	512,333	374,912	235,182	22,710,352

(a) Includes 'other territories'.

(b) Includes *Migratory*.

(c) Final remoteness area population estimates were unavailable from the ABS when this report was prepared; therefore, estimates are preliminary. As a result, totals for states and territories may not equal to the sum of the remoteness area categories.

Source: Unpublished ABS estimated resident population data based on 2011 Census.

Appendix F: Data Quality Statement

National Health Workforce Data Set: medical practitioners 2012

Summary of key issues

The National Health Workforce Data Set (NHWDS): medical practitioners 2012 contains information on the demographics, employment characteristics, primary work location and work activity of all medical practitioners in Australia who renewed their medical registration with the Medical Board of Australia via the National Registration and Accreditation Scheme (NRAS) introduced on 1 July 2010.

This is the third publication on medical practitioners from the new national registration scheme. The data set comprises registration (including demographic) information provided by the Australian Health Practitioner Regulation Agency (AHPRA) and workforce details obtained by the Medical Workforce Survey. The survey instrument varies significantly in some aspects from previous years, but is now nationally consistent. The NHWDS: medical practitioners 2012 is also more complete than the NHWDS: medical practitioners 2010.

The major issues with data quality for the NHWDS: medical practitioners 2012 include:

- The data are not directly comparable to those collected in the previous (2009 and earlier) AIHW Medical Labour Force Surveys due to changes in methods and scope, including the change in the method of determining the state of practitioners' main job in medicine.
- The registration data previously published in *Medical workforce 2010*, were found to be under-enumerated, so comparisons should be made with caution. The NHWDS: medical practitioners 2010 data have been revised and included in this publication.
- The classification of specialist providers used for data previously published in *Medical workforce 2011*, have been updated for this publication, so comparisons should be made with caution. The NHWDS: medical practitioners 2011 data have been revised and included in this publication.
- Methodological changes, and in particular the inclusion of registration type and an updated specialty classification, mean that some estimates may be affected by changes to the methodology between the NHWDS: medical practitioners 2011 derivation and the NHWDS: medical practitioners 2012 derivation.
- The NHWDS: medical practitioners 2010 did not include Queensland and Western Australia for tables related to employed practitioners, so comparisons involving 2010 data should be made with caution. Queensland and Western Australian employed practitioners were excluded from the data due to non-alignment of renewal cycles in the transition to the National Scheme, and for Western Australia, the later date of commencement of the National Scheme.

Description

The NHWDS: medical practitioners 2012 is a combination of data collected through the medical practitioner registration renewal process.

Medical practitioners are required to renew their registration with the Medical Board of Australia through the NRAS, either 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. Limited and provisional registration renewals are done using paper forms. This information is referred to as 'registration data'. The majority of medical practitioners are due to renew their registrations on 30 September each year. Limited and provisional registration renewals occur on an anniversary basis. This is the anniversary of when the individual practitioner last registered/renewed. Apart from limited and provisional registrations, medical practitioners can renew their registration either online via the AHPRA website or by using a paper form provided by the AHPRA. Data collected at renewal include demographic information such as age, sex and country of birth; and details of health qualification(s) and registration status (see <http://www.medicalboard.gov.au/Registration/Types.aspx> and select link to *Registration type* and then *Registration form*).

Online surveys

When medical practitioners renew their registration online they are also asked to complete an online version of the Medical Workforce Survey 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/> and select link to *Medical workforce 2012*). Limited and provisional registrants – excluding 'limited (public interest - occasional practice) – receive only paper surveys. 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.

Paper-form surveys

When medical practitioners renew their registration on a paper form they are also asked to complete a paper version of the Medical Workforce Survey questionnaire. The paper registration and survey forms are sent back to AHPRA, where the paper registration forms are scanned and 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 AIHW for merging with the online survey forms 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, containing information sourced from registration data and workforce survey data.

Institutional environment

The Australian Institute of Health and Welfare (AIHW) is a major national agency set up by the Australian Government under the *Australian Institute of Health and Welfare Act 1987* to provide reliable, regular and relevant information and statistics on Australia's health and welfare. It is an independent statutory authority established in 1987, governed by a management board, and accountable to the Australian Parliament through the Health portfolio.

The AIHW aims to improve the health and wellbeing of Australians through better health and welfare information and statistics. It collects and reports information on a wide range of topics and issues, ranging from health and welfare expenditure, hospitals, disease and injury, and mental health, to ageing, homelessness, disability and child protection.

The Institute also plays a role in developing and maintaining national metadata standards. This work contributes to improving the quality and consistency of national health and welfare statistics. The Institute works closely with governments and non-government organisations to achieve greater adherence to these standards in administrative data collections to promote national consistency and comparability of data and reporting.

One of the main functions of the AIHW is to work with the states and territories to improve the quality of administrative data and, where possible, to compile national datasets based on data from each jurisdiction, to analyse these data sets and to disseminate information and statistics.

The *Australian Institute of Health and Welfare Act 1987*, in conjunction with compliance to the *Privacy Act 1988* (Cth), ensures that the data collections managed by the AIHW are kept securely and under the strictest conditions with respect to privacy and confidentiality. For further information see the AIHW website <<http://www.aihw.gov.au>>.

The AIHW receives registration (including demographic) information on medical practitioners via the mandatory national registration process administered by AHPRA and the voluntary Medical Workforce Survey data collected at the time of registration renewal. The registration and workforce survey data are combined, cleansed and adjusted for non-response to form a national data set known as NHWDS: medical practitioners 2012. AIHW is the data custodian of the NHWDS: medical practitioners 2012.

Timeliness

The NHWDS: medical practitioners is produced annually from the national registration renewal process, conducted from early August to 30 September each year.

The Medical Workforce Survey will also be collected between 1 July and 30 September, as it is administered as part of the registration renewal process. The exceptions to this timetable are in relation to limited and provisional registrations, where registrants are renewed on the anniversary of their commencement. These responses are included with the regular survey respondents.

Due to significant delays with finalisation of data extraction from the new national registration system, complete and final data were provided to AIHW much later than originally scheduled. Initial data provided needed joint reviews by AHPRA, AIHW and HWA to manage the range of considerations and data quality issues described in this publication. This review process improved data quality, data definitions, metadata and data cleansing and led to improvements in AHPRA's extracting scripts to provide consistency in data exchange specifications. While it delayed the supply of data, it improved the overall quality. AIHW expected to receive both the registration and workforce survey data simultaneously at the end of December 2012. Due to the factors above, the AIHW received complete useable registration and workforce survey data from AHPRA in July 2013. AHPRA have indicated that future data provision is anticipated to be timely and provided six weeks from the close of registration on 30 September. A last-minute delay by HWA in reprocessing paper form data after problems were found also contributed to delaying this publication.

Delays in processing and reporting on the earlier NHWDS: medical practitioners 2010 and 2011, NHWDS: allied health 2011 and 2012 and NHWDS: nurses and midwives 2011, also contributed to AIHW delays in reporting the 2012 data and releasing the *Medical Practitioner Workforce 2012* report.

Accessibility

Results from the NHWDS: medical practitioners 2012 are published in the *Medical workforce 2012* report. The report, workforce survey questionnaire, user guide to the data set and additional detailed tables are available on the AIHW website at <http://www.aihw.gov.au/workforce-publications/> (select link to *Medical workforce 2012*).

Users can request data not available online or in reports via the Communications, Media and Marketing Unit on (02) 6244 1032 or via email to info@aihw.gov.au. Requests that take longer than half an hour to compile are charged for on a cost-recovery basis. Access to the master unit record file may be requested through the AIHW Ethics Committee.

Interpretability

Information to aid in the interpretation of the NHWDS: medical practitioners 2012 may be found in Appendix B of the *Medical Workforce 2012* report. The report is based on this data set. See 'Accessibility' for details.

Relevance

Scope and coverage

The NHWDS: medical practitioners 2012 contains registration details of all registered medical practitioners in Australia at 30 September 2012.

Medical practitioners are required by law to be registered with the Medical Board of Australia and must complete the formal registration renewal form(s) to practise in Australia. This is the compulsory component of the renewal process.

The Medical Workforce Survey is voluntary and only practitioners who are on the register at the time of the survey and required to renew their registration receive a questionnaire for completion. New registrants registering outside the registration renewal period will not receive a survey form. These practitioners will receive a survey form when they renew their registration the following year, during the registration renewal period.

Accuracy

Response rates and mode

The NHWDS: medical practitioners 2012 contains registration details of all registered medical practitioners in Australia at 30 September 2012.

The data set also contains workforce information for registered medical practitioners who completed the Medical Workforce Survey. The overall response rate to the 2012 survey was 90.1%. That is, the number of responses to the survey represented 90.1% of registered medical practitioners. Of these responses, 88.7% completed the 2012 version of the survey online, 0.04% completed the 2011 version of the survey online, 10.5% completed the 2012 version of the survey on paper and 0.8% completed the 2011 version of the survey on paper.

Registration data from the NRAS

Some data items collected as part of the previous AIHW Medical Labour Force Survey, such as date of birth, sex and specialty of practice, are now data items included as part of the

registration and renewal process. However, the data for some of these items are incomplete due to the data being migrated from previous jurisdictional registration systems.

There were a number of data items which had incomplete responses. This included small numbers of responses to questions on sex and state and territory of principal practice, which are items used in the survey estimation process. Missing values were imputed for the question about the practitioner's sex. Many medical practitioners who are overseas could not be identified by the registration process and they have been included with practitioners whose state or territory of principal practice could not be determined. Therefore, the missing values cannot be imputed, which affects the weighting method.

The NRAS allows a medical practitioner to record more than one specialty, with up to seven specialties recorded in 2012. However, the National Law does not require or enable practitioners to identify their primary speciality. In 2012 this was addressed by the addition of a survey question that allowed practitioners to identify a main sub-specialty of practice. However there were a number of issues with respondents making apparent errors in reporting their specialties on the survey form, multiple responses being allowed to the question and the allocation of primary specialties for non-respondents. To address these issues AIHW have allocated a primary specialty based on the survey responses and the recorded set of specialties held by each medical practitioner.

Some data items such as citizenship and residency status contain only migrated data and, because they are not required for registration purposes, may not be updated.

For a large number of practitioners, country of birth and country of initial qualification data could not be mapped to the Standard Australian Classification of Countries (SACC). These records were coded to 'not stated' or inadequately described. Work continues in the significant task of re-processing qualifications data to provide more structured information. For example, current records may have 'MBBS USyd.' as the practitioner's qualification, with fields for qualifying institution and qualifying country left blank. Similarly, qualifications are not currently categorised as to which are relevant to the profession, so, for example, practitioners registered as both 'physiotherapists' and 'medical practitioners' will have both sets of qualifications on the database, with no structured way to extract date of first qualification or country of first qualification for the registration in question. In 2012 this was addressed by the addition of a survey question that allowed practitioners to identify a country of first medical qualification and a country of first specialist qualification. This report includes data from the responses to these survey questions.

A small number of invalid values and formats for date of birth and year of initial qualification appeared in the registration data collected by the NRAS (for example, system-generated dates such as 1 January 1900).

Workforce Survey 2012 sample

All registered medical practitioners are provided a form upon renewal of their registration each year. Some initial registrants may not receive a survey if they are not required to renew within the target period.

Workforce Survey 2012 design

In 2012, 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. This resulted in a number of inconsistent responses. For instance, respondents not

correctly following the sequencing instructions for the employment questions may be assigned to an incorrect workforce status or not assigned a status, due to incomplete data.

The order of the response categories for the 'reason not working in medicine in Australia' question appears to be an issue. The question offers the response option 'retired from regular work' after 'not working in paid employment at all', which may not be logical as practitioners may be retired but still work irregularly (for example, as an occasional locum). On this basis, the response option 'retired from regular work' should appear before 'not working in paid employment at all'. The issue with the order in the 2012 survey questionnaire is that it may lead to an undercount of those retired from regular work and an over-representation of those not working in paid employment.

Variation between the online and paper surveys has provided additional data quality issues for a number of questions. For example, 'state of main job' included the category 'other territories' on the paper form while the same response category in the online form was simply 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, 'state/territory of principal practice' and residence data items do not include the categories 'other territories' or 'other'.

Inconsistencies between workforce survey and registration data

There were a number of inconsistencies between the data sourced from the NRAS and the workforce survey data.

In the survey, a number of medical practitioners self-reported the principal area in their main job as 'specialist' but had no accredited specialty in their registration details or were accredited as general practitioners only. A number of these practitioners were found upon closer inspection to have overseas specialist qualifications with limited registration status and also to have answered 'specialist-in-training' questions. Under the National Law, specialist registration is available only to medical practitioners who have been assessed by an Australian Medical Council accredited specialist college as being eligible for fellowship. Fellowship is not a pre-requisite for specialist registration. The Ministerial Council has approved a list of specialties, fields of specialty practice and specialist titles.

The 'location of principal practice' recorded in the registration data was often different from the corresponding details of practitioners' main job as self-reported in the survey. Given that 14.4% more medical practitioners have the Northern Territory as their state of main job in the week before the survey than have it as their principal practice location on the AHPRA database, this probably reflects temporary movement.

The decision was therefore taken to use a derived location based firstly on 'main job' information, then on 'principal practice location' if the main job location was missing, and subsequently on residential address if the principal practice location was also missing. This derived state/territory of main job is used in all tables except where otherwise stated. As a consequence of this methodology, medical practitioners who were working overseas but maintained an Australian contact address have been allocated in state tables to the state where that contact address was, though the majority of them remained classified as 'overseas'.

For generating weights, the principal state was derived using principal practice location, residential address and main job location, in that order.

Structure and format of data items

Due to unstructured data entry formats, a number of items in the NHWDS: medical practitioners 2012 which 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, 'postcode of principal practice' contained values other than valid post codes, such as text strings and overseas postal identifiers. Conversely, 'suburb of main job' information often contained invalid suburb names, 4-digit codes resembling postcodes and even complete street addresses. These issues are complicated where people reported inconsistent combinations of working in particular Australian states, postcodes similar to Australian postcodes, and suburbs that were clearly not in Australia – for example, in Auckland, New Zealand. Where state and postcode information did not agree, the suburb was used to look up a postcode and this was used to decide which of the two were more likely to be correct. Overseas locations had their postcode manually set to 9998 for statistical purposes.

Coherence

Workforce Survey 2012 – coherence with previous data

AIHW published *Medical workforce 2010* on 28 March 2012, which was the first release of data derived from the new NRAS. *Medical workforce 2011* was published on 23 January 2013.

Previously published data for 2011 and 2010 included provisional registrants in the benchmarks as they were not separately weighted or identified in analysis. As a result, growth between 2011 and 2012 is understated by the order of 3.6%. There were very few other changes between the Medical Workforce Survey data for 2011 and 2012 so data are considered comparable.

There were many issues with the 2010 survey data, especially multiple supplies and revisions to the scope of data as well as the lack of data from Queensland and Western Australia. Queensland and Western Australia were consequently removed from the workforce tables in the 2010 publication.

Due to the above issues, this publication makes only minimal comparisons between the 2010 and later data.

Medical labour force data published by the AIHW before the establishment of the NRAS was the result of collated jurisdiction-level occupation-specific surveys. The Medical Workforce Survey from 2010 to 2012, collect similar data items to the 2009 and earlier surveys; however, 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 Surveys from 2010 to 2012 are also different to that of the previous surveys because in some jurisdictions not all types of registered medical practitioners were sent a survey form.

Date of birth, country of initial qualification, specialty of practice and sex are some data items previously collected by the AIHW Medical Labour Force Survey, but now collected by the NRAS. However, data for some of these items are either incomplete or inaccurate (see 'Accuracy').

Speciality of practice, from 2010 to 2012, was extracted at the time of registration renewal by the NRAS from their database of legally recognised specialties. Before 2010, main specialty of practice information was self-reported from a set of statistical categories by registered medical practitioners in the AIHW Medical Labour Force Survey.

However, the NRAS does not identify main specialty. There have also been significant changes in the classification of categories of specialty of practice used in the NHWDS: medical practitioners from 2010 to 2012 compared with that used in the previous AIHW Medical Labour Force Survey reports. There are 84 valid legally-defined specialties and subspecialties in the NHWDS: medical practitioners, (for example: 'cardiologist (physician)' and 'general practice'), while there were over 50 specialties published in the previous AIHW Medical Labour Force Survey reports.

A new question was included in the 2012 survey to allow a primary specialty to be derived at the detailed level. Primary specialties in the 2010 and 2011 were derived using their recorded specialties and information from the AIHW Medical Labour Force Survey 2009.

Thus, comparison of 2012 specialty data with results from earlier surveys should be treated with caution.

Some jurisdictions collected temporary resident status but temporary resident status was not collected on a national basis before 2010 in the AIHW Medical Labour Force Survey. Visa category number was not collected in prior years.

The three employment-related questions in the Medical Workforce Survey 2010 to 2012 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. However, 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 this additional explanation may have avoided confusion for medical practitioners who worked in medicine during the survey reference week but in a voluntary capacity.

A change in the response options for the question about 'principal area of main job in medicine', from 'GP/primary care practitioner' before 2010 to 'general practitioner' 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.

In 2011 the online question about 'principal area of main job in medicine' included the term 'hospital non-specialist (salaried)' as a response category while the paper form included the term 'hospital non-specialist'. In 2012 only the term 'hospital non-specialist' was used on both forms. This may also have led to the observed increase in responses in the 'other clinician' category in 2011.

Work setting response categories in the current survey are similar to those before 2010. The current categories are more detailed and directed towards service provision; for example, there are three categories of private practice ('solo', 'group' and 'locum') compared with only one available before 2010. While in 2010 and 2011 the survey form provided a distinction between 'outpatient' and 'other hospital' settings, the 2012 question includes only 'hospital'

as a response category. In 2012, further information on hospital work settings was collected as part of the sector question where a more detailed split was included.

Response options for the 'hours worked by sector' question were restricted in 2012 to clinical hours only, whereas the equivalent question in 2011 was a split by total hours. The 2012 version of the question was also expanded to include categories for clinical hours worked in 'private rooms', 'private hospital', 'private other', 'public hospital (inpatients)', 'public hospital (outpatients) and 'public other'.

'Number of years worked in medicine in Australia' was not collected by the AIHW Medical Labour Force Survey on a national basis before 2010. A small number of jurisdictions collected this information previously as part of their survey questionnaires, but it is now included for all respondents.

Due to the differences in data collection methods, including survey design and questionnaire, it is recommended that comparisons between workforce data in the NHWDS: medical practitioners 2012 and AIHW Labour Force Survey data before 2010 be made with caution.

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 2012, responses were weighted to the number of registered medical practitioners in each state and territory by main specialty of practice, registration type (grouped), sex and age group. These numbers are referred to as 'benchmarks' throughout this report. Due to scope and reporting time differences they may not be equivalent to those reported in the Australian Health Practitioner Regulation Agency 2011-12 annual report.

Clinician: Medical practitioners who spend most of their total weekly working hours engaged in clinical practice (that is, in diagnosis and/or treatment of patients including recommending preventive action) are classified as 'clinicians'. For this report the term 'clinician' includes those medical practitioners who answered that their principal role in their main job in medicine was 'clinician'. The term includes:

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

Employed medical practitioner: A medical practitioner who reported working 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 for the majority of the time. Medical fields are divided into **clinicians** and **non-clinicians**.

Full-time equivalent (FTE) number: The 'FTE number' measures the number of standard-hour workloads worked by employed medical practitioners. (In this report, the 'standard working week' is assumed to be 40 hours, equivalent to 1 FTE.) The FTE number 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.

From 2011, the FTE number is calculated by dividing the total hours worked by the 'standard working week'. For earlier years (because missing hours were not imputed), the FTE number is calculated as the number of employed medical practitioners in a particular category multiplied by the average weekly hours worked by employed medical practitioners in the category, divided by the standard working week hours.

Full-time equivalent (FTE) rate: The FTE rate (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: For the purposes of the Medical Workforce Survey 2012, medical practitioners can 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 reported being employed in this area of clinical practice at the time of the survey (in 'primary' or 'general' care). In this report, the 2008 data on primary care practitioners include general practitioners.

General registration: General registration is granted to medical practitioners who have fulfilled the eligibility and suitability requirements set out in the National Law and who meet the registration standards set by the Medical Board of Australia. It permits the individual to take and use the title 'medical practitioner' and to practise unsupervised in their field, subject to any restrictions that may have been imposed on their registration.

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. The category includes interns, resident medical officers, career medical officers and other salaried hospital practitioners. They are self-identified on the Medical Workforce Survey 2012.

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

In this report, the ABS definition has been used for the cut-off for full-time and part-time work:

- full-time work: 35 hours or more per week
- part-time work: less than 35 hours per week.

For data before 2010, employed respondents whose hours worked were 'not stated' are excluded from the calculation. However, from 2010 onwards, average weekly hours worked were imputed where missing or invalid.

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 in the jurisdiction by providing mechanisms designed to ensure that medical practitioners were fit to practise medicine: 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 2010 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 2010. The Medical Board of Australia has established committees in each state and territory (the State/Territory Boards of the Medical Board of Australia) for the purposes of making individual registration and notification decisions. In the co-regulatory jurisdiction of New

South Wales, the Medical Council of NSW has responsibility to handle notifications about medical practitioners in NSW.

Medical practitioner: Under the National Law, a medical practitioner is a person who holds registration with the Medical Board of Australia.

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 before 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: Medical practitioners who spend most of their total weekly working hours not engaged in clinical practice are classified as 'non-clinicians'. For this report the term 'non-clinician' includes those medical practitioners who answered that their principal role in their main job in medicine was in one of the following non-clinical roles:

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

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 Medical Workforce Survey 2012, practitioners self-identify as **general practitioners**.

Principal place of practice: Principal place of practice, for a registered health practitioner, means the address declared by the practitioner to be the address:

- a) at which the practitioner is predominantly practising the profession; or
- b) that is the practitioner's principal place of residence, if the practitioner is not practising the profession or is not practising the profession predominantly at one address.

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 geographic 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 2011 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 *Very remote* and *Migratory* classes, they have been combined and reported as *Remote/Very remote* in this report.

Specialist: Under the National Law, a specialist is a person who holds specialist registration who has met the eligibility, suitability and qualification requirements identified in the National Law and by the Medical Board of Australia. They are self-identified on the Medical Workforce Survey 2012.

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 2012.

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. It must be noted that a small number of medical practitioners self-identified as being specialists (see above) while the AHPRA database did not hold details of them holding a recognised specialty.

Specialty field: The sub-specialty of the specialty area of medicine in which a specialist practises. 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).

State/territory: In this report, state and territory estimates are derived from state and territory of main job where available; otherwise, state and territory of principal practice is used as a proxy. If principal practice details are unavailable, state and territory of residence is used. For medical practitioners with no information on all three locations, they are coded to 'not stated'.

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.

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Related publications

This report Medical workforce 2012 is part of an annual series. This and earlier publications can be downloaded free from the AIHW website <<http://www.aihw.gov.au/workforce-publications/>>.

The following AIHW publications relating to workforce might also be of interest:

- AIHW (Australian Institute of Health and Welfare) 2013. Allied health workforce 2012. National health workforce series no. 5. Cat. no. HWL 51. Canberra: AIHW.
- AIHW 2013. Nursing and midwifery workforce 2012. National Health Workforce Series no. 6. Cat. no. HWL 52. Canberra: AIHW.
- AIHW 2013. Dental workforce 2012. National health workforce series no. 7. Cat. no. HWL 53. Canberra: AIHW.

The supply of employed medical practitioners in Australia increased from 343.9 to 374.1 full-time equivalent practitioners per 100,000 population between 2008 and 2012, which reflected a 16.4% rise in employed practitioner numbers. Women made up 37.9% of practitioners in 2012 compared with 34.9% in 2008.

