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**Australian Institute of
Health and Welfare**

Dental workforce 2011

NATIONAL HEALTH WORKFORCE SERIES No. 4



Australian Government

**Australian Institute of
Health and Welfare**

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

Dental workforce 2011

Australian Institute of Health and Welfare
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An Australian Government Initiative



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AUSTRALIA

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



Australian
Health Practitioner
Regulation Agency

Abbreviations

ABS	Australian Bureau of Statistics
ADC	Australian Dental Council
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
DBA	Dental Board of Australia
DSRU	Dental Statistics Research Unit
FTE	full-time equivalent
HWA	Health Workforce Australia
NCVER	National Centre for Vocational Education Research
NHWDS	National Health Workforce Data Set
NRAS	National Registration and Accreditation Scheme
OHT	oral health therapists
OMFS	oral and maxillofacial surgery
TTMRA	Trans-Tasman Mutual Recognition Arrangement

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 A). As a result, the estimated numbers of dental 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 dental workforce, based on estimates derived from the new National Health Workforce Data Set: dental practitioners 2011, the first for this profession. The data set contains information on the demographic and employment characteristics of dental practitioners (dentists, dental hygienists, dental prosthetists, dental therapists and oral health therapists) registered in Australia in 2011. Data are collected via registration forms and a survey instrument administered by the Australian Health Practitioner Regulation Agency, in conjunction with the annual registration renewal process for dental practitioners.

Size of dental workforce

- In 2011, the total number of dental practitioners registered in Australia was 18,803, of whom 14,179 were dentists.
- Between 2006 and 2011, the number of dentists employed in dentistry increased by 22.4%, from 10,404 to 12,734.
- In 2011 there were also 1,065 dental hygienists, 1,044 dental therapists, 1,088 dental prosthetists and 994 oral health therapists employed in their fields.

Demography

- Just over one-third of employed dentists in 2011 were women (35.6%), an increase from 29.0% in 2006.
- Employed oral health therapists, dental hygienists and dental therapists were substantially more likely to be women (87.9%, 96.1% and 97.1%, respectively).
- Dental prosthetists were much more likely to be men. Women made up 14.2% of the workforce, an increase from 10.0% in 2006.
- Dentists employed in 2011 had an average age of 43.5 years (slightly down from 45.1 years in 2006) and 23% were aged 55 or over. Employed oral health therapists, dental hygienists, dental therapists and dental prosthetists were 32.6, 37.4, 46.3 and 49.3 years old on average, respectively.

Working arrangements

- Dentists worked, on average, 37.4 hours per week in 2011, with 29.9% working part time (less than 35 hours a week). This is a slight decrease from 38.5 hours per week in 2006.
- About four-fifths of employed dentists were working in private practice (81.2% of clinicians and 78.2% of all employed dentists). Two-thirds of dentists in private practice were working in group practices.
- There were 1,426 dentists working as specialists. Orthodontics was the most common specialty (567 dentists). Most specialists worked in private practice in *Major cities*.
- *Major cities* had more dentists per capita than other areas in 2011 at 64.1 full-time equivalent (FTE) dentists per 100,000 population. Between 2006 and 2011, the number of dentists increased in all geographical areas.

1 Introduction

This report provides data on the Australian dental workforce in 2011, and is the first report on this profession to use information from the new National Health Workforce Data Set (NHWDS): dental practitioners 2011. The NHWDS combines data from the National Registration and Accreditation Scheme (NRAS) with health workforce data collected via an optional survey at the time of annual registration renewal.

The mandatory registration process is administered by the Australian Health Practitioner Regulation Agency (AHPRA). A range of additional demographic and workforce information was collected in an optional survey at the same time as registration renewal occurred.

Where the data allow, this report compares the 2011 results with estimates derived from surveys conducted in earlier years. Registration data from the now superseded state and territory dental boards and councils are also presented to provide time series information where possible.

Box 1.1: Who are dental practitioners?

Dental practitioners diagnose and treat dental disease, restore normal oral function using a broad range of treatments, such as surgery and other specialist techniques, and advise on oral health. Dental practitioners include the following groups of professionals:

Dentists diagnose and treat dental disease, injuries, decay and malformations of the teeth, periodontal tissue (gums), hard and soft tissue found on the mouth and other dento-facial structures using surgery and other techniques.

Dental hygienists carry out preventative dental procedures under the direction of a dentist.

Dentist prosthetists are responsible for the construction and fitting of dentures and sporting mouthguards. They maintain, repair and relines dentures either by direct consultation with a patient or by referral from a dentist.

Dental therapists examine and treat diseases of the teeth in preschool, primary and secondary school children under the general supervision of a dentist. A dental therapist can specialise as an oral health specialist.

Oral health therapists is a new dental profession representing those dual qualified as hygienists and therapists, more recently qualified in a newly introduced Bachelor degree in Oral Health Therapy. Oral health therapists provide a wide range of dental care in a variety of settings to children, adolescents and adults.

Sources: ABS 2006; ABS 2009; DBA 2012; AIHW 2012.

1.1 Dental practitioners in Australia

In Australia, dental practitioners are trained to diagnose and treat dental disease, provide supportive services in preventive and restorative dental procedures, and construct and repair dental appliances (see Box 1.1 and Glossary).

Box 1.2: The Dental Board of Australia

The Dental Board of Australia (the National Board or the DBA) is the national dental regulator in Australia. It is established under the Health Practitioner Regulation National Law, as in force in each state and territory (the National Law) (DBA 2012).

The functions of the DBA include:

- registering dental practitioners and students
- developing standards, codes and guidelines for the dental profession
- handling notifications, complaints, investigations and disciplinary hearings
- assessing overseas trained practitioners who wish to practice in Australia
- approving accreditation standards and accredited courses of study.

The DBA has established state and territory boards to support its work in the national scheme. The DBA sets policy and professional standards, and the state and territory boards continue to make individual notification and registration decisions affecting individual dental practitioners, based on the national policies and standards (AHPRA 2011c).

The standards relevant to dental practitioners are available at the Dental Board of Australia website, <<http://www.dentalboard.gov.au/Codes-Guidelines/Policies-Codes-Guidelines.aspx>>.

1.2 National registration of dental practitioners

All dental practitioners must be registered with the AHPRA to practise in Australia. This applies to both those who trained in Australia and overseas. The AHPRA manages the NRAS, which replaced jurisdiction-based registration with a single national registration and accreditation system for health professionals in July 2010. As part of this scheme, the AHPRA supports National Health Practitioner Boards that are responsible for regulating registered health professions under nationally consistent legislation. Registration for each profession is granted by the relevant boards, subject to applicants meeting the standards and policies set by each. The outcome of an application is either 'registration', 'registration with conditions' or 'rejection'.

At its introduction, the NRAS covered registration for 10 health professions; with an additional four included from 1 July 2012 (see Box 1.3). The type of registration held by dental practitioners determines (or limits) the work they are licensed to perform. Registration is granted to dental practitioners who have fulfilled the full requirements of the Dental Board of Australia to practise. It permits dental practitioners to work unsupervised in their field. If a dental 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.

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

Since 1 July 2010, the following 10 professions have been regulated under the scheme:

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

On 1 July 2012, the following four health professions were included in the scheme:

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

Source: AHPRA 2011b.

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

1.3 Dental Workforce Survey

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

Recognising this, the Australian Health Ministers Advisory Council (AHMAC) commissioned the Australian Institute of Health and Welfare (AIHW) in 1990 to develop national health labour force statistics on the major registrable health professions. Dental 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 AIHW report every 3 years. The most recent surveys were conducted in 2003, 2006 and 2009.

Before 2011, the National Dental Labour Force Collection was managed by each state and territory health authority, with a questionnaire administered by the dental board (or council) in each jurisdiction as part of the registration renewal process. Under agreement with the Health Workforce Principal Committee of the AHMAC, the AIHW Dental Research and Statistics Unit (DSRU) cleaned, collated and weighted the state and territory survey results to obtain national estimates of the total dental workforce, and reported the findings.

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

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

The overall response rate was 80.3%. Of these respondents, 84.5 % completed the survey online and 15.5 % used the paper form.

Responses to the survey have been weighted to benchmark figures to account for non-response. The benchmarks used are the numbers registered by combinations of division of registration in each state and territory (using principal address) by sex and 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 National Dental Labour Force Collection with data from the Dental Workforce Survey 2011.

A detailed description of the Dental Workforce Survey 2011, including a summary of changes from the 2009 National Dental Labour Force Collection and data collected, is in Appendix A.

1.4 Additional information

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

An electronic version of this report is available from the AIHW website at <http://www.aihw.gov.au/workforce-publications/> (select link to *Dental workforce 2011*). Additional data tables from the NHWDS: dental practitioners 2011 are also available from the website.

2 Composition of the dental workforce

In 2011, the total number of dental practitioners registered in Australia was 18,803, predominantly composed of dentists (75.4%). Dental therapists comprised 6.2% of the workforce, prosthetists 6.1%, hygienists 6.4% and OHTs 5.9%. Between 2003 and 2011, the number of registered dentists has grown by 24.3% and the number of registered dental prosthetists by 8.3% (tables A.3 and 2.1).

Because of the advent of oral health therapists (who have dual qualifications/registrations as dental hygienists and dental therapists) and some issues with potential double counting in earlier years, the separate trends for oral health therapists, dental hygienists and dental therapists are not as clear.

For data reported for 2011, where practitioners have multiple registration they are assigned to a single category on the basis of the highest category in the table below. For example, a person with dual registration as a dentist and an oral health therapist is regarded as a dentist, and a person with a dual registration as a dental therapist and a dental prosthetist is regarded as a dental therapist. However, for OHTs this is not the case, as persons with dual dental hygienist, dental therapist registration were regarded as oral health therapists.

Table 2.1: Registered dental practitioner type, number, 2003 to 2011

Practitioner type	2003 ^(a)	2006 ^(a)	2009 ^(a)	2011
Dentists	10,921	11,686	12,941	14,179
Oral health therapists ^(b)	..	397	651	1,108
Dental hygienists ^(c)	686	770	1,031	1,206
Dental therapists	1,559	1,364	1,383	1,165
Dental prosthetists ^(c)	1,034	1,039	1,157	1,145

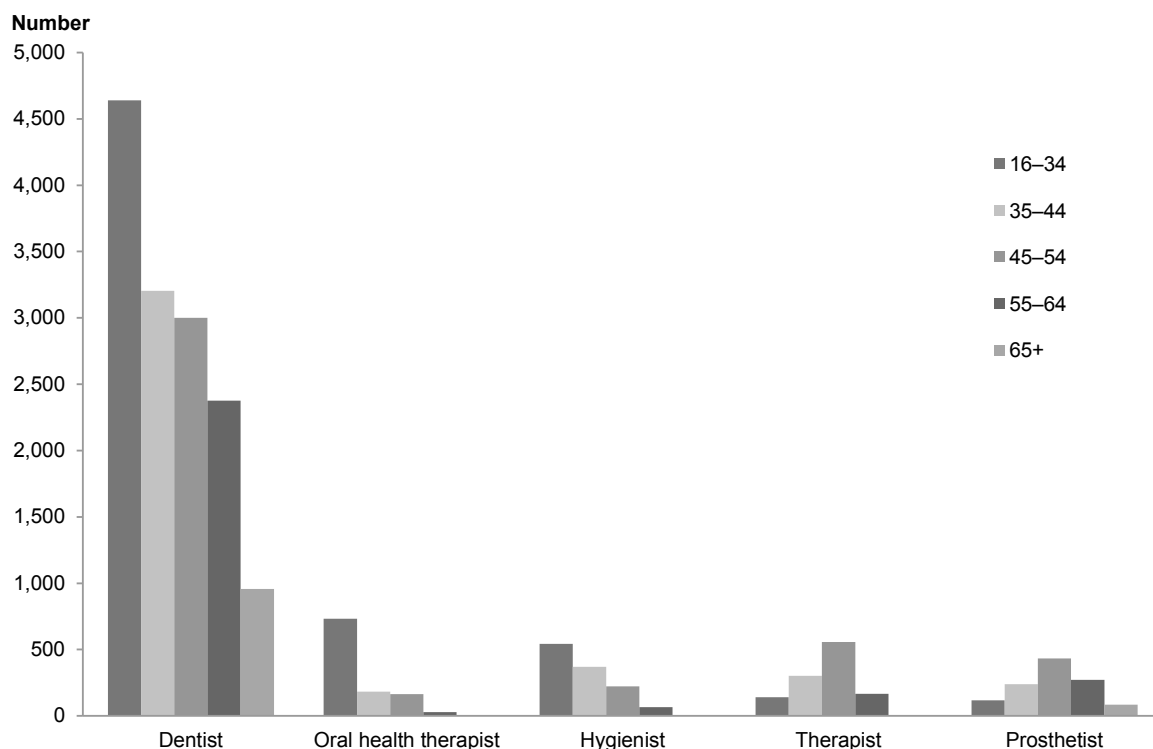
(a) Excludes multi-state registrations.

(b) Oral health therapists are not separately enumerated in 2003. Practitioners with dual qualifications/registrations are counted separately in dental hygienists and dental therapists. 2006 data excludes Tasmania, Australian Capital Territory and Northern Territory.

(c) 2006 data excludes the Northern Territory.

Sources: National Dental Labour Force Collection, 2003, 2006 and 2009; NHWDS: dental practitioners 2011.

The age profiles of oral health professionals varied, with oral health therapists concentrated in the youngest categories and the number of dental prosthesists peaking in the 45–54 year old age group (Figure 2.1).



Source: NHWDS: dental practitioners 2011.

Figure 2.1: Registered dental practitioners, by dental practitioner type and age group, 2011

The number of registered dentists per 100,000 population ranged from 70.7 in *Major cities* down to 27.3 in *Remote/Very remote* areas. Dental prosthetists on the other hand were relatively more common in *Inner regional* areas (5.7 per 100,000 population) with very low numbers in *Remote/Very remote* areas (0.4 per 100,000 population) (Table 2.2).

Table 2.2: Registered dental practitioners per 100,000 population, by remoteness area^(a) and dental practitioner type, 2011

Practitioner type	Major cities	Inner regional	Outer regional	Remote/ Very remote ^(b)	Australia ^(c)
Dentists	70.7	45.8	36.3	27.3	63.5
Oral health therapists	5.2	4.5	4.3	2.8	5.0
Dental hygienists	6.4	3.1	2.7	1.0	5.4
Dental therapists	4.5	6.6	7.7	6.3	5.2
Dental prosthetists	5.3	5.7	3.7	0.4	5.1

(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) Includes Migratory areas.

(c) Includes dental practitioners who did not state or adequately describe their location and those who were overseas.

Source: NHWDS: dental practitioners 2011.

The number of registered dentists per 100,000 population ranged from 68.2 in the Australian Capital Territory to 40.0 in Tasmania. Dental prosthetists, on the other hand, were relatively more prevalent in Tasmania (10.0), with the lowest concentration in the Northern Territory (2.2). The distribution of the other three categories is complicated by the extent that the relatively new category of oral health therapists has been taken up, so, for example, Tasmania and Western Australia have relatively low numbers of oral health therapists and higher numbers of dental therapists (Table 2.3).

Table 2.3 Registered dental practitioners per 100,000 population, by practitioner type, states and territories^(a), 2011

Practitioner type	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia ^(b)
Dentists	65.0	60.5	60.7	62.1	65.7	40.0	68.2	44.8	63.5
Oral health therapists	2.8	4.6	9.6	2.3	8.1	0.6	4.6	4.8	5.0
Dental hygienists	4.9	3.0	2.6	11.2	13.5	2.7	13.8	3.0	5.4
Dental therapists	3.4	3.2	4.7	14.4	6.5	11.0	3.5	7.4	5.2
Dental prosthetists	5.7	5.8	4.8	3.4	2.7	10.0	4.1	2.2	5.1

(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) Includes dental practitioners who did not state or adequately describe their state or territory and those who were overseas.

Source: NHWDS: dental practitioners 2011.

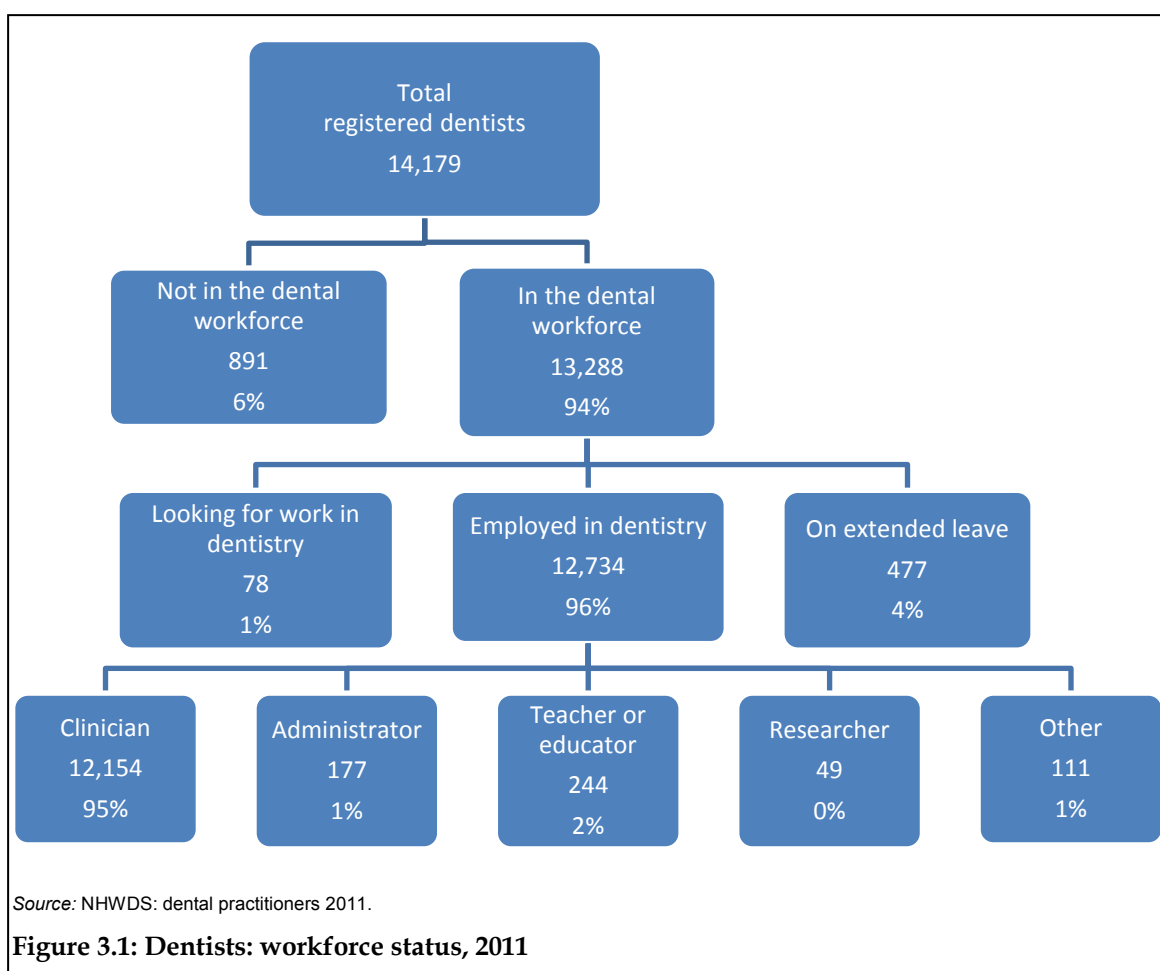
3 Dentists

3.1 Registered dentists

3.1.1 At a glance

	In 2011, there were 14,179 registered dentists, 12,734 of whom were employed in dentistry.
	Just over one-third of dentists were women.
	Dentists had an average age of 43.5 years. Dentists aged 55 and over made up 23% of the workforce.
	Dentists worked, on average, 37.4 hours per week. Dentists working part-time (less than 35 hours a week) made up 29.9% of the workforce.
	1,426 dentists worked as specialists. Orthodontics was the most common specialty.
	542 Australians started studying to be a dentist and 362 completed qualifications as dentists in 2011.

Source: NHWDS: dental practitioners 2011.



3.1.2 Workforce status

The number of registered dentists in 2011 was 14,179 (Figure 3.1). This figure is the number of practitioner registrations provided by the AHPRA from the NRAS, which notionally closed on 30 November 2011.

Between 2006 and 2011, the number of dentists employed in dentistry increased by 22.4%, from 10,404 to 12,734 (Table 3.1).

Changes to the new nationally standardised survey questionnaire have resulted in a slight change in the pattern of responses to the employment-related questions. As such, comparing data over time should be done with caution. (See Appendix A for further information on changes to the employment-related questions.)

Table 3.1: Dentists: workforce status, 2006, 2009 and 2011

Workforce status	2006	2009	2011	Change between 2006 and 2011 (per cent)
In the dental workforce	10,805	12,041	13,288	23.0
Employed in dentistry	10,404	11,882	12,734	22.4
<i>Looking for work in dentistry</i>	87	59	78	-10.9
Employed elsewhere	n.a.	n.a.	11	..
Not employed	n.a.	n.a.	66	..
On extended leave	313	100	477	52.3
Not in the dental workforce	881	900	891	1.1
Overseas	336	418	464	38.2
<i>Not looking for work in dentistry^(a)</i>	<i>319</i>	<i>301</i>	<i>261</i>	<i>-18.2</i>
Employed elsewhere	95	115	112	17.7
Not employed	224	186	149	-33.5
Retired from regular work	226	181	165	..
Total dentists^(a)	11,686	12,941	14,179	21.3
Multiple registrations	526	670	..	..
Total registrations	12,212	13,611	..	..

(a) For 2006 and 2009, dentists may have been registered in more than one state or territory; this figure accounts for this potential source of double counting. See Appendix A for further information.

Sources: National Dental Labour Force Collection, 2006 and 2009; NHWDS: dental practitioners 2011.

There was some movement between the number not looking for work in dental health and the response category of 'Retired from regular work' between 2006 and 2009 (Table 3.1).

The proportion of registered dentists who are employed in dentistry ranges from 93.0% in Queensland to 90.7% in New South Wales Australia (Table 3.2). The Australian percentage is lower than all the states and territories due to the inclusion of dentists registered in Australia who were overseas and were not included in any state or territory total.

Table 3.2: Dentists: workforce status and principal role of main job, state and territory^(a), 2011

Workforce status	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia ^(b)
In the dental workforce	4,433	3,226	2,627	1,400	1,043	196	239	100	13,288
<i>Employed in dentistry</i>	<i>4,252</i>	<i>3,098</i>	<i>2,526</i>	<i>1,331</i>	<i>1,000</i>	<i>187</i>	<i>231</i>	<i>96</i>	<i>12,734</i>
Clinician	4,092	2,959	2,412	1,269	915	183	224	87	12,154
Non-clinician	160	140	114	62	85	4	7	9	581
On extended leave or looking for work in dentistry	182	127	101	70	43	9	8	4	554
Not in the dental workforce	253	123	89	60	34	9	12	4	891
Total registered dentists	4,687	3,349	2,716	1,460	1,077	204	251	104	14,179

(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 dentists who did not state or adequately describe their state or territory, and dentists who were overseas. Therefore, state and territory totals may not sum to the national total. In particular, the total for 'Not in the dental workforce' is noticeably higher than the sum of the state and territory figures due to dentists working overseas.

Source: NHWDS: dental practitioners 2011.

As outlined previously, the data transitioned from state- and territory-based systems to a national registration system in 2010. This has had consequences for the way data have been able to be reported by state and territory. Before the NRAS was introduced, data were reported by state of registration. With the new system, data in this report are being reported on the basis of the most current address at the time the survey was undertaken, unless stated otherwise.

To reflect the most recent contact address, the state and territory used in the report (referred to as current address) is derived from the location of the main job for dentists, or the location of the principal practice if their main job location was unavailable, or their residence address if the main job and principal practice locations were not available (see Appendix A). For example, if a dentist had a principal practice address in Sydney but worked for the week before the survey in the Northern Territory, they would be included in Northern Territory data for workplace location in this report. This change greatly enhances the accuracy of data reported for some areas where the turnover of dentists between jurisdictions was high. Notably, 9.4% more dental 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.

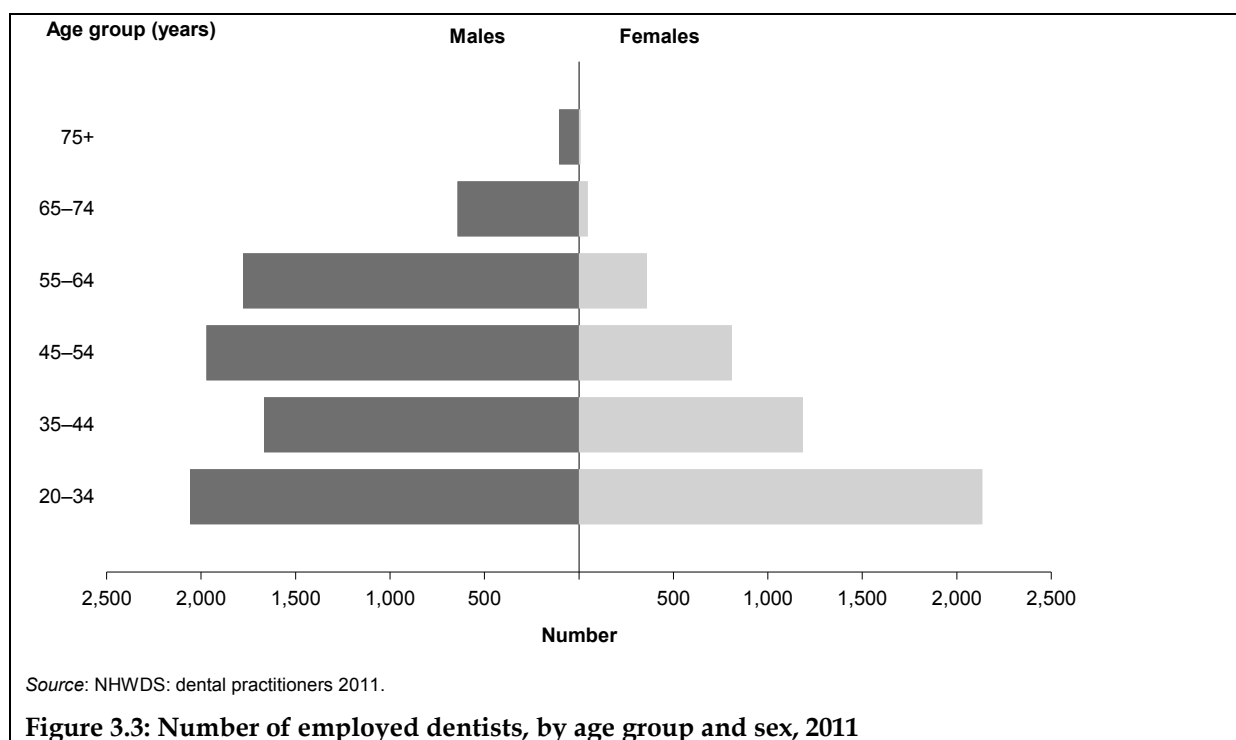
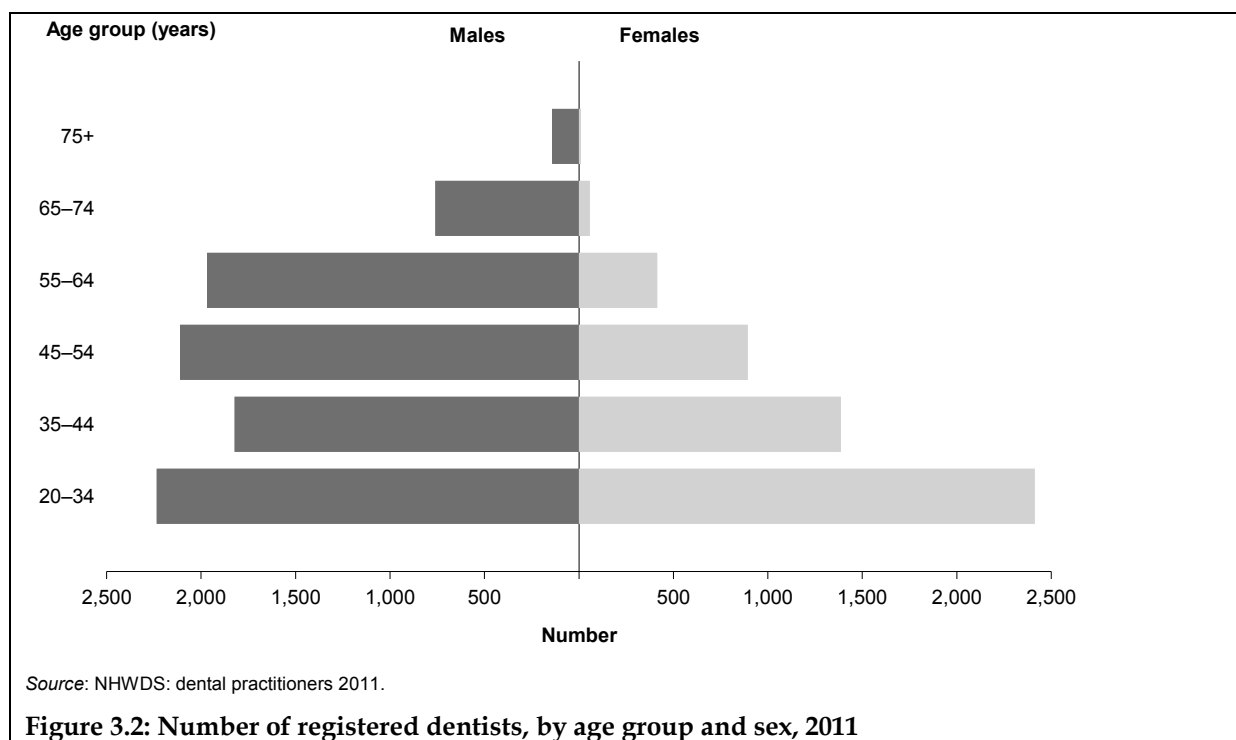
3.2 Dentists employed in dentistry in Australia

A dentist who reported working in dental health in the week before the survey is considered to have been employed in dentistry, or to be an employed dentist, at the time of the survey (see Glossary).

The characteristics and supply of dentists employed in Australia are the focus of the remainder of this section.

3.2.1 Age and sex

In 2011, the average age of employed dentists was 43.5 years, slightly younger than the average of 45.1 in 2006 (Table 3.4). The female proportion of the dentist workforce rose from previous years, with women forming 29.0% of the dentist workforce in 2006 and 35.6% in 2011. However, as can be seen in figures 3.2 and 3.3, the age pattern of women and men is different, with substantially more men in the older age groups and slightly more women registered and/or employed as dentists in the youngest group (20–34).



3.2.2 Aboriginal and Torres Strait Islander dentists

In 2011, there were 26 dentists employed in Australia who identified as Aboriginal or Torres Strait Islander. This represents 0.2% of all employed dentists who chose to provide their Indigenous status (Table 3.3). Ten of these dentists were employed in Queensland, which

had the highest proportion of dentists who identified as Aboriginal or Torres Strait Islander, at 0.4%.

Table 3.3: Employed dentists: Indigenous status, state and territory^(a), 2011

Indigenous status	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia ^(b)
Indigenous	5	6	10	n.p.	n.p.	—	—	—	26
Non-Indigenous	4,227	3,079	2,505	1,316	997	186	231	96	12,650
Not stated	20	13	11	n.p.	n.p.	1	—	—	58
Total	4,252	3,098	2,526	1,331	1,000	187	231	96	12,734
Percentage of employed dentists who are Indigenous^(c)	0.1	0.2	0.4	n.p.	n.p.	—	—	—	0.2

(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 dentists who did not state or adequately describe their state or territory, and those who were overseas.

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

Source: NHWDS: dental practitioners 2011.

3.2.3 Field of dentistry

Role in dentistry

The principal role in dentistry describes the types of dentistry work undertaken by employed dentists. The 2011 survey categorised the roles as clinician, administrator, teacher/educator, researcher, and other. In 2011, the oldest group was teacher/educators with an average age of 51.7. Between 2006 and 2011, the number of administrators more than doubled, with the proportion of administrators who are women increasing from 24.7% in 2006 to 42.6% in 2011 (Table 3.4). This may be due the change in the question structure, as there are now fewer principal role categories than in the previous survey. This may have led to some dental practitioners self-identifying as administrators, when they may have chosen General practice, Registered specialist or Restricted practice in earlier surveys.

Table 3.4: Employed dentists: principal role in dentistry, selected characteristics, 2006 and 2011

Principal role in dentistry	Number	Average age	Aged 55 and over (per cent)	Women (per cent)	Average hours	FTE rate ^(a)
2006						
General practice	8,747	44.4	n.a.	30.4	38.2	42.5
Registered specialist	1,161	48.8	n.a.	17.2	41.8	6.2
Restricted practice	93	50.3	n.a.	21.5	32.6	0.4
Administrator	77	50.0	n.a.	24.7	40.6	0.4

(continued)

Table 3.4 (continued): Employed dentists: principal role in dentistry, selected characteristics, 2006 and 2011

Principal role in dentistry	Number	Average age	Aged 55 and over (per cent)	Women (per cent)	Average hours	FTE rate ^(a)
2006						
Teacher/educator	191	47.8	n.a.	35.1	34.3	0.8
Researcher	31	46.5	n.a.	35.5	38.1	0.2
Other	102	46.6	n.a.	36.3	35.3	0.5
Total	10,402	45.1	23.6	29.0	38.5	50.9
2011						
Clinician	12,154	43.2	22.3	35.3	37.5	53.7
<i>Non-clinician</i>	<i>581</i>	<i>49.6</i>	<i>37.1</i>	<i>39.8</i>	<i>35.6</i>	<i>2.4</i>
Administrator	177	50.1	38.0	42.6	36.1	0.8
Teacher/educator	244	51.7	41.6	41.7	34.0	1.0
Researcher	49	45.4	n.p.	n.p.	43.3	0.3
Other	111	46.2	31.4	32.5	34.7	0.5
Total	12,734	43.5	23.0	35.6	37.4	56.1

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

Sources: National Dental Labour Force Collection 2006; NHWDS: dental practitioners 2011.

Area of dentistry

Survey respondents were asked to indicate the principal area of their main job in dentistry in the week before the survey. Fourteen response categories were provided, with only one response allowed. Table 3.5 provides these responses disaggregated by selected characteristics of the respondent. General dental practice is the most common area of practice, accounting for 77.4% of all dentists. Paedodontics was the group with the highest proportion of female dentists (63.1%) and the youngest average age (42.3). The 'Other' group was the oldest, with an average age of 54.2 and 54.0% of dentists over the age of 55.

Table 3.5: Employed dentists: principal area of main job, selected characteristics, 2011

Principal area of main job	Number	Average age (years)	Aged 55 and over (per cent)	Women (per cent)	Average weekly hours	FTE rate ^(a)
General dental practice	9,856	42.7	21.3	37.0	37.2	43.2
Dento-maxillofacial radiology	20	48.6	n.p.	n.p.	35.2	0.1
Endodontics	150	45.5	23.6	20.5	39.9	0.7
Oral and maxillofacial surgery	193	47.2	30.8	11.6	44.8	1.0
Oral surgery	77	46.4	n.p.	n.p.	33.5	0.3
Oral medicine	31	43.1	n.p.	n.p.	35.9	0.1
Oral pathology	14	42.9	n.p.	n.p.	34.8	0.1
Orthodontics	575	48.9	35.5	22.3	37.8	2.6
Paedodontics	124	42.3	17.6	63.1	39.4	0.6

(continued)

Table 3.5 (continued): Employed dentists: principal area of main job, selected characteristics, 2011

Principal area of main job	Number	Average age (years)	Aged 55 and over (per cent)	Women (per cent)	Average weekly hours	FTE rate ^(a)
Periodontics	216	45.9	26.6	29.0	39.3	1.0
Prosthodontics	203	48.6	34.2	18.1	40.2	1.0
Public health dentistry	238	48.2	35.0	46.0	37.3	1.0
Special needs dentistry	45	50.8	n.p.	n.p.	33.5	0.2
Other	102	54.2	54.0	30.3	30.5	0.4
Not stated/inadequately described	890	42.6	20.0	36.3	37.9	4.0
All	12,734	43.5	23.0	35.6	37.4	56.1

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

Source: NHWDS: dental practitioners 2011.

Box 3.1: Dental specialties

In Australia, 13 specialties are recognised for registration, and are provided as accredited training programs in six dental schools.

Oral and maxillofacial surgery

Oral and maxillofacial surgery (OMFS) is concerned primarily with the diagnosis, surgical and adjunctive treatment of diseases, injuries and defects involving both the functional and aesthetic aspects of the hard and soft tissue of the oral and maxillofacial region. Specialists train for OMFS in Australia only through the Royal Australasian College of Dental Surgery. Training is offered in the form of a fellowship, and after registration a specialist can practise in a wide variety of hospital and clinical settings.

Prosthodontics

Prosthodontics is the part of dentistry pertaining to the restoration and maintenance of oral function, comfort, appearance and health of the patient by the replacement of missing teeth and contiguous tissues with artificial substitutes (Boucher 1982). It could best be described as restoring a patient's oral functioning and rebuilding their smile through the use of dental implants, bridgework, dentures and/or crowns. It has three main branches: removable prosthodontics, fixed prosthodontics and maxillofacial prosthodontics. Prosthodontics is offered as a 3-year training program in five of the six dental schools.

Endodontics

Endodontics is concerned with the morphology, physiology and pathology of the human tooth, in particular the dental pulp, crown, root and peri-radicular tissues. The study and practice of endodontics includes the biology of these tissues and the aetiology, prevention, diagnosis and treatment of diseases and injuries that affect them (ADA 2009).

(continued)

Box 3.1 (continued): Dental specialties

Orthodontics

Orthodontics gained importance in the early 20th century, and was added as a speciality in its own right. Major responsibilities include diagnosis, prevention, interception and treatment of all forms of malocclusion (improper bites) of the teeth and associated alterations in their surrounding areas (Boucher 1982).

Periodontics

Periodontics is concerned with the prevention, diagnosis and treatment of diseases affecting the gums and supporting structures of the teeth (periodontium). It was recognised as a specialty in the middle of the 20th century (Newman & Carranza 2006).

Paediatric dentistry

Paediatric dentistry (paedodontics) is concerned with the provision of oral health-care services to children aged 1–17. It includes both restorative and preventive components, and involves training a child to accept dentistry, and restoring and maintaining primary, mixed and permanent dentitions.

Public health dentistry

Dental public health is the prevention and control of dental diseases and the promotion of dental health through organised community efforts. It serves the community as the patient rather than the individual. It is concerned with dental health education of the public, applied dental research and administration of group dental care programs, as well as the prevention and control of dental diseases on a community basis (ABDPH 2009).

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Dental public health is the prevention and control of dental diseases and the promotion of dental health through organised community efforts. It serves the community as the patient rather than the individual. It is concerned with dental health education of the public, applied dental research and administration of group dental care programs, as well as the prevention and control of dental diseases on a community basis (ABDPH 2009).

Oral pathology

Oral pathology deals with the nature, identification and management of diseases affecting the oral and maxillofacial regions. It involves research; diagnosis of diseases using clinical, radiographic, microscopic, biochemical or other examinations; and management of patients.

Oral medicine

Oral medicine deals with the significance and relationship of oral and systemic diseases. Registration as an oral medicine specialist is only available in Victoria and New South Wales.

Special needs dentistry

Special needs dentistry is concerned with providing and enabling the delivery of oral care for people with an impairment or disability. It is a relatively new specialty that is recognised for registration and practice only in South Australia.

(continued)

Box 3.1 (continued): Dental specialties

Dental-maxillofacial radiology

Dental-maxillofacial Radiology concerns diagnostic imaging procedures applicable to the hard and soft tissues of the oral and maxillofacial region and to other structures that are relevant for the proper assessment of oral conditions. (ADA 2012)

Forensic odontology

Forensic odontology is the application of dental principles to legal issues, such as identification of individuals through marks left by teeth or identification of deceased persons through dental records.

Approved programs of study leading to these qualifications are listed on the AHPRA website at <<http://www.ahpra.gov.au/Education/Approved-Programs-of-Study.aspx>>.

Sources: AIHW DSRU 2012; DBA 2012

Dental specialists

The Australian Health Workforce Ministerial Council has approved the Dental Board of Australia's List of specialties and specialist titles. Dentists who have the necessary qualifications in the approved specialties and meet the other requirements for specialist and general registration are included on the Specialist Register and their specialties are recorded as part of the NRAS data.

In 2011, there were 1,464 employed dentists registered to practise in a dental specialty. Of these, 38 nominated that they were practising in the area of general dentistry when answering question 10, Principal area of main job, rather than their specialty in their main job. These were omitted from the following table (Table 3.6). A small number of dental practitioners (54) have more than one specialty. The data collected by the NRAS does not identify the primary specialty. However, the AIHW allocated a primary specialty on the basis of the responses to question 10.

The largest group of employed dentists with a specialty was orthodontists (567) and the smallest group with a specialty was registered to practise in oral pathology (6).

Oral and maxillofacial surgeons worked the most hours on average (45.8).

Women were most highly represented in the specialty of paediatric dentistry (61.6%) and were least represented among the oral and maxillofacial surgeons (9.3%).

The overwhelming majority of dental specialists were working in *Major cities* (88.6 %) and in private practice (77.2%). Paediatric dentistry had the lowest proportion of dental specialists working in private practice (55.9%).

A number of oral and maxillofacial surgeons were also, or alternatively, registered as a medical practitioner (see the Data Quality Statement at Appendix E).

Table 3.6: Employed dental specialists not working in the area of general dental practice: selected characteristics, 2011

Specialty	Number	Average age (years)	Aged 55 and over (per cent)	Women (per cent)	Major cities (per cent) ^(a)	Private practice (per cent) ^(b)	Average weekly hours	FTE rate ^(c)
Dental-maxillofacial radiology	10	46.5	n.p.	n.p.	n.p.	n.p.	38.3	—
Endodontics	136	45.8	22.7	21.5	96.5	81.2	41.2	0.7
Oral and maxillofacial surgery	164	51.8	41.4	9.3	89.4	78.4	45.8	0.9
Oral medicine	28	n.p.	n.p.	n.p.	n.p.	n.p.	39.1	0.1
Oral pathology	6	n.p.	n.p.	n.p.	n.p.	n.p.	38.8	—
Oral surgery	19	n.p.	n.p.	n.p.	n.p.	n.p.	43.0	0.1
Orthodontics	567	49.7	36.8	20.8	81.5	86.7	38.1	2.5
Paediatric dentistry	102	41.8	14.4	61.6	96.5	55.9	40.6	0.5
Periodontics	196	47.7	28.1	26.8	91.3	84.6	39.7	0.9
Prosthodontics	161	49.5	34.5	15.5	94.3	70.0	40.6	0.8
Public health dentistry (community dentistry)	9	n.p.	n.p.	n.p.	n.p.	n.p.	42.5	—
Special needs dentistry	14	n.p.	n.p.	n.p.	n.p.	n.p.	39.2	0.1
Forensic odontology	14	n.p.	n.p.	n.p.	n.p.	n.p.	37.1	0.1
All	1,426	48.8	33.5	23.4	88.6	77.2	40.1	6.7

(a) Proportion of specialist dentists working in *Major cities* 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) Proportion of specialist dentists with a work setting of main job being: Solo private practice, Group private practice or Locum private practice.

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

Source: NHWDS: dental practitioners 2011.

The FTE rate per 100,000 population in *Major cities* was 8.7; 3 times the rate in *Inner regional* areas and 5 times the rate in *Outer regional* areas (Table 3.7).

Dental specialists not in *Major cities* tended to be older than those in *Major cities*, though the difference was not that large.

Table 3.7: Employed dental specialists not working in the area of general dental practice: selected characteristics, remoteness area, 2011

	Major cities	Inner regional	Outer regional	Remote /Very remote	Australia
Number	1,264	117	32	3	1,426
Average age (years)	48.7	50.4	51.1	n.p.	48.8
Aged 55 and over (per cent)	33.0	35.3	n.p.	n.p.	33.5
Women (per cent)	24.4	16.1	n.p.	n.p.	23.4
Private practice (per cent) ^(a)	76.9	85.6	n.p.	n.p.	77.2
Average weekly hours	40.2	39.3	38.1	n.p.	40.1
FTE rate ^(b)	8.7	2.8	1.6	1.2	6.7

(a) Proportion of specialist dentists with a work setting of main job being: Solo private practice, Group private practice or Locum private practice.

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

Source: NHWDS: dental practitioners 2011.

The jurisdiction with the highest FTE rate per 100,000 population for dental specialists was the Australian Capital Territory at 10.2, and the lowest was the Northern Territory with an FTE rate of 3.5, just over half the national average of 6.7 (Table 3.8). Victoria had the highest proportion of dental specialists who were women (28.5%) and Queensland had the lowest (19.8%).

Table 3.8: Employed dental specialists not working in the area of general dental practice: selected characteristics, states and territories, 2011

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Number	453	368	271	142	122	22	33	8	1,426
Average age (years)	49.1	48.5	48.2	48.0	50.9	52.8	47.0	52.8	48.8
Aged 55 and over (per cent)	35.1	30.3	30.8	31.1	45.4	n.p.	n.p.	n.p.	33.5
Women (per cent)	22.8	28.5	19.8	25.6	22.1	n.p.	n.p.	n.p.	23.4
Major cities (per cent) ^(a)	90.7	92.9	83.3	95.6	96.3	—	100.0	—	88.6
Private practice (per cent) ^(b)	76.5	78.9	73.2	78.1	79.0	n.p.	n.p.	n.p.	77.2
Average weekly hours	40.7	40.0	40.0	39.8	38.1	41.2	43.0	38.6	40.1
FTE rate ^(c)	6.7	7.0	6.4	6.3	7.5	4.7	10.2	3.5	6.7

(a) Proportion of specialist dentists working in *Major cities* 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) Proportion of specialist dentists with a work setting of main job being: Solo private practice, Group private practice or Locum private practice.

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

Source: NHWDS: dental practitioners 2011.

3.2.4 Country of first dental qualification

Information about the country of first dental qualification was collected in previous National Dental Labour Force Collections, however, was not included as a survey question in 2011 as

it is now collected as part of the NRAS registration data. Although it is understood that country of first dental qualification is being entered for new registrants, data migrated from some of the previous jurisdiction-based systems did not contain this information in a consistent manner, thus it could not be included in this report due to variability in scope and coverage. It is anticipated that this information will improve over time and will be able to be reported in subsequent years.

3.2.5 Work setting

Dentists were asked to indicate the setting of their main job in dentistry in the week before completing the Dental Workforce Survey 2011. About four-fifths of employed dentists were working in private practice (81.2% of clinicians and 78.2% of all employed dentists). Two-thirds of dentists in private practice were working in group practices (66.7% of clinicians and 66.6% of all employed dentists). Hospitals were the next largest category with 4.7% of clinicians and 5.0% of all employed dentists working in this setting (Table 3.9).

Table 3.9: Employed dentists: work setting of main job and clinician status, number and average weekly hours worked, 2011

Work setting of main job	Clinicians ^(a)		All dentists	
	Number	Average weekly hours worked	Number	Average weekly hours worked
<i>Private practice</i>	9,865	37.7	9,959	37.6
Solo private practice	3,155	40.0	3,192	39.8
Group private practice	6,578	36.7	6,634	36.7
Locum private practice	133	31.4	133	31.4
Aboriginal health service	58	33.9	60	33.3
<i>Community health care services</i>	468	35.5	502	35.7
Health promotion service	14	35.2	18	33.2
Other community health care service	454	35.5	485	35.8
Hospital	567	37.9	635	37.9
Residential health care facility	14	24.2	15	23.9
Commercial/business service	34	34.3	48	34.0
<i>Educational facilities</i>	89	35.9	308	35.7
Tertiary educational facility	46	35.5	250	36.1
School	39	36.1	42	36.3
Other educational facility	4	38.1	16	26.8
Correctional service	13	33.9	14	34.2
Defence forces	117	36.4	130	37.3
Other government department or agency	125	38.0	162	37.9
Other	101	35.4	155	35.1
Not stated	702	37.9	744	37.9
Total	12,154	37.5	12,734	37.4

(a) Clinician includes those whose role in their main job was 'Clinician'.

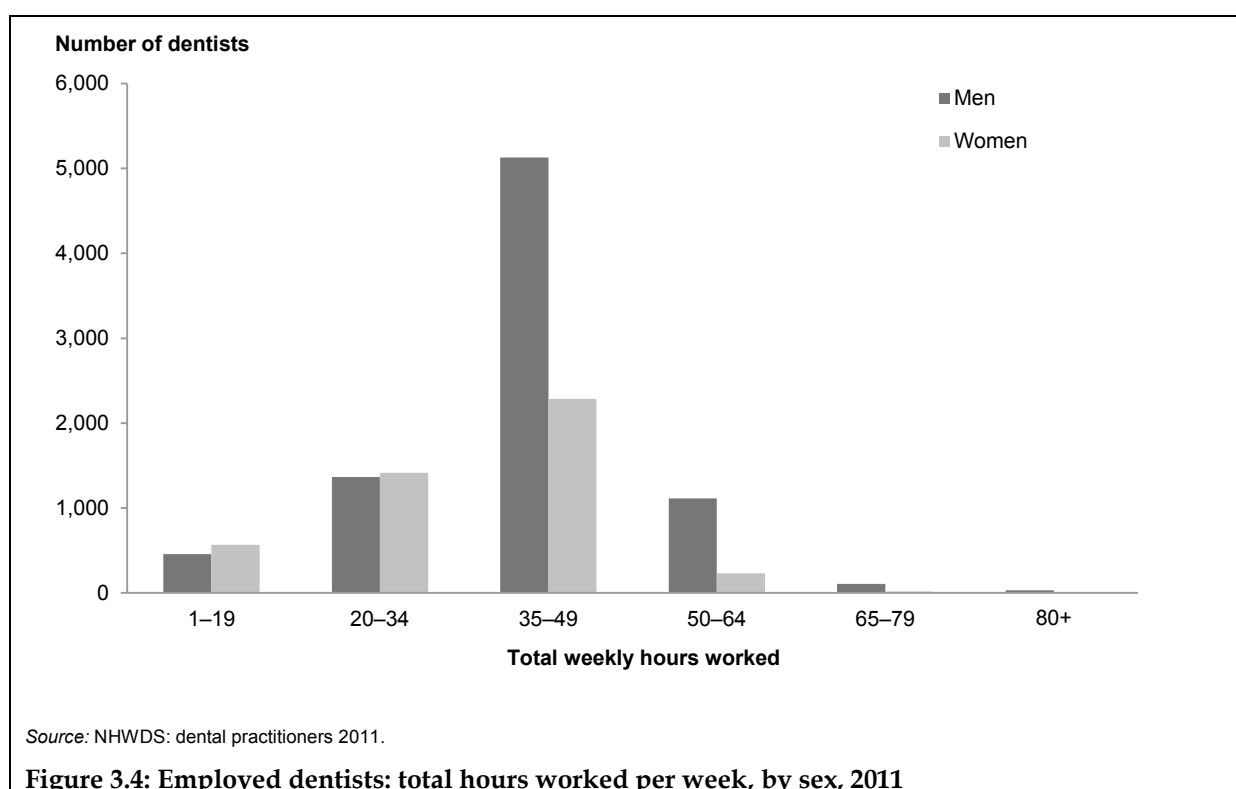
Source: NHWDS: dental practitioners 2011.

3.2.6 Working hours

Comparison of working hours over time should be undertaken with care, due to differences between the survey questions used in the Dental Workforce Survey 2011 and the previous National Dental Labour Force Collection (see Appendix A).

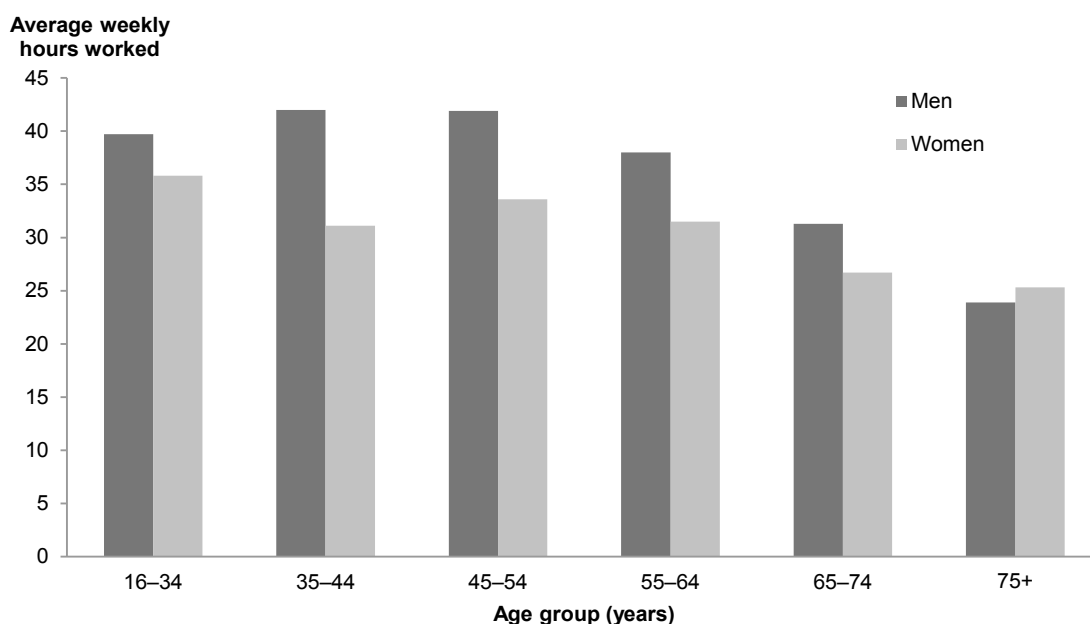
On average, employed dentists worked 37.4 hours a week in 2011, down slightly from 38.5 in 2006.

Male dentists work more hours, on average, than female dentists at 39.5 versus 33.7, respectively. Average hours worked per week has fallen for both men and women since 2006, from 40.2 and 34.1, respectively (Table 3.8). More women worked part time than men, in spite of there being more men than women overall (Figure 3.4).



Age

The difference in average hours between men and women differs by age group, with a gap of 3.9 hours between male and female dentists aged 20–34 years, and a gap of 10.9 hours for those aged 35–44 (Figure 3.5).



Source: NHWDS: dental practitioners 2011.

Figure 3.5: Employed dentists: average total weekly hours worked, by age group and sex, 2011

Work setting

Dentists working in solo private practice as their main job worked the most hours on average (39.8), while those in group practices worked 8% fewer hours on average (36.7). Dentists working in residential health-care settings as their main job worked the fewest hours on average (23.9) (Table 3.9).

States and territories

Dentists in the Northern Territory worked the most weekly hours on average (39.7), while South Australian dentists worked the fewest (36.0). The Northern Territory also had the smallest gap in average hours between men and women (1.8) compared with the national difference of 5.8 hours (Table 3.10).

Table 3.10: Employed dentists: average total weekly hours^(a) worked, sex, state and territory, 2006 and 2011

Sex	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
2006^(b)									
<i>Persons</i>	40.5	37.0	38.2	37.3	36.1	37.5	40.5	41.4	38.5
Men	42.2	39.2	39.7	39.1	37.9	39.0	41.1	40.5	40.2
Women	35.9	32.6	34.3	32.4	31.4	32.8	39.1	42.4	34.1

(continued)

Table 3.10 (continued): Employed dentists: average total weekly hours^(a) worked, sex, state and territory, 2006 and 2011

Sex	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
2011^{(c)(d)}									
<i>Persons</i>	38.4	36.5	37.8	36.6	36.0	36.7	39.6	39.7	37.4
Men	40.5	39.0	39.5	38.3	38.1	37.3	41.6	40.3	39.5
Women	34.3	32.8	34.4	33.5	32.1	33.6	35.9	38.5	33.7

- (a) Care should be taken in interpreting change in the estimates on hours worked due to changes in the question on hours worked from 2006 and 2011.
- (b) State and territory estimates for 2006 are based on state or territory of registration and should be treated with caution due to small numbers of practitioners in some jurisdictions. See Appendix A for further information.
- (c) State and territory estimates for 2011 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) Includes dentists who did not state or adequately describe their state or territory and those who were overseas.

Sources: National Dental Labour Force Collection 2006; NHWDS: dental practitioners 2011.

Remoteness areas

The Remoteness Areas from the Australian Standard Geographical Classification (ASGC) (ABS 2008) have been used in this report to show data by geographic region (see Glossary for further information).

Dentists working in *Remote/ Very remote* areas worked the most hours per week (39.8 in 2011 and 39.7 in 2006 on average) The difference in average hours worked for male versus female dentists was greatest in *Major cities* (6.3) and least in *Remote/Very remote* areas (2.3).

Table 3.11: Employed dentists: average total weekly hours^(a) worked, remoteness area^(b), 2006 and 2011

Sex	Major cities	Inner regional	Outer regional	Remote/Very remote ^(c)	Australia ^(d)
2006					
<i>Persons</i>	38.4	38.3	38.6	39.7	38.5
Men	40.4	39.5	39.6	39.5	40.2
Women	33.8	34.9	35.6	40.0	34.1
2011					
<i>Persons</i>	37.4	37.5	37.7	39.8	37.4
Men	39.7	38.7	38.8	40.7	39.5
Women	33.4	34.8	35.0	38.4	33.7

- (a) Care should be taken in interpreting change in the estimates on hours worked due to changes in the question on hours worked from 2006 to 2011.
- (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) Includes *Migratory* areas.
- (d) Includes dentists who did not state or adequately describe their location and those who were overseas.

Sources: National Dental Labour Force Collection 2006; NHWDS: dental practitioners 2011.

Employment sector

Dentists in the public sector were more likely to work less hours and be women than those working in the private sector (Table 3.12). On average, dentists in the public sector worked 26.0 hours while those in the private sector worked 35.5 hours, and 42.4% of dentists in the public sector were women, compared with 34.2% in the private sector. The large apparent drop in average hours in the public sector between 2009 and 2011 (from 34.8 to 26.0) is due to a change in methodology. Data before 2009 is all hours worked by employment sector of main job where the 2011 data include both public and private hours worked and dentists appear in each sector that they work in.

To account for the fact that some dentists work in both sectors, the number of full-time equivalents (FTEs) has been calculated. The number of FTEs in the public sector was 1,928, compared with 10,606 in the private sector.

Table 3.12: Employed dentists: selected characteristics, by employment sector^(a), 2006 to 2011

Characteristic	2006	2009	2011
Private sector			
Number	8,757	9,453	11,353
Average age	45.4	45.4	43.5
Aged 55 and over (per cent)	n.a.	n.a.	22.5
Women (per cent)	25.5	29.8	34.2
Average weekly hours worked	38.8	37.6	35.5
FTE number	8,941	9,353	10,606
Public sector			
Number	1,648	1,546	2,818
Average age	44.2	45.6	42.9
Aged 55 and over (per cent)	n.a.	n.a.	23.7
Women (per cent)	44.2	45.6	42.4
Average weekly hours worked	35.0	34.8	26.0
FTE number	1,518	1,416	1,928

(a) Care should be taken in interpreting change in the estimates over time due to changes in the way practitioners were assigned to a sector. Data for 2006 and 2009 are based on sector of main job whereas data for 2011 refer to all persons working in that sector. For calculation of average hours worked, 2011 data are based on reported hours worked in each sector whereas the 2006 and 2009 data are based on all hours worked classified by sector of main job.

Sources: National Dental Labour Force Collection, 2006 and 2009; NHWDS: dental practitioners 2011.

3.3 Geographic profile of employed dentists

3.3.1 Remoteness areas of Australia

The distribution of dentists across the remoteness classification in Australia is of considerable interest to both government and communities. Information on the work location of dental practitioners is collected in the Dental Workforce Survey 2011. This provides a means, in combination with other data on hours and population, of examining variability in the supply of dental practitioners across Australia.

Using the postcode of their main work location where available, each dentist is allocated to one of the following in the Australian Standard Geographical Classification Remoteness Area (ASGC RA): *Major cities*, *Inner regional*, *Outer regional*, *Remote*, *Very remote* and *Migratory* (see Glossary). Otherwise, remoteness area of principal practice is used as a proxy; if remoteness area of principal practice is unavailable, remoteness area of residence is used. For records with no information on all three locations, they are coded to 'Not stated' location. In this report, the *Remote*, *Very remote* and *Migratory* categories have been combined due to small numbers.

The number of dentists increased between 2006 and 2011 in all remoteness areas in terms of raw numbers and FTE per 100,000 population. In 2011, more than one-third (36.8%) of dentists in *Major cities* were female, which is slightly less than in *Remote/Very remote* areas (49.7%), which have the highest proportion of the four RAs. The average age of dentists in *Major cities* was 43.6, which was only slightly higher than the national average in 2011 (Table 3.13).

Table 3.13: Employed dentists: selected characteristics, by remoteness area, 2006 and 2011

Characteristic	Major cities	Inner regional	Outer regional	Remote/Very remote ^(a)	Australia ^(b)
2006^(c)					
Number	8,428	1,349	540	87	10,404
Average age	44.9	45.8	46.1	43.3	45.1
Aged 55 and over (per cent)	22.8	27.6	25.9	25.3	23.6
Women (per cent)	29.7	25.1	24.4	42.5	29.0
Average weekly hours ^(d) worked	38.4	38.3	38.6	39.7	38.5
FTE rate ^(e)	60.1	33.3	27.9	18.9	50.9
2011^(f)					
Number	10,055	1,844	685	130	12,734
Average age	43.6	42.4	43.5	43.5	43.5
Aged 55 and over (per cent)	22.6	23.1	26.6	27.4	23.0
Women (per cent)	36.8	31.3	28.1	39.7	35.6
Average weekly hours ^(d) worked	37.4	37.5	37.7	39.8	37.4
FTE rate ^(e)	64.1	42.1	33.5	26.4	56.1

(a) Includes *Migratory* areas.

(b) Includes dentists who did not state or adequately describe their location of practice and those who were overseas.

(c) Remoteness area of main job.

(d) Care should be taken in interpreting change in the estimates on hours worked due to changes in the question on hours worked from 2006 to 2011.

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

(f) 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'.

Sources: National Dental Labour Force Collection 2006; NHWDS: dental practitioners 2011.

Between 2006 and 2011, the number of employed dentists increased by 22.4%. In combination with a slight fall in the average hours worked and the natural increase in population, the supply of dentists in terms of FTE per 100,000 population grew by 10.2%. The lowest growth was in *Major cities* (6.5%). Notwithstanding a 55.8% increase in FTE per 100,000 population between 2006 and 2011, the supply of dentists remains the lowest in *Remote/ Very remote* areas. In 2011, dentists in *Remote/Very remote* areas also have the distinction of having the highest proportion of dentists aged over 55 (27.4%), the highest proportion of dentists who are women (39.7%) and the highest average weekly hours worked of any Remoteness Area (39.8).

3.3.2 States and territories of Australia

Between 2006 and 2011, the number of employed dentists increased in all jurisdictions (Table 3.14). Victoria, Queensland, Western Australia and the Northern Territory had increases greater than the national rate of 22.4% (26.5%, 24.6%, 24.3% and 23.1%, respectively). The FTE rate rose by 10.2% overall, with the highest increase in Victoria (15.6%, from 46.5 to 53.8 FTE per 100,000 population). The only notional decrease was in the Australian Capital Territory (5.9%, from 69.5 to 65.5 FTE per 100,000 population). Part of these differences may be due to improvements in the methodology allocating dentists to states on the basis of where they reported working rather than on the registration data.

Table 3.14: Employed dentists: selected characteristics, state and territory, 2006 and 2011

Characteristic	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia ^(a)
									2006^(b)
Number	3,561	2,449	2,028	1,071	826	172	218	78	10,404
Average age	45.4	44.4	44.7	44.8	46.3	47.6	47.5	47.6	45.1
Aged 55 and over (per cent)	22.7	23.1	23.0	24.0	27.7	33.7	20.6	33.3	23.6
Women (per cent)	27.6	32.3	27.9	27.7	28.5	24.1	30.2	45.3	29.0
Average weekly hours ^(c) worked	40.5	37	38.2	37.3	36.1	37.5	40.5	41.4	38.5
FTE rate ^(d)	55.7	46.5	49.8	51.0	50.0	34.6	69.5	40.3	50.9
									2011^(e)
Number	4,252	3,098	2,526	1,331	1,000	187	231	96	12,734
Average age	44.6	42.8	42.1	42.3	44.7	45.2	44.5	44.1	43.5
Aged 55 and over (per cent)	24.5	21.6	19.6	20.6	30.4	29	25.1	n.p.	23.0
Women (per cent)	34.1	40.4	33.6	36.7	34.7	15.4	35.1	n.p.	35.6
Average weekly hours ^(c) worked	38.4	36.5	37.8	36.6	36.0	36.7	39.6	39.7	37.4
FTE rate ^(d)	59.6	53.8	56.2	54.5	57.8	35.3	65.5	43.4	56.1

(a) Includes dentists who did not state or adequately describe their state or territory and those who were overseas.

(b) State and territory estimates for 2006 are based on state or territory of registration and should be treated with caution due to low response rates in some jurisdictions. See Appendix A for further information.

(c) Care should be taken in interpreting change in the estimates on hours worked due to changes in the question on hours worked from 2006 and 2011.

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

(e) State and territory estimates for 2011 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'.

Sources: National Dental Labour Force Collection 2006; NHWDS: dental practitioners 2011.

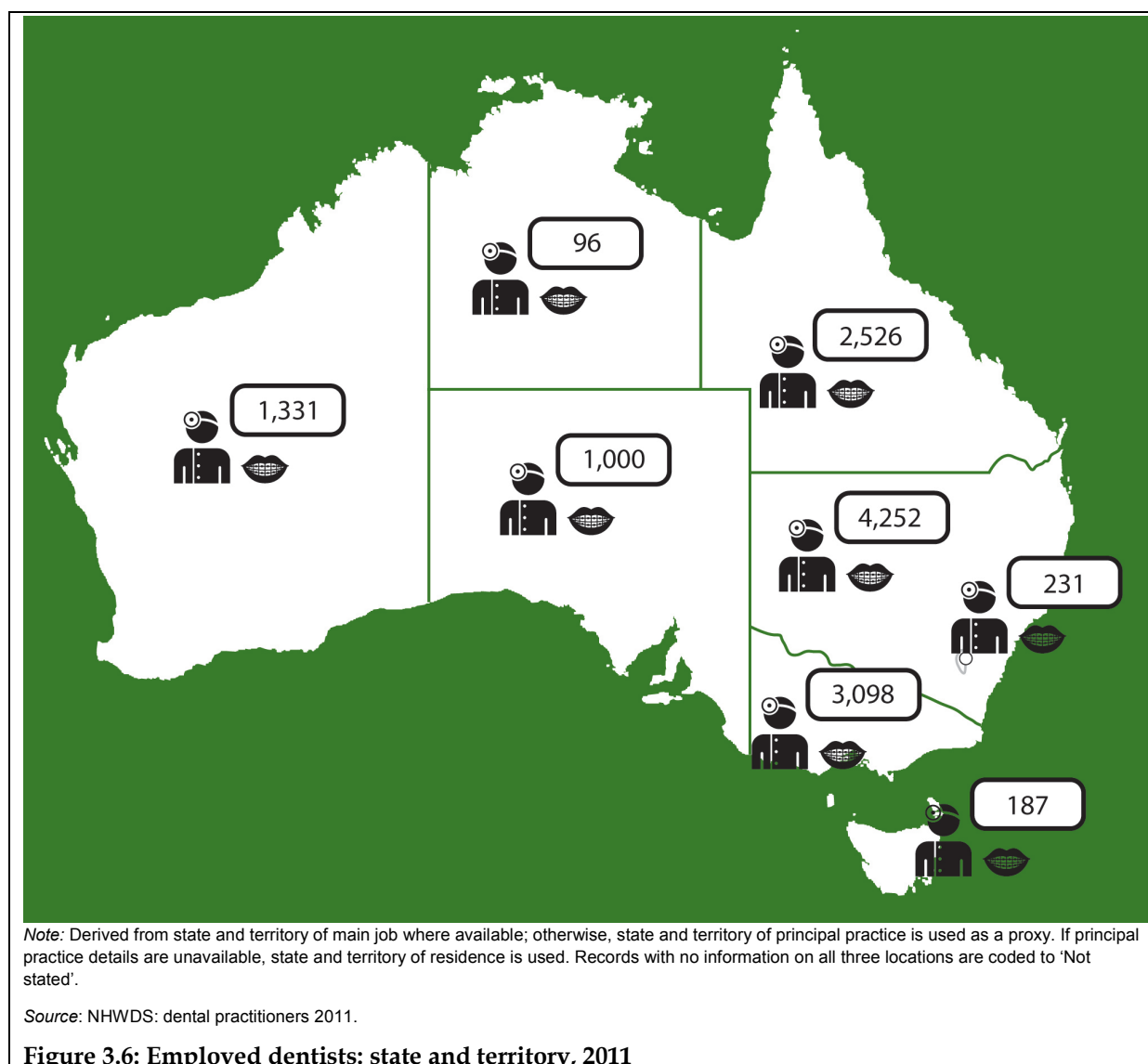


Figure 3.6: Employed dentists: state and territory, 2011

3.4 Supply of employed dentists

3.4.1 Overall supply

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

To do this, information on the number of employed dental practitioners, together with their average hours worked, have been used to calculate an FTE number of practitioners, based on a 'standard full-time working week' of 38 hours (Box 3.2).

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

Box 3.2: Full-time equivalent

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

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

The concept of FTE depends on what may reasonably be regarded as a full-time job, and this varies across occupations. The Australian Bureau of Statistics (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 (ABS 2012) and dental practitioners have worked, on average, 37.4 hours per week (Table 3.6). In this report, a standard week of 38 hours has been used to calculate realistic FTE measures of service delivery by practitioners. That is, FTE measures the number of 38-hour week workloads provided by the dental practitioner workforce.

3.4.1 Supply of clinicians

The overall supply of clinicians increased between 2006 and 2011, from 49.0 FTE per 100,000 population in 2006 to 53.7 in 2011 (Table 3.15). The overall supply of dentists increased 10.2%, from 50.9 FTE per 100,000 population in 2006 to 56.1 in 2011 (Table 3.14).

Table 3.15: Employed dentists: FTE^(a) per 100,000 population, by principal role of main job, 2006 and 2011

Principal role of main job	2006	2011
Clinician ^(b)	49.0	53.7
<i>Non-clinician</i>	<i>1.8</i>	<i>2.4</i>
Administrator	0.4	0.8
Teacher/educator	0.8	1.0
Researcher	0.2	0.3
Other	0.5	0.5
Total	50.9	56.1

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






(b) Clinician includes those whose role in their main job was 'Clinician'.

Source: NHWDS: dental practitioners 2011.

4 Dental hygienists

4.1 Registered dental hygienists

4.1.1 At a glance

	<p>In 2011, there were 1,206 registered dental hygienists, 1,065 of whom were employed in dental hygiene.</p>
	<p>About 1 in 26 employed dental hygienists were men.</p>
	<p>The average age of dental hygienists was 37.4; only 5.7% were aged 55 or over.</p>
	<p>On average, employed dental hygienists worked 29.1 hours a week in 2011. Almost two-thirds worked part time (less than 35 hours per week).</p>
	<p>Most employed dental hygienists worked in general dental practice.</p>

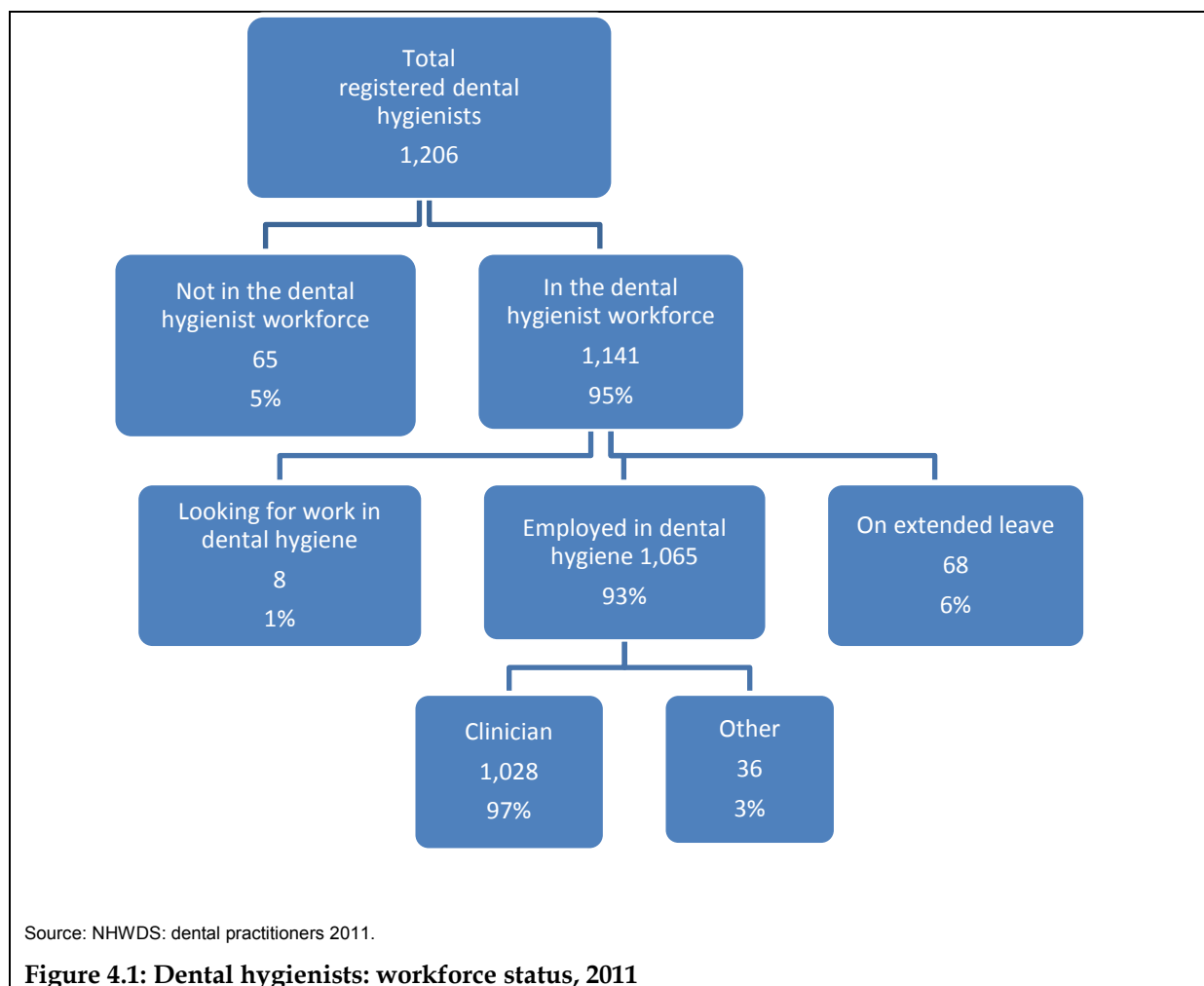
Source: NHWDS: dental practitioners 2011.

Box 4.1: Services provided by dental hygienists

Dental hygienists carry out preventative dental procedures under the direction of a dentist, including:

- oral examination and the assessment and recording of oral conditions
- taking impressions of teeth (other than for prosthodontic or prosthetic dental treatment)
- application of preventive and therapeutic solutions to the teeth
- preventive dental procedures, including the application of fissure sealants
- non-surgical management of gingival and periodontal conditions, including root debridement
- orthodontic procedures that do not initiate tooth movement
- placement and removal of metallic and non-metallic separators
- splinting to stabilise mobile teeth
- polishing and re-contouring of restorations
- application of professional available bleaching agents
- removal of sutures
- application and removal of periodontal packs
- diagnostic dental radiography
- administration of local anaesthetic solutions for dental procedures
- placement of temporary restorations not involving the removal of tooth structures.

Source: AIHW DSRU 2012, ABS 2006



4.1.2 Workforce status

The number of registered dental hygienists in 2011 was 1,206 (Figure 4.1). Between 2006 and 2011, the number of dental hygienists employed in dentistry increased by 58.0% from 674 to 1,065 (Table 4.1). Due to the creation of the new dental profession of OHTs representing those dual qualified as hygienists and therapists, care should be taken in comparing these three categories over time.

Changes to the new nationally standardised survey questionnaire have resulted in a slight change in the pattern of responses to the employment-related questions. As such, comparing data over time should be done with caution. (See Appendix A for further information on changes to the employment-related questions.)

Table 4.1: Dental hygienists: workforce status, 2006^(a), 2009 and 2011

Workforce status	2006 ^(a)	2009	2011	Change between 2006 and 2011 (per cent)
In the dental workforce	717	987	1,141	59.2
Employed in dentistry	674	933	1,065	58.0
<i>Looking for work in dentistry</i>	5	16	8	68.2
Employed elsewhere	..	..	7	..
Not employed	..	..	1	..
On extended leave	38	38	68	78.9
Not in the dental workforce^(b)	41	44	65	58.5
Overseas	16	14	13	-18.0
<i>Not looking for work in dentistry</i>	..	..	46	..
Employed elsewhere	..	..	15	..
Not employed	..	..	32	..
Retired	..	..	5	..
Total dental hygienists^(c)	770	1,031	1,206	56.6
Multiple registrations	26	36	..	..
Total registrations	796	1,067	..	..

(a) 2006 data excludes the Northern Territory

(b) For 2006 and 2009, total includes dental hygienists not in the dental hygienist workforce.

(c) For 2006 and 2009, dental hygienists may have been registered in more than one state or territory; this figure accounts for this potential source of double counting. See Appendix A for further information.

Sources: National Dental Labour Force Collection, 2006 and 2009; NHWDS: dental practitioners 2011.

Of the 1,206 registered dental hygienists in 2011, 1,065 (88.3%) were employed in dentistry in Australia (Table 4.1). The Australian percentage is lower than all the states and territories except for New South Wales (86.6%), due to the inclusion of dental hygienists registered in Australia who were overseas and were not included in any state or territory total.

Table 4.2: Dental hygienists: workforce status, state and territory^(a), 2011

Workforce status	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia ^(b)
In the dental workforce	329	163	111	250	217	14	50	7	1,141
<i>Employed in dentistry</i>	304	151	105	234	204	13	47	7	1,065
On extended leave or looking for work in dentistry	25	12	6	15	13	1	2	—	76
Not in the dental workforce	22	5	5	14	4	—	1	—	65
Total registered dental hygienists	351	168	116	264	221	14	51	7	1,206

(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 dental hygienists who did not state or adequately describe their state or territory, and dentists who were overseas. Therefore, state and territory totals may not sum to the national total. In particular, the total for 'Not in the dental workforce' is noticeably higher than the sum of the state and territory figures due to dental hygienists working overseas.

Source: NHWDS: dental practitioners 2011.

As outlined previously, the data transitioned from state- and territory-based systems to a national registration system in 2010. Before the NRAS was introduced in 2010, data were reported by state of registration. With the new system, data in this report are being reported on the basis of the most current address at the time the survey was undertaken, unless stated otherwise.

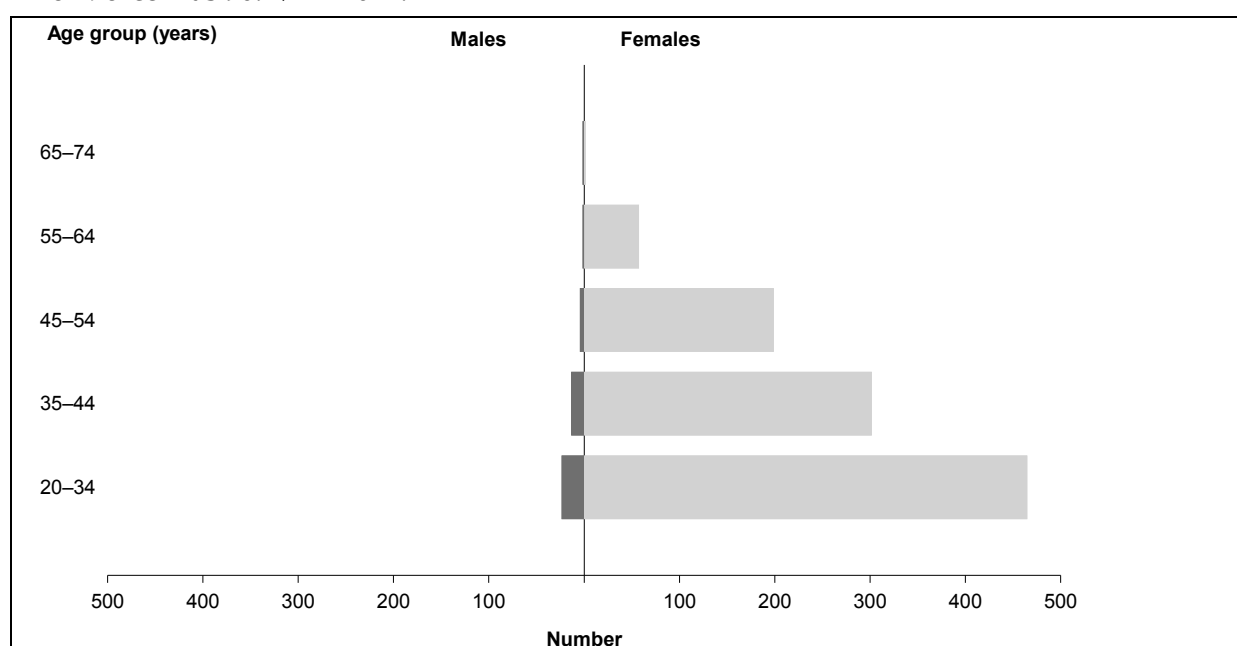
4.2 Dental hygienists employed in dental hygiene in Australia

A dental hygienist who reported working in dental health in the week before the survey is considered to have been employed in dentistry, or to be an employed dental hygienist, at the time of the survey (see Glossary).

The characteristics and supply of dental hygienists employed in Australia are the focus of the remainder of this section.

4.2.1 Age and sex

In 2011, the average age of employed dental hygienists was 37.1 years, slightly younger than the average of 37.7 in 2006 (Table 4.9). The proportion of women in the dental hygienist workforce was 96.1% in 2011.



Source: NHWDS: dental practitioners 2011.

Figure 4.2: Number of employed dental hygienists, by age group and sex, 2011

4.2.2 Aboriginal and Torres Strait Islander dental hygienists

There were 11 employed dental hygienists who identified themselves as Aboriginal and Torres Strait Islanders, representing about 1% of employed dental hygienists who responded to the question.

4.2.3 Field of dental hygiene

The principal role in dentistry describes the types of dental hygiene work undertaken by employed dental hygienists. The 2011 survey categorised the roles as clinician, administrator, teacher/educator, researcher, and other. In 2011, the largest group was clinicians, with 96.5% of employed dental hygienists identifying as clinicians. The oldest group was teacher/educators, with an average age of 48.4 (Table 4.3).

Table 4.3: Employed dental hygienists: principal role in main job, selected characteristics, 2011

Principal role in main job	Number	Average age	Aged 55 and over (per cent)	Women (per cent)	Average weekly hours	FTE rate ^(a)
Clinician	1,028	37.1	5.0	95.9	29	3.5
<i>Non-clinician</i>	36	47.0	<i>n.p.</i>	<i>n.p.</i>	30.7	0.1
Administrator	6	41.8	<i>n.p.</i>	<i>n.p.</i>	33.6	—
Teacher/educator	24	48.4	<i>n.p.</i>	<i>n.p.</i>	29.8	0.1
Researcher	<i>n.p.</i>	<i>n.p.</i>	<i>n.p.</i>	<i>n.p.</i>	<i>n.p.</i>	—
Other	<i>n.p.</i>	<i>n.p.</i>	<i>n.p.</i>	<i>n.p.</i>	<i>n.p.</i>	—
Total	1,065	37.4	5.7	96.1	29.1	3.7

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

Sources: National Dental Labour Force Collection 2006; NHWDS: dental practitioners 2011.

Area of dentistry

Survey respondents were asked to indicate the principal area of their main job in dentistry in the week before the survey. Fourteen response categories were provided, with only one response allowed. Table 4.5 provides these responses disaggregated by selected characteristics of the respondent with smaller categories aggregated with 'Other' for confidentiality purposes. General dental practice is the most common area of practice, with 59% of all employed dental hygienists. Periodontics was the next largest category, with 15% of all employed dental hygienists (Table 4.4).

Table 4.4: Employed dental hygienists: principal area of main job, selected characteristics, 2011

Principal area of main job	Number	Average age (years)	Aged 55 and over (per cent)	Women (per cent)	Average weekly hours	FTE rate ^(a)
General dental practice	629	37.1	4.4	97.5	28.6	2.1
Orthodontics	132	35.8	4.6	96.5	29.1	0.5
Periodontics	157	39.3	9.1	92.5	28.5	0.5
Prosthodontics	11	38.3	n.p.	n.p.	35.2	—
Public health dentistry	9	43.4	n.p.	n.p.	26.8	—
Special needs dentistry	4	44.4	n.p.	n.p.	33.9	—
Other	53	38.7	n.p.	n.p.	31.7	0.2
Not stated/inadequately described	70	37.6	n.p.	n.p.	32.0	0.3
All	1,065	37.4	5.7	96.1	29.1	3.7

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

Source: NHWDS: dental practitioners 2011.

4.2.4 Work setting

Dental hygienists were asked to indicate the setting of their main job in dentistry in the week before completing the Dental Workforce Survey 2011. The overwhelming majority of dental hygienists were working in private practice (91.0% of clinicians and 88.5% of all employed dental hygienists). Nearly two-thirds of dental hygienists in private practice were working in group practices (57.6% of clinicians and 57.4% of all employed dental hygienists) (Table 4.5).

Table 4.5: Employed dental hygienists: work setting of main job and clinician status, number and average weekly hours worked, 2011

Work setting of main job	Clinicians ^(a)		All dental hygienists	
	Number	Average weekly hours worked	Number	Average weekly hours worked
<i>Private practice</i>	935	28.7	943	28.7
Solo private practice	387	29.1	392	29.2
Group private practice	539	28.6	541	28.6
Locum private practice	9	16.8	9	16.8
Other	39	31.5	65	30.9
Not stated	54	33.3	57	33.4
Total	1,028	29.0	1,065	29.1

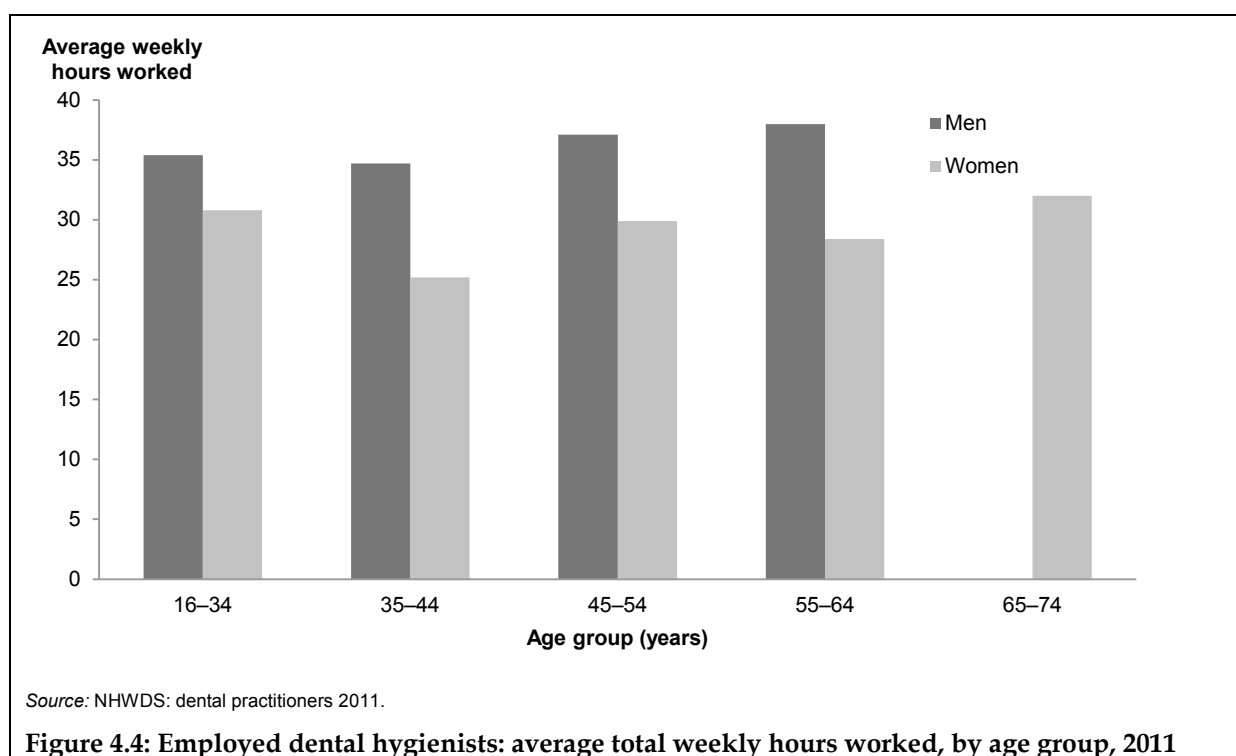
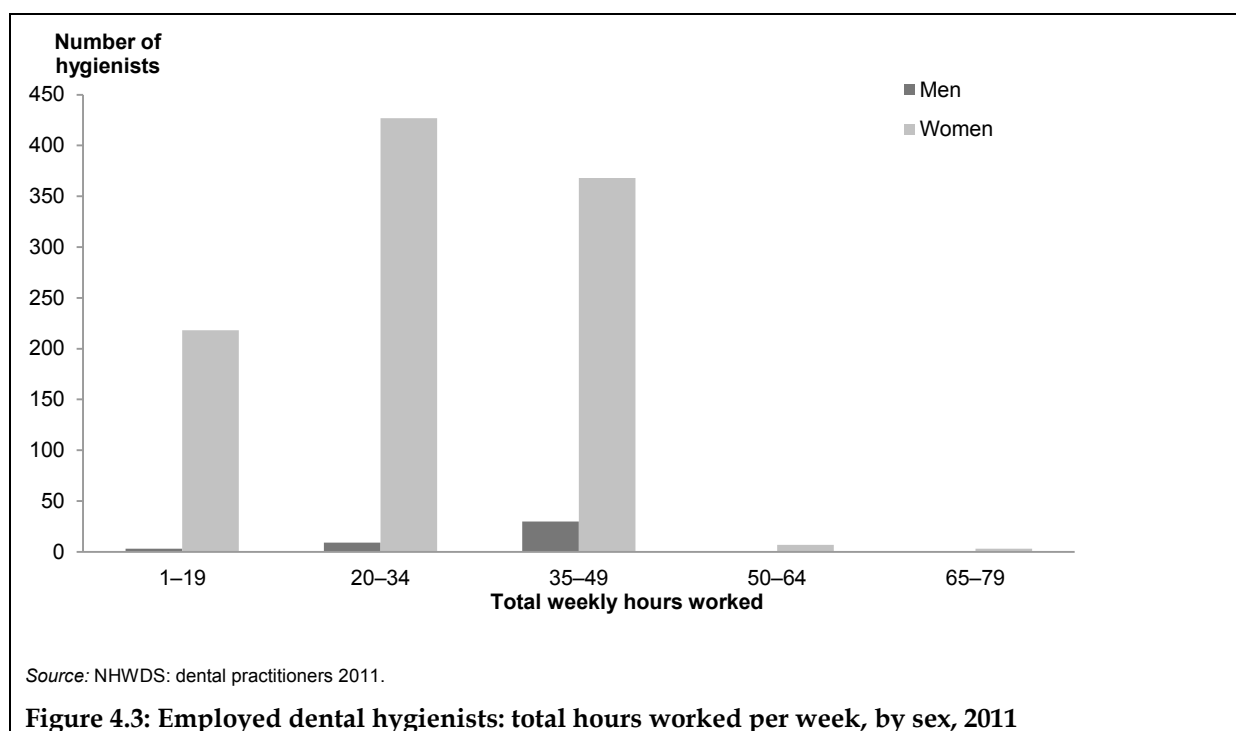
(a) Clinician includes those whose role in their main job was 'Clinician'.

Source: NHWDS: dental practitioners 2011.

4.2.5 Working hours

Comparison of working hours over time should be undertaken with care, due to differences between the survey questions used in the Dental Workforce Survey 2011 and the previous National Dental Labour Force Collection (see Appendix A).

On average, employed dental hygienists worked 29.1 hours a week in 2011, slightly up from 28.8 in 2006. Nearly two-thirds of dental hygienists (61.6%) worked part time (less than 35 hours per week) (Figure 4.3)



Work setting

Dental hygienists working in a solo private practice as their main job worked the most hours on average (29.1) per week (Table 4.5).

States and territories

Dental hygienists in New South Wales tended to work the most average hours (31.9), while South Australian dental hygienists worked the fewest (24.6) (Table 4.6).

Table 4.6: Employed dental hygienists: average total weekly hours^(a) worked, sex, state and territory, 2006 and 2011

Sex	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
2006^(b)									
Persons	29.6	29.8	29.3	30.3	24.9	29.7	31.7	..	28.8
Men	24.6	38.0	35.0	31.0	38.8	..	20.0	..	30.0
Women	29.8	29.7	29.0	30.3	24.6	29.7	32.8	..	28.8
2011^{(c) (d)}									
Persons	31.9	28.1	29.2	29.5	24.9	32.7	29.1	28.5	29.1
Men	39.6	31.2	37.9	36.3	20.6	..	20.0	..	34.6
Women	31.4	28.0	28.5	29.2	25.0	32.7	29.5	28.5	28.8

(a) Care should be taken in interpreting change in the estimates on hours worked due to changes in the question on hours worked from 2006 and 2011.

(b) State and territory estimates for 2006 are based on state or territory of registration and should be treated with caution due to small numbers of practitioners. Northern Territory not included. See Appendix A for further information.

(c) State and territory estimates for 2011 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) Includes dental hygienists who did not state or adequately describe their state or territory and those who were overseas.

Source: National Dental Labour Force Collection 2006; NHWDS: dental practitioners 2011.

Remoteness areas

Dental hygienists working in *Inner regional* areas worked the most hours (39.6) in 2011. In 2011, dental hygienists working in *Remote and very remote* areas had the fewest average working hours (23.1) (Table 4.7).

Table 4.7: Employed dental hygienists: average total weekly hours^(a) worked, remoteness area^(b) of main job, 2006 and 2011

Sex	Major cities	Inner regional	Outer regional	Remote/Very remote ^(c)	Australia ^(d)
2006					
Persons	28.8	29.6	26.7	32.0	28.8
Men	30.0	..	..	..	30.0
Women	28.8	29.6	26.7	32.0	28.8

(continued)

Table 4.7 (continued): Employed dental hygienists: average total weekly hours^(a) worked, remoteness area^(b) of main job, 2006 and 2011

Sex	Major cities	Inner regional	Outer regional	Remote/Very remote ^(c)	Australia ^(d)
2011					
Persons	28.9	30.6	28.3	17.1	29.1
Men	32.0	42.0	45.0	..	34.6
Women	28.8	29.7	27.9	17.1	28.8

(a) Care should be taken in interpreting change in the estimates on hours worked due to changes in the question on hours worked from 2006 to 2011.

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

(c) Includes *Migratory* areas.

(d) Includes dental hygienists who did not state or adequately describe their location and those who were overseas.

Sources: National Dental Labour Force Collection 2006; NHDWS: dental practitioners 2011.

Employment sector

Dental hygienists work predominantly in the private sector, which has 768 full-time equivalent hygienists, compared with 48 in the public sector. Dental hygienists in the public sector were more likely to work fewer hours and be men than those working in the private sector (17.6 hours compared with 28.4 hours per week on average and 88.9% women compared with 96.1% women, respectively).

Table 4.8: Employed dental hygienists: selected characteristics, by employment sector^(a), 2006 to 2011

Characteristic	2006	2011
Private		
Number	596	1,027
Average age	38.4	37.2
Aged 55 and over (per cent)	n.a.	5.1
Women (per cent)	97.4	96.1
Average weekly hours worked in sector	28.7	28.4
FTE number	450	768
Public		
Number	38	103
Average age	40.0	42.9
Aged 55 and over (per cent)	n.a.	18.3
Women (per cent)	88.3	88.9
Average weekly hours worked in sector	25.0	17.6
FTE number	25	48

(a) Care should be taken in interpreting change in the estimates over time due to changes in the way practitioners were assigned to a sector. Data for 2006 are based on sector of main job whereas but data for 2011 refer to all persons working in that sector. For calculation of average hours worked, 2011 data are based on reported hours worked in each sector whereas the 2006 data are based on all hours worked classified by sector of main job.

Sources: National Dental Labour Force Collection 2006; NHDWS: dental practitioners 2011.

The large apparent drop in average hours in the public sector between 2009 and 2011 is due to a change in methodology; data before 2009 assign all hours to employment sector of main job, whereas the 2011 data include both public and private hours worked and dental hygienists appear in each sector in which they work (Table 4.8).

4.3 Geographic profile of employed dental hygienists

4.3.1 Remoteness areas of Australia

Information on the work location of dental hygienists is collected in the Dental Workforce Survey 2011, providing a means, in combination with other data on hours and population, of examining variability in the supply of dental hygienists across Australia.

Using the postcode of their main work location where available, each dental hygienist is allocated to one of the following in the ASGC RA: *Major cities*, *Inner regional*, *Outer regional*, *Remote*, *Very remote* and *Migratory* (see Glossary). Otherwise, remoteness area of principal practice is used as a proxy; if remoteness area of principal practice is unavailable, remoteness area of residence is used. For records with no information on all three locations, they are coded to 'Not stated' location. In this report, the *Remote*, *Very remote* and *Migratory* categories have been combined due to small numbers (Table 4.9).

Table 4.9: Employed dental hygienists: selected characteristics, remoteness area^(a), 2006 and 2011

Characteristic	Major cities	Inner regional	Outer regional	Remote/Very remote ^(a)	Australia ^(b)
2006^(c)					
Number	589	60	24	1	674
Average age	37.7	38.0	37.3	n.p.	37.7
Aged 55 and over (per cent)	3.9	1.7	8.3	n.p.	3.9
Women (per cent)	96.2	100.0	100.0	n.p.	96.7
Average weekly hours ^(d) worked	28.8	29.6	26.7	n.p.	28.8
FTE rate ^(e)	3.2	1.1	0.9	n.p.	2.5
2011^(f)					
Number	891	119	50	4	1,065
Average age	37.6	36.3	37.0	36.0	37.4
Aged 55 and over (per cent)	5.8	5.0	2.2	—	5.7
Women (per cent)	96.5	92.1	98.0	100.0	96.1
Average weekly hours ^(d) worked	28.9	30.6	28.3	17.1	29.1
FTE rate ^(e)	4.4	2.2	1.8	0.3	3.7

(a) Includes *Migratory* areas.

(b) Includes dental hygienists who did not state or adequately describe their location of practice and those who were overseas.

(c) Remoteness area of main job.

(d) Care should be taken in interpreting change in the estimates on hours worked due to changes in the question on hours worked from 2006 to 2011.

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

(f) 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'.

Sources: National Dental Labour Force Collection 2006; NHWDS: dental practitioners 2011.

Dental hygienists have shown considerable growth across all remoteness areas. *Major cities* have the highest supply of dental hygienists at 4.4 FTE per 100,000 population.

4.3.2 States and territories of Australia

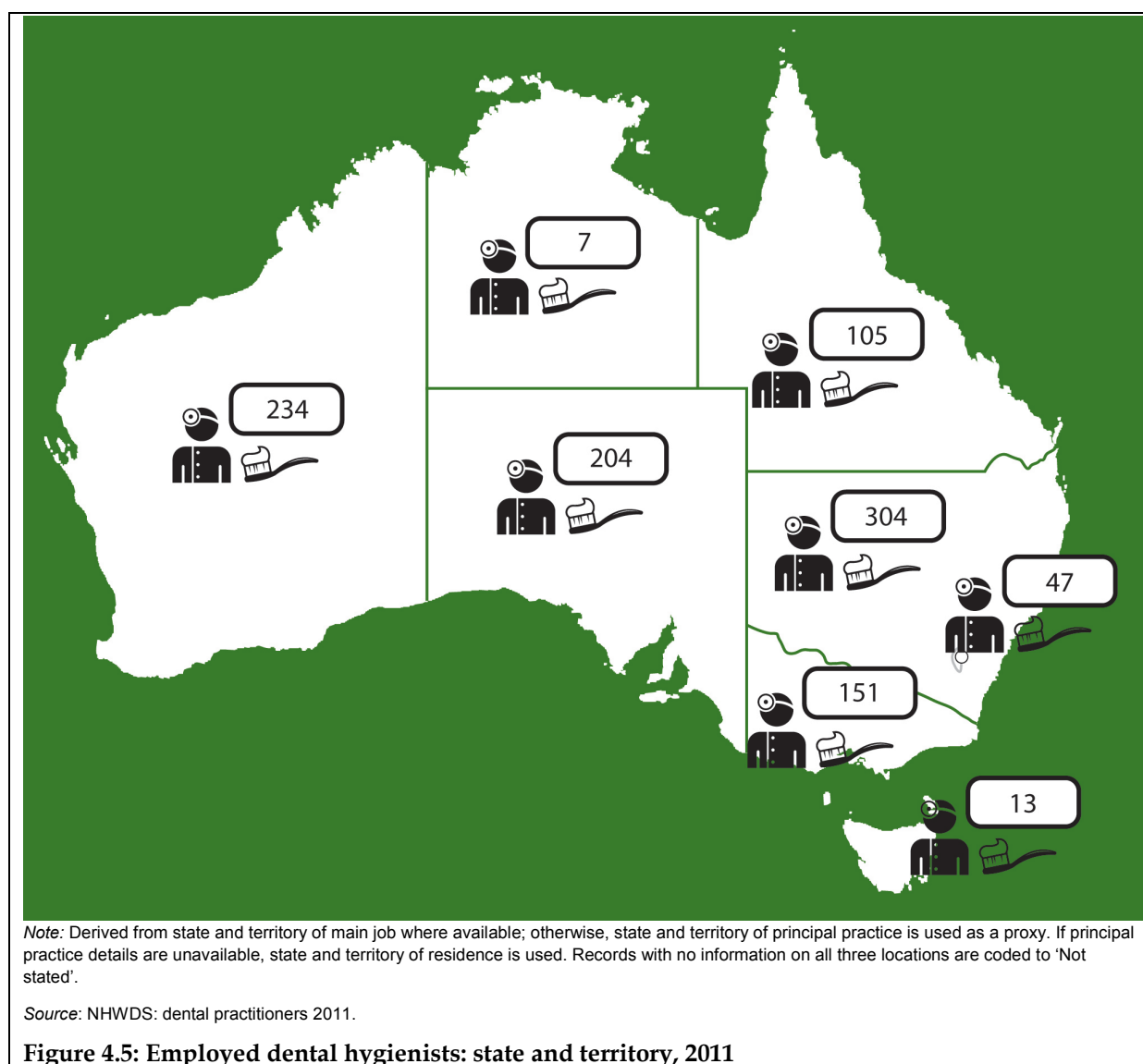


Table 4.10: Employed dental hygienists: selected characteristics, state and territory, 2006^(a) and 2011^(b)

Characteristic	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
2006									
Number	149	120	74	135	154	5	38	..	674
Average age	39.1	37.1	39.7	32.6	40.4	39.0	38.2	..	37.7
Aged 55 and over (per cent)	4.7	6.7	5.4	—	4.5	—	—	..	3.9
Women (per cent)	96.2	98.1	95.9	95.7	98.3	100	91.7	..	96.7
Average weekly hours ^(c) worked	29.6	29.8	29.3	30.3	24.9	29.7	31.7	..	28.8
FTE rate ^(d)	1.7	1.8	1.4	5.2	6.4	0.8	9.5	..	2.5
2011									
Number	304	151	105	234	204	13	47	7	1,065
Average age	36.1	39.7	40.0	33.7	40.6	41.0	37.6	32.5	37.4
Aged 55 and over (per cent)	3.9	5.9	4.0	2.1	11.8	n.p.	n.p.	—	5.7
Women (per cent)	94.8	96.7	93.3	96.9	97.6	n.p.	n.p.	n.p.	96.1
Average weekly hours ^(c) worked	31.9	28.1	29.2	29.5	24.9	32.7	29.1	28.5	29.1
FTE rate ^(d)	3.5	2.0	1.8	7.7	8.2	2.2	9.8	2.3	3.7

(a) State and territory estimates for 2006 are based on state or territory of registration and should be treated with caution due to low response rates in some jurisdictions. See Appendix A for further information.

(b) 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'.

(c) Care should be taken in interpreting change in the estimates on hours worked due to changes in the question on hours worked from 2006 to 2011.

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

Sources: National Dental Labour Force Collection 2006; NHWDS: dental practitioners 2011.

4.4 Supply of dental hygienists

4.4.1 Overall supply

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

To do this, information on the number of employed dental hygienists, together with their average hours worked, has been used to calculate an FTE number of practitioners, based on a standard full-time working week of 38 hours (Box 3.2).

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






4.3.2 Supply of employed dental hygienists

Across Australia, the overall supply of dental hygienists increased between 2006 and 2011, from 2.5 FTE per 100,000 population in 2006 to 3.7 in 2011 (Table 4.9).

5 Dental therapists

5.1 Registered dental therapists

5.1.1 At a glance

	In 2011, there were 1,165 registered dental therapists, 1,044 of whom were working as dental therapists.
	About 1 in 34 dental therapists were men in 2011.
	In 2011, the average age of employed dental therapists was 46.3 years and 14.3% of dental therapists were aged 55 and over.
	Employed dental therapists worked, on average, 28.8 hours a week in 2011, with 61.7% working part time (less than 35 hours per week).
	About half of employed dental therapists reported working in public health dentistry, with about a quarter working in general dental practice.

Source: NHWDS: dental practitioners 2011.

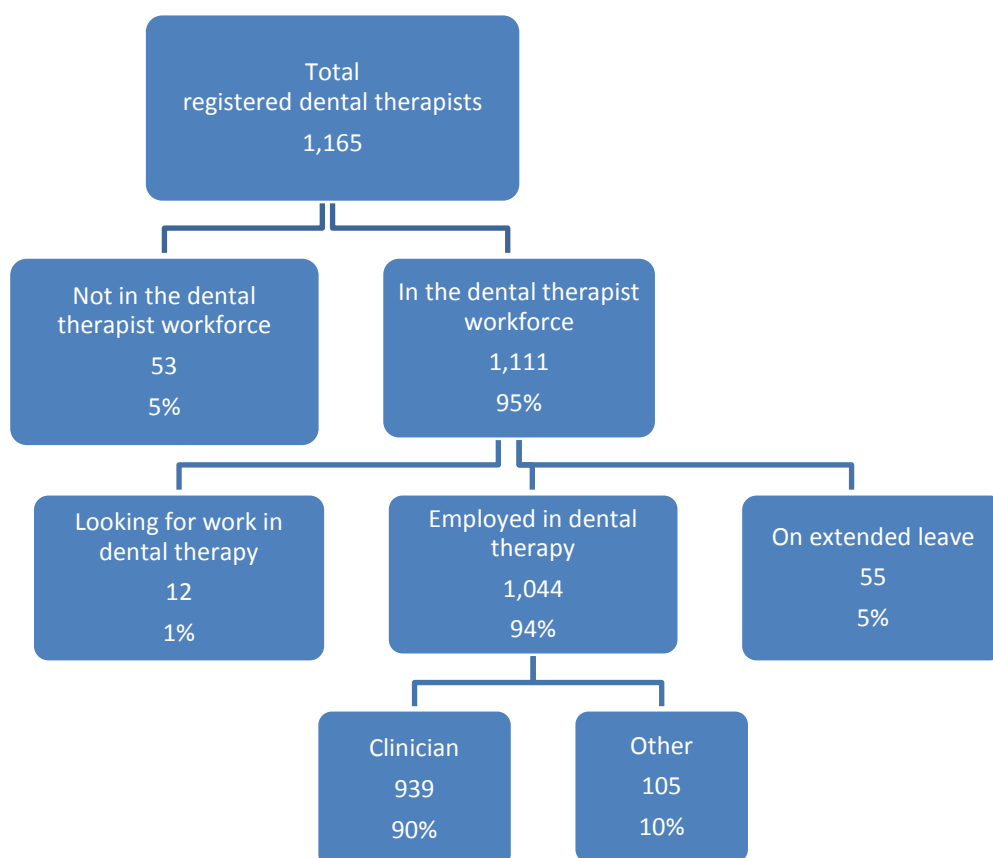
Box 5.1: Services provided by dental therapists

Dental therapists examine and treat diseases of the teeth in preschool, primary and secondary school children under the general supervision of a dentist, including:

- oral examination
- taking of impressions of teeth (other than for the purposes of prosthodontic or prosthetic dental treatment)
- application of preventive and therapeutic solutions to teeth
- preventive dental procedures, including the application of fissure sealants
- administration of local anaesthetic solutions for dental procedures
- dental prophylaxis, including the removal of dental calculus
- splinting to stabilise mobile teeth
- restoration of coronal tooth structure, including pulp capping and pulpotomy
- extraction of deciduous teeth
- diagnostic dental radiography.

A therapist might also be involved in non-clinical roles, such as oral health promotion, education and preventive dentistry.

Source: AIHW DSRU 2012.



Source: NHWDS: dental practitioners 2011.

Figure 5.1: Dental therapists: workforce status, 2011

5.1.2 Workforce status

The number of registered dental therapists in 2011 was 1,165 (Figure 5.1). Between 2006 and 2011, the number of dental therapists employed in dentistry decreased by 10.8%, from 1,171 to 1,044 (Table 5.1). Due to the creation of the new dental profession of OHTs representing those dual qualified as hygienists and therapists, care should be taken in comparing these three categories over time.

Table 5.1: Dental therapists: workforce status, 2006, 2009 and 2011

Workforce status	2006	2009	2011	Change between 2006 and 2011 (per cent)
In the dental workforce	1,231	1,288	1,111	-9.7
Employed in dentistry	1,171	1,234	1,044	-10.8
Looking for work in dentistry	16	13	12	-5.8
Employed elsewhere	..	..	5	..
Not employed	..	..	7	..
On extended leave	44	41	55	26.0
Not in the dental workforce	133	95	53	-59.8
Overseas	5	4	5	-1.6
Not looking for work in dentistry	128	91	40	-68.4
Employed elsewhere	100	56	23	-76.6
Not employed	28	35	17	-39.2
Retired	..	..	8	..
Total dental therapists^(a)	1,364	1,383	1,165	-14.6
Multiple registrations	16	29	..	..
Total registrations	1,380	1,412	..	..

(a) For 2006 and 2009, dental therapists may have been registered in more than one state or territory; this figure accounts for this potential source of double counting. See Appendix A for further information.

Sources: National Dental Labour Force Collection, 2006 and 2009; NHWDS: dental practitioners 2011.

Changes to the new nationally standardised survey questionnaire have resulted in a slight change in the pattern of responses to the employment-related questions. As such, comparing data over time should be done with caution. (See Appendix A for further information on changes to the employment-related questions.)

Of the 1,165 registered dental therapists in 2011, 1,044 (89.6%) were employed in dentistry in Australia (Table 5.1).

Table 5.2: Dental therapists: workforce status and principal role of main job, state and territory^(a), 2011

Workforce status	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
In the dental workforce	222	174	204	323	n.p.	n.p.	13	n.p.	1,111
<i>Employed in dentistry</i>	<i>205</i>	<i>164</i>	<i>197</i>	<i>297</i>	<i>100</i>	<i>52</i>	<i>13</i>	<i>16</i>	<i>1,044</i>
Clinician	168	149	184	278	87	48	n.p.	n.p.	939
Non-clinician	37	15	13	18	13	4	n.p.	n.p.	105
On extended leave or looking for work in dentistry	18	10	7	26	n.p.	n.p.	—	—	67
Not in the dental workforce	22	5	5	16	n.p.	n.p.	—	n.p.	53
Total registered dental therapists	244	179	210	339	107	56	13	17	1,165

(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'.

Source: NHWDS: dental practitioners 2011.

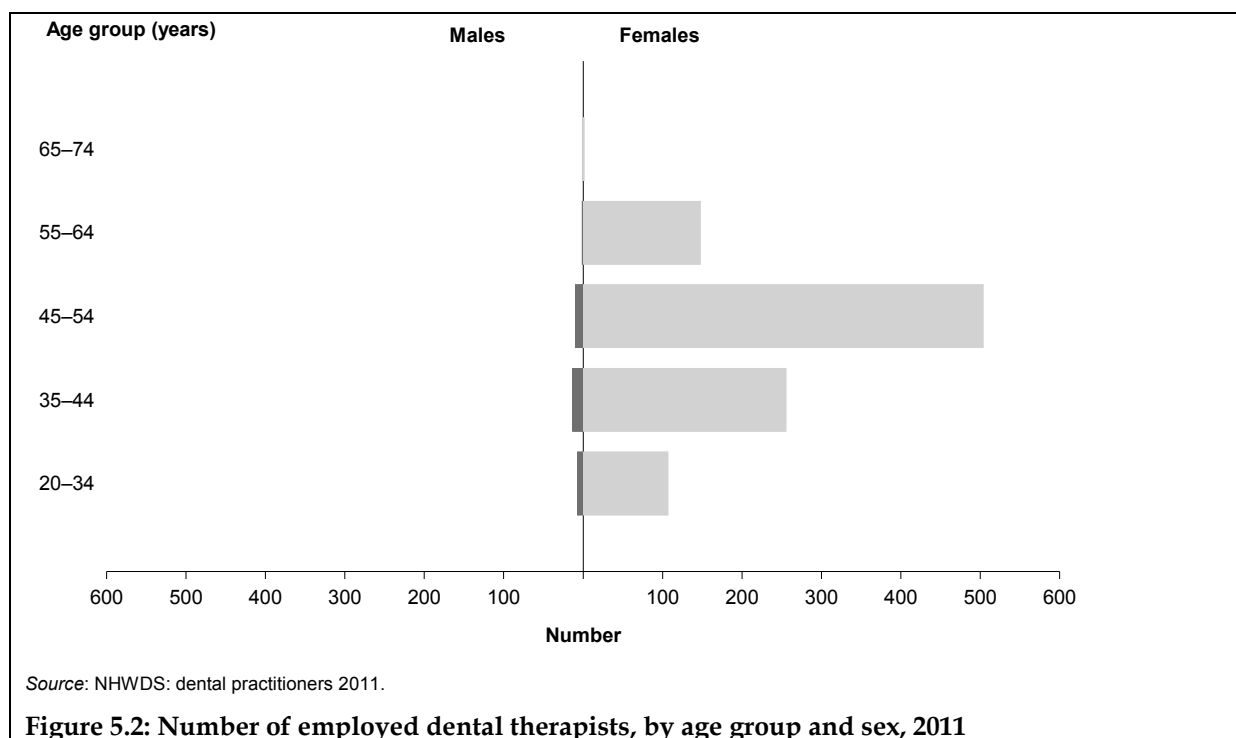
5.2 Dental therapists employed in dental therapy in Australia

A dental therapist who reported working in dental health in the week before the survey is considered to have been employed in dentistry, or to be an employed dental therapist, at the time of the survey (see Glossary).

The characteristics and supply of dental therapists employed in dentistry in Australia are the focus of the remainder of this section.

5.2.1 Age and sex

In 2011, the average age of employed dental therapists was 46.3 years, older than the average of 42.9 in 2006 (Table 5.3). The vast majority (97.1%) were women.



5.2.2 Aboriginal and Torres Strait Islander dental therapists

There were six employed dental therapists who identified themselves as Aboriginal and Torres Strait Islanders, representing about 0.6% of employed dental therapists who responded to the question.

5.2.3 Field of dental therapy

The principal role in dentistry describes the types of dental therapy work undertaken by employed dental therapists. The 2011 survey categorised the roles as clinician, administrator, teacher/educator, researcher, and other. In 2011, most (89.9%) employed dental hygienists identified as clinicians. The oldest group was administrators, with an average age of 48.2.

Table 5.3: Employed dental therapists: principal role in main job, selected characteristics, 2011

Principal role of main job	Number	Average age	Aged 55 and over (per cent)	Women (per cent)	Average hours	FTE rate ^(a)
Clinician	939	46.1	14.1	97.4	28.5	3.2
<i>Non-clinician</i>	105	47.6	15.6	94.3	31.5	0.4
Administrator	45	48.2	n.p.	n.p.	32.4	0.2
Teacher/educator	41	47.1	n.p.	n.p.	31.1	0.2
Researcher	4	47.6	n.p.	n.p.	29.2	—
Other	14	47.3	n.p.	n.p.	30.7	0.1
Total	1,044	46.3	14.3	97.1	28.8	3.5

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

Source: NHWDS: dental practitioners 2011.

Area of dentistry

Survey respondents were asked to indicate the principal area of their main job in dentistry in the week before the survey. Fourteen response categories were provided, with only one response allowed. Table 5.4 provides these responses disaggregated by selected characteristics of the respondent with smaller categories aggregated with 'Other' for confidentiality purposes. Public health dentistry is the most common area of practice, accounting for 48.9% of all employed dental therapists in 2011, followed by general dental practice (25.7%).

Table 5.4: Employed dental therapists: principal area of main job, selected characteristics, 2011

Principal area of main job	Number	Average age (years)	Aged 55 and over (per cent)	Women (per cent)	Average weekly hours	FTE rate ^(a)
General dental practice	268	44.6	9.9	95.6	27.8	0.9
Orthodontics	73	42.0	n.p.	n.p.	22.9	0.2
Paedodontics	83	47.8	n.p.	n.p.	30.9	0.3
Periodontics	16	50.0	n.p.	n.p.	23.5	—
Public health dentistry	510	47.6	16.9	98.1	29.8	1.8
Other	40	45.4	n.p.	n.p.	29.6	0.1
Not stated/inadequately described	54	45.8	n.p.	n.p.	30.3	0.2
Total	1,044	46.3	14.3	97.1	28.8	3.5

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

Source: NHWDS: dental practitioners 2011.

5.2.4 Work setting

Dental therapists were asked to indicate the setting of their main job in dentistry in the week before completing the survey. The most common work setting for dental therapists was educational facilities (34.5% of clinicians and 34.3% of all employed dental therapists). Most of these were working in schools. Community health-care services were the next most common work setting (23.2% of clinicians and 23.5% of all employed dental hygienists) (Table 5.5).

Table 5.5: Employed dental therapists: work setting of main job and clinician status, number and average weekly hours worked, 2011

Work setting of main job	Clinicians ^(a)		All dental therapists	
	Number	Average weekly hours worked	Number	Average weekly hours worked
<i>Private practice</i>	193	23.4	203	23.4
Solo private practice	64	24.6	67	24.7
Group private practice	129	22.8	136	22.8
Community health care services	218	29.3	245	29.4
Hospital	73	27.7	84	28.2
<i>Educational facilities</i>	324	30.4	358	30.4
Tertiary educational facility	7	33.4	31	31.9
School	318	30.3	324	30.3
Other educational facility	—	—	4	26.4
Other government department or agency	61	31.4	71	31.4
Other	26	31.4	36	32.5
Not stated	43	29.8	47	31.2
Total	939	28.5	1,044	28.8

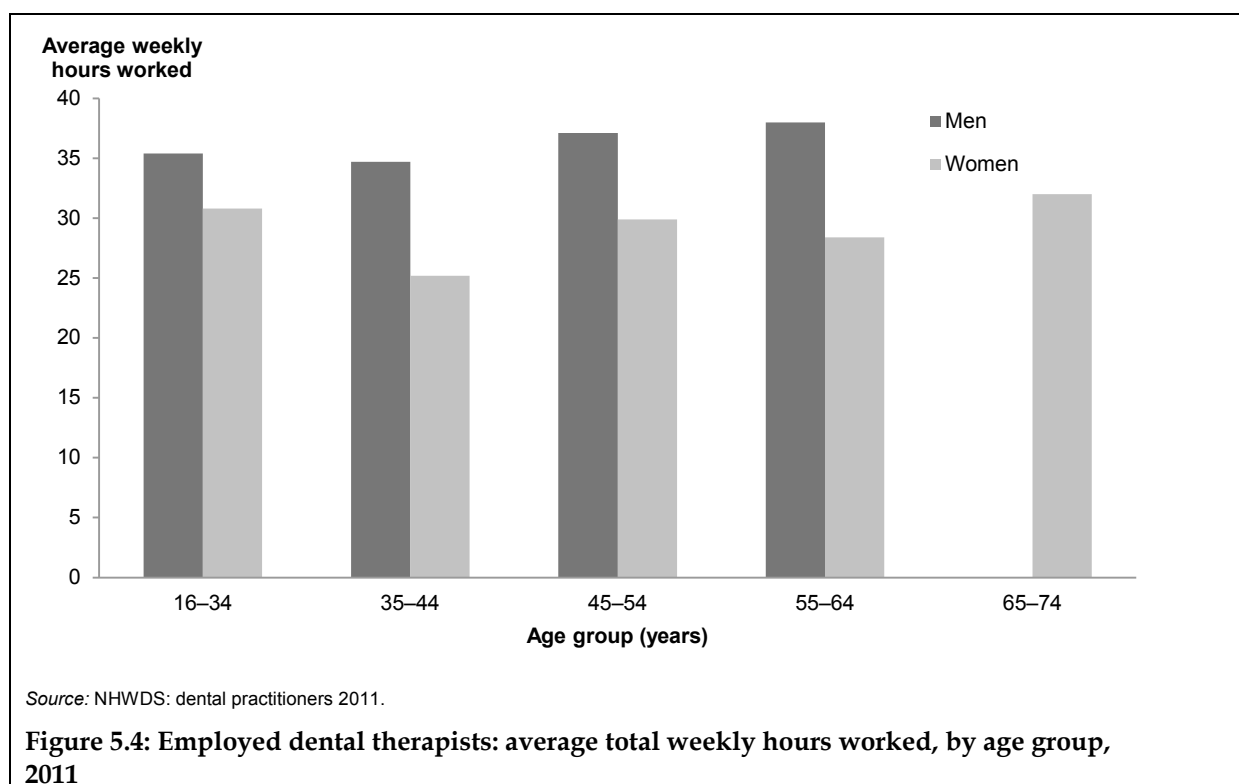
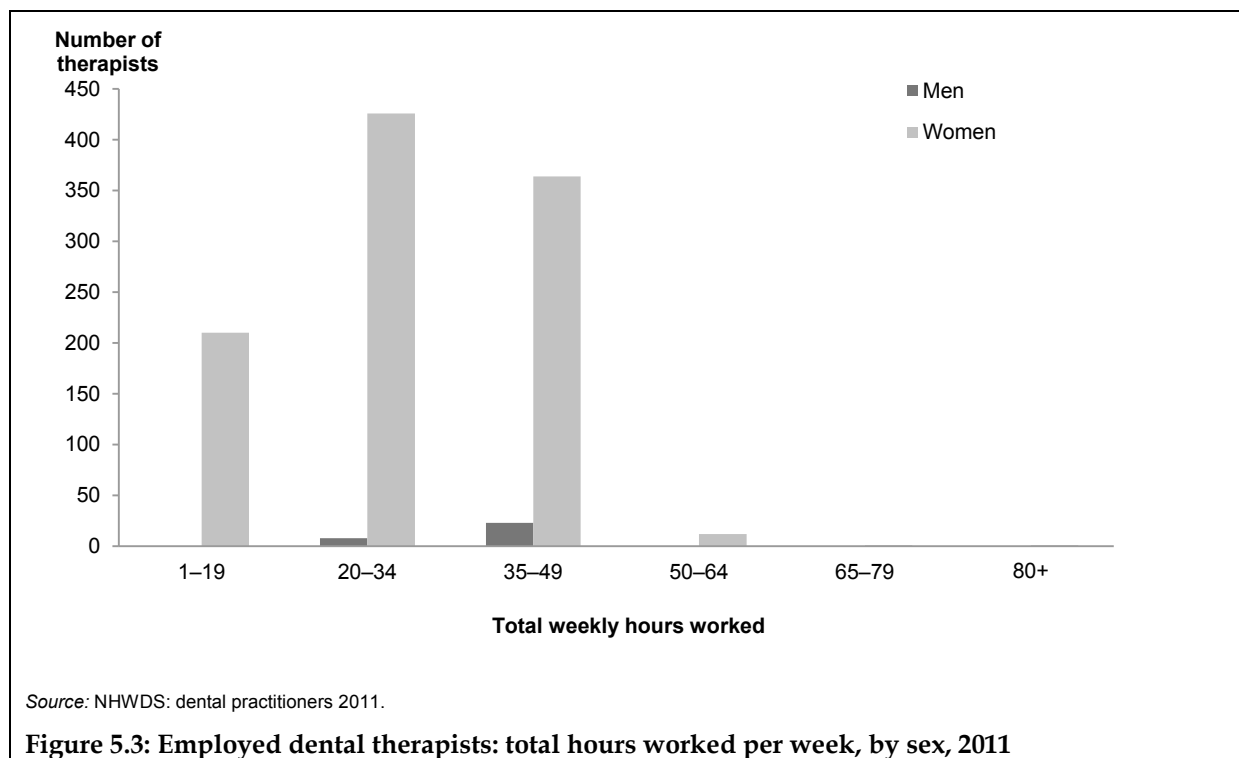
(a) Clinician includes those whose role in their main job was 'Clinician'.

Source: NHWDS: dental practitioners 2011.

5.2.5 Working hours

Comparison of working hours over time should be undertaken with care, due to differences between the survey questions used in the Dental Workforce Survey 2011 and the previous National Dental Labour Force Collection (see Appendix A).

On average, employed dental therapists worked 28.8 hours a week in 2011, slightly up from 28.0 in 2006. Almost two-thirds (61.7%) worked part time (less than 35 hours per week) (Figure 5.4).



Work setting

Dental therapists whose main work setting was categorised as 'Other' worked the most hours on average (32.5 per week). Those whose main work setting was tertiary education facilities worked 31.9 hours per week (Table 5.5).

States and territories

Dental therapists in the Northern Territory tended to work the most hours per week on average (35.6) while Victorian dental therapists worked the fewest (26.5) (Table 5.6).

Table 5.6: Employed dental therapists: average total weekly hours^(a) worked, sex, state and territory, 2006 and 2011

Sex	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
2006^(b)									
<i>Persons</i>	29.8	26.7	28.8	26.7	26.9	29.4	29.8	31.9	28.0
Men	38.0	39.5	21.0	45.0	15.0	37.8	..	..	33.0
Women	29.8	26.5	28.8	26.6	27.1	28.8	29.8	31.9	27.9
2011^(c)									
<i>Persons</i>	28.7	26.7	31.2	27.8	28.8	30.6	31.0	35.6	28.8
Men	37.6	31.5	38.0	39.0	42.0	34.6	..	..	35.7
Women	28.4	26.5	31.0	27.7	28.6	29.7	31.0	35.6	28.6

(a) Care should be taken in interpreting change in the estimates on hours worked due to changes in the question on hours worked from 2006 and 2011.

(b) State and territory estimates for 2006 are based on state or territory of registration and should be treated with caution due to low response rates in some jurisdictions. See Appendix A for further information.

(c) State and territory estimates for 2011 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'.

Source: National Dental Labour Force Collection 2006; NHWDS: dental practitioners 2011.

Remoteness areas

Dental therapists working in *Remote and Very remote* areas worked the most hours per week on average (31.9 in 2011), and those working in *Inner regional* areas the fewest (28.1). However, the differences were relatively small.

Table 5.7: Employed dental therapists: average total weekly hours^(a) worked, remoteness area^(b), 2006 and 2011

Sex	Major cities	Inner regional	Outer regional	Remote/Very remote ^(c)	Australia
2006					
<i>Persons</i>	27.9	27.7	29.1	28.1	28.0
Men	35.4	29.1	35.4	—	33.0
Women	27.8	27.7	29.1	28.1	27.9

(continued)

Table 5.8 (continued): Employed dental therapists: average total weekly hours^(a) worked, remoteness area^(b), 2006 and 2011

Sex	Major cities	Inner regional	Outer regional	Remote/Very remote ^(c)	Australia
2011					
Persons	28.6	28.1	30.4	31.9	28.8
Men	36.5	36.5	30.4	..	35.7
Women	28.5	27.7	30.4	31.9	28.6

(a) Care should be taken in interpreting change in the estimates on hours worked due to changes in the question on hours worked from 2006 to 2011.

(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) Includes *Migratory* areas.

Sources: National Dental Labour Force Collection 2006; NHWDS: dental practitioners 2011.

Employment sector

Dental therapists in the public sector were more likely to work more hours and be older than those working in the private sector (29.1 compared with 21.4 hours per week on average and an average age of 46.8 compared with 44.7).

Table 5.8: Employed dental therapists: selected characteristics, by employment sector, 2006 and 2011^(a)

Characteristic	2006	2011
Private		
Number	194	290
Average age	41.3	44.7
Aged 55 and over (per cent)	n.a.	8.9
Women (per cent)	99.3	96.9
Average weekly hours worked in sector	22.8	21.4
FTE	116	163
Public		
Number	928	822
Average age	43.3	46.8
Aged 55 and over (per cent)	n.a.	15.4
Women (per cent)	98.7	97.0
Average weekly hours worked in sector	28.9	29.1
FTE	706	629

(a) Care should be taken in interpreting change in the estimates over time due to changes in the way practitioners were assigned to a sector. Data for 2006 are based on sector of main job whereas data for 2011 refer to all persons working in that sector. For calculation of average hours worked, 2011 data are based on reported hours worked in each sector whereas the 2006 data are based on all hours worked classified by sector of main job.

Sources: National Dental Labour Force Collection, 2006; NHWDS: dental practitioners 2011.

The large apparent drop in average hours in the private sector between 2006 and 2011 is due to a change in methodology. Data before 2011 allocated all hours worked to the employment sector of the dental therapist's main job, whereas the 2011 data include both public and private hours worked and dental therapists appear in each sector that they work in.

5.3 Geographic profile of employed dental therapists

5.3.1 Remoteness areas of Australia

Information on the work location of dental therapists is collected in the Dental Workforce Survey 2011, providing a means, in combination with other data on hours and population, of examining variability in the supply of dental therapists across Australia.

Using the postcode of their main work location where available, each dental therapist is allocated to one of the following in the ASGC RA: *Major cities*, *Inner regional*, *Outer regional*, *Remote*, *Very remote* and *Migratory* (see Glossary). Otherwise, remoteness area of principal practice is used as a proxy; if remoteness area of principal practice is unavailable, remoteness area of residence is used. Records with no information on all three locations are coded to 'Not stated' location. In this report, the *Remote*, *Very remote* and *Migratory* categories have been combined due to small numbers.

Dental therapists have increased in number in *Remote* and *Very remote* areas and declined across all other remoteness areas. *Outer regional* areas have the highest supply of dental therapists at 5.3 FTE per 100,000 population (Table 5.9).

Table 5.9: Employed dental therapists: selected characteristics, remoteness area, 2006 and 2011

Characteristic	Major cities	Inner regional	Outer regional	Remote/Very remote ^(a)	Australia
2006^(b)					
Number	728	274	147	21	1171
Average age	43.3	42.3	42.3	39.9	42.9
Aged 55 and over (per cent)	4.7	1.1	4.8	—	3.8
Women (per cent)	99.1	97.4	99.3	100.0	98.8
Average weekly hours ^(c) worked	27.9	27.7	29.1	28.1	28.0
FTE rate ^(d)	3.8	4.9	5.7	3.2	4.2
2011^(e)					
Number	614	265	135	30	1,044
Average age	46.1	46.8	46.7	43.3	46.3
Aged 55 and over (per cent)	13.4	15.2	16.0	n.p.	14.3
Women (per cent)	97.7	95.4	97.0	100.0	97.1
Average weekly hours ^(c) worked	28.6	28.1	30.4	31.9	28.8
FTE rate ^(d)	3.0	4.5	5.3	4.9	3.5

(a) Includes *Migratory* areas.

(b) Remoteness area of main job.

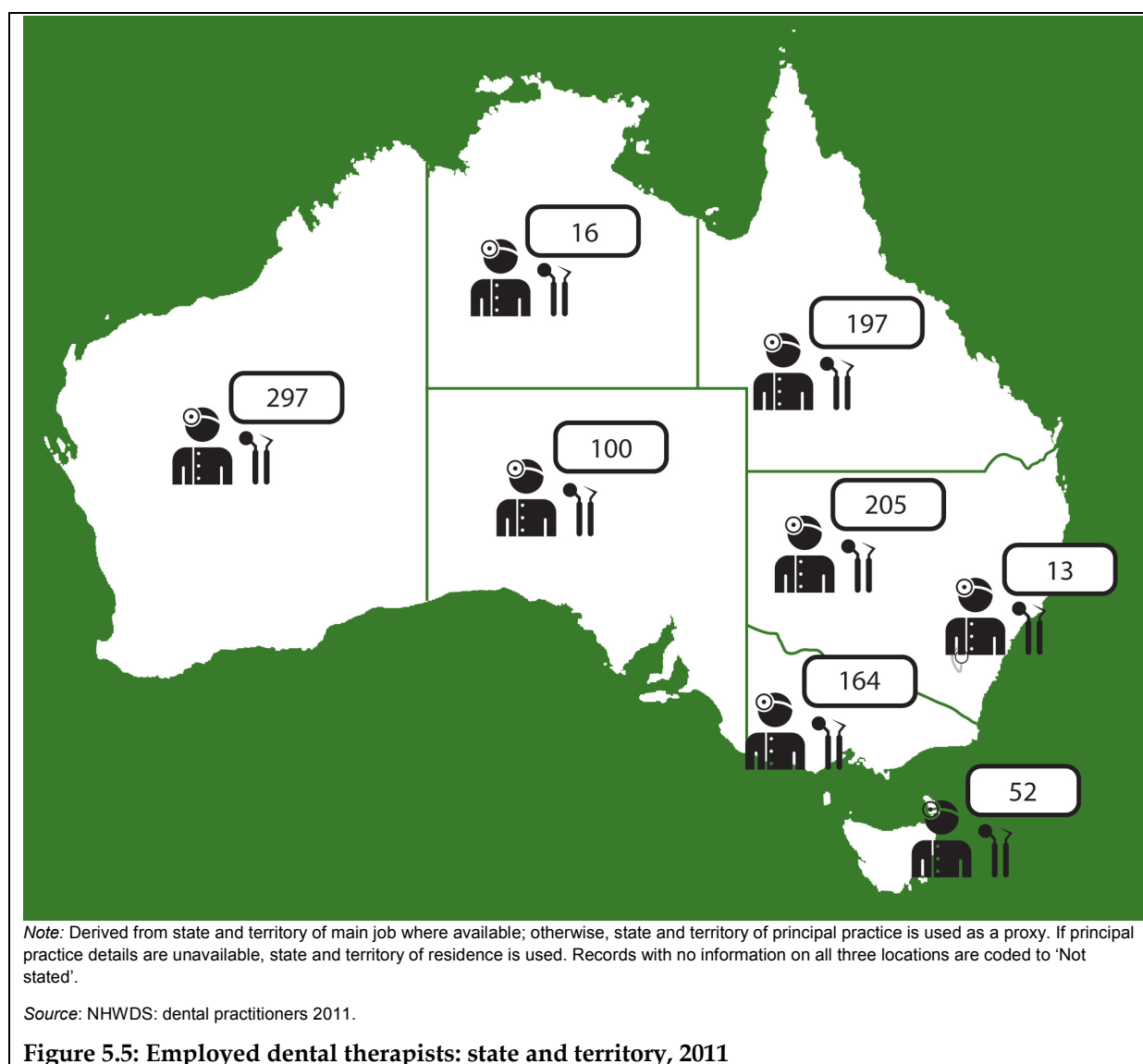
(c) Care should be taken in interpreting change in the estimates on hours worked due to changes in the question on hours worked from 2006 to 2011.

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

(e) 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'.

Source: NHWDS: dental practitioners 2011.

5.3.2 States and territories of Australia



Between 2006 and 2011, the number of employed dental therapists decreased in all jurisdictions except for Western Australia (Table 5.10). The FTE rate also decreased in all jurisdictions, with the largest proportional increase (35.3%) in the Australian Capital Territory. These differences may be due in part to improvements in the methodology allocating dental hygienists to states on the basis of where they reported working rather than on the registration data.

Table 5.10: Employed dental therapists: selected characteristics, state and territory, 2006^(a) and 2011^(b)

Characteristic	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
2006^(a)									
Number	225	196	245	286	121	56	19	23	1,171
Average age	43.3	40.2	42.7	43.6	44.6	44.5	44.9	41.8	42.9
Aged 55 and over (per cent)	2.7	4.1	0.4	4.5	8.3	10.7	—	—	3.8
Women (per cent)	99.5	97.3	99.0	99.6	99.0	94.5	100	100	98.8
Average weekly hours ^(c) worked	29.8	26.7	28.8	26.7	26.9	29.4	29.8	31.9	28.0
FTE rate ^(d)	2.6	2.7	4.5	9.8	5.5	8.8	4.5	9.2	4.2
2011^(b)									
Number	205	164	197	297	100	52	13	16	1,044
Average age	47.6	44.5	47.5	44.1	48.3	48.7	48.6	50.8	46.3
Aged 55 and over (per cent)	16.4	10.6	8.1	12.6	29.9	n.p.	n.p.	n.p.	14.3
Women (per cent)	96.6	96.4	97.7	99.3	99.0	n.p.	n.p.	n.p.	97.1
Average weekly hours ^(c) worked	28.7	26.7	31.2	27.8	28.8	30.6	31.0	35.6	28.8
FTE rate ^(d)	2.1	2.1	3.6	9.2	4.6	8.2	2.9	6.5	3.5

(a) State and territory estimates for 2006 are based on state or territory of registration and should be treated with caution due to small numbers of practitioners. Northern Territory not included. See Appendix A for further information.

(b) 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'.

(c) Care should be taken in interpreting change in the estimates on hours worked due to changes in the question on hours worked from 2006 to 2011.

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

Sources: National Dental Labour Force Collection 2006; NHDWS: dental practitioners 2011.

5.4 Supply of dental therapists

5.4.1 Overall supply

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

To do this, information on the number of employed dental therapists, together with their average hours worked, has been used to calculate an FTE number of practitioners, based on a standard full-time working week of 38 hours (Box 3.2).

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






5.4.2 Supply of employed dental therapists

The overall supply of dental therapists in Australia decreased between 2006 and 2011, from 4.2 FTE per 100,000 population in 2006 to 3.5 in 2011 (Table 5.9).

6 Dental prosthetists

6.1 Registered dental prosthetists

6.1.1 At a glance

	<p>In 2011, there were 1,145 registered dental prosthetists, 1,088 of whom were employed in dental prosthetics.</p>
	<p>About 1 in 7 dental prosthetists were women.</p>
	<p>In 2011, the average age of employed dental prosthetists was 49.3 years; 30.5% were aged 55 or over.</p>
	<p>On average, employed dental prosthetists worked 42.6 hours a week, and 19.4% worked part time (less than 35 hours per week).</p>
	<p>Only about half of employed dental prosthetists identified prosthodontics as the principal area of their main job.</p>

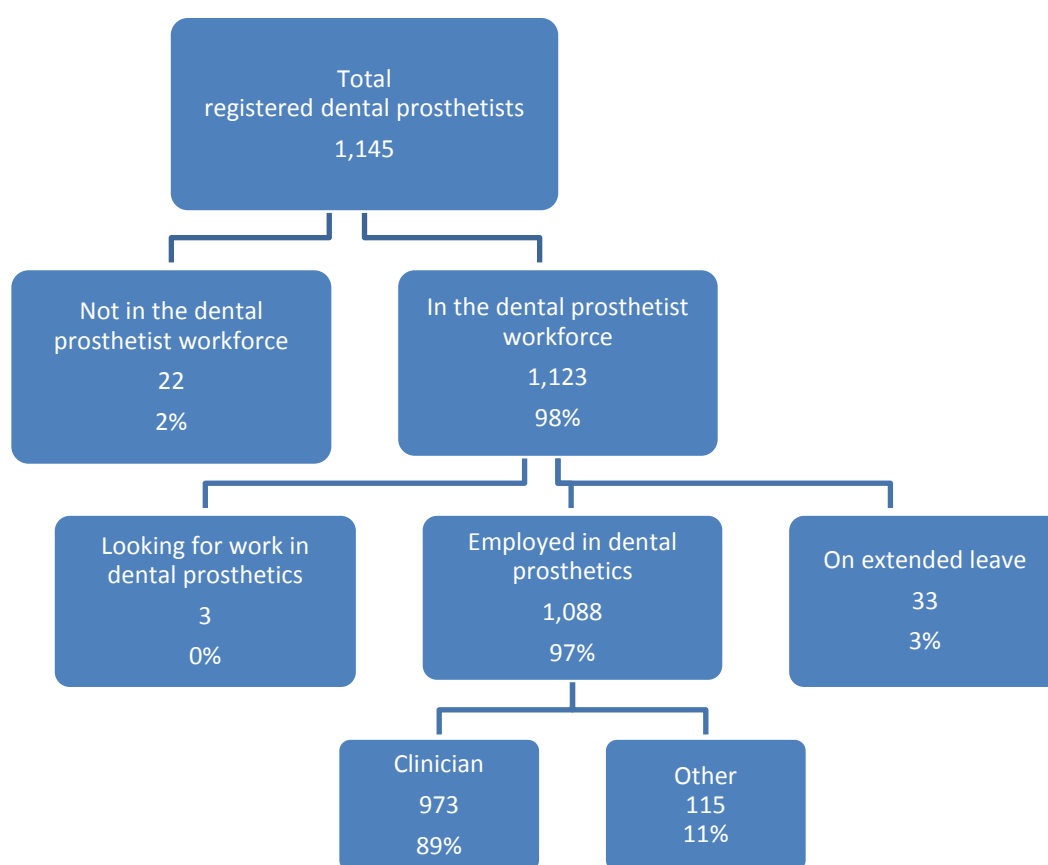
Source: NHWDS: dental practitioners 2011.

Box 6.1: Services provided by dental prosthetists

Dental prosthetists are responsible for the construction and fitting of dentures and sporting mouthguards. Dental prosthetists maintain, repair and reline dentures either by direct consultation with a patient or by referral from a dentist. A dental prosthetist can provide the following treatment:

- the manufacture of dental prostheses, and corrective dental appliances prescribed by a registered dentist or a registered specialist
- the fitting of, and taking impressions or measurements for the purposes of fitting, a denture to the jaw.

Source: AIHW DSRU 2012.



Source: NHWDS: dental practitioners 2011.

Figure 6.1: Dental prosthetists: workforce status, 2011

6.1.2 Workforce status

The number of registered dental prosthetists in 2011 was 1,145 (Figure 6.1). Between 2006 and 2011, the number of employed dental prosthetists increased by 18.1% from 921 to 1,088 (Table 6.1).

Table 6.1: Dental prosthetists: workforce status, 2006^(a), 2009 and 2011

Workforce status	2006 ^(a)	2009	2011	Change between 2006 and 2011 (per cent)
In the dental workforce	944	1,040	1,123	19.0
Employed in dentistry	921	1,013	1,088	18.1
<i>Looking for work in dentistry</i>	<i>18</i>	<i>25</i>	<i>3</i>	<i>-84.6</i>
Employed elsewhere	..	..	3	..
Not employed	..	..	—	..
On extended leave	5	2	33	551.2
Not in the dental workforce	95	117	22	-76.8
Overseas	3	2	3	—
<i>Not looking for work in dentistry</i>	<i>66</i>	<i>78</i>	<i>10</i>	<i>-84.7</i>
Employed elsewhere	44	63	4	-91.9
Not employed	22	15	7	-70.2
Retired	26	37	9	-66.5
Total dental prosthetists^(b)	1,039	1,157	1,145	10.2
Multiple registrations	41	63	..	..
Total registrations	1,080	1,220	..	..

(a) 2006 data excludes the Northern Territory

(b) For 2006 and 2009, dental prosthetists may have been registered in more than one state or territory; this figure accounts for this potential source of double counting. See Appendix A for further information.

Sources: National Dental Labour Force Collection, 2006 and 2009; NHWDS: dental practitioners 2011.

Changes to the new nationally standardised survey questionnaire have resulted in a slight change in the pattern of responses to the employment-related questions. As such, comparing data over time should be done with caution. (See Appendix A for further information on changes to the employment-related questions.)

Of the 1,145 registered dental prosthetists in 2011, 1,088 (95.0%) were employed in dentistry in Australia (Table 6.1).

As outlined previously, the data transitioned from state- and territory-based systems to a national registration system in 2010. Before the NRAS was introduced in 2010, data were reported by state of registration. With the new system, data in this report are being reported on the basis of the most current address at the time the survey was undertaken, unless stated otherwise.

Table 6.2: Dental prosthetists: workforce status and principal role of main job, state and territory^(a), 2011

Workforce status	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia^(b)
In the dental workforce	401	n.p.	211	76	n.p.	51	15	n.p.	1,123
<i>Employed in dentistry</i>	<i>388</i>	<i>313</i>	<i>205</i>	<i>73</i>	<i>42</i>	<i>49</i>	<i>14</i>	<i>n.p.</i>	<i>1,088</i>
Clinician	330	284	188	70	n.p.	n.p.	n.p.	n.p.	973
Non-clinician	57	29	17	4	n.p.	n.p.	n.p.	n.p.	115
On extended leave or looking for work in dentistry	13	n.p.	7	3	n.p.	n.p.	n.p.	—	35
Not in the dental workforce	9	n.p.	3	4	n.p.	—	—	n.p.	22
Total registered dental prosthetists	409	323	215	80	45	51	15	5	1,145

(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 dental prosthetists who did not state or adequately describe their state or territory, and those who were overseas. Therefore, state and territory totals may not sum to the national total. In particular, the total for 'Not in the dental workforce' is higher than the sum of the state and territory figures due to dental prosthetists working overseas.

Source: NHWDS: dental practitioners 2011.

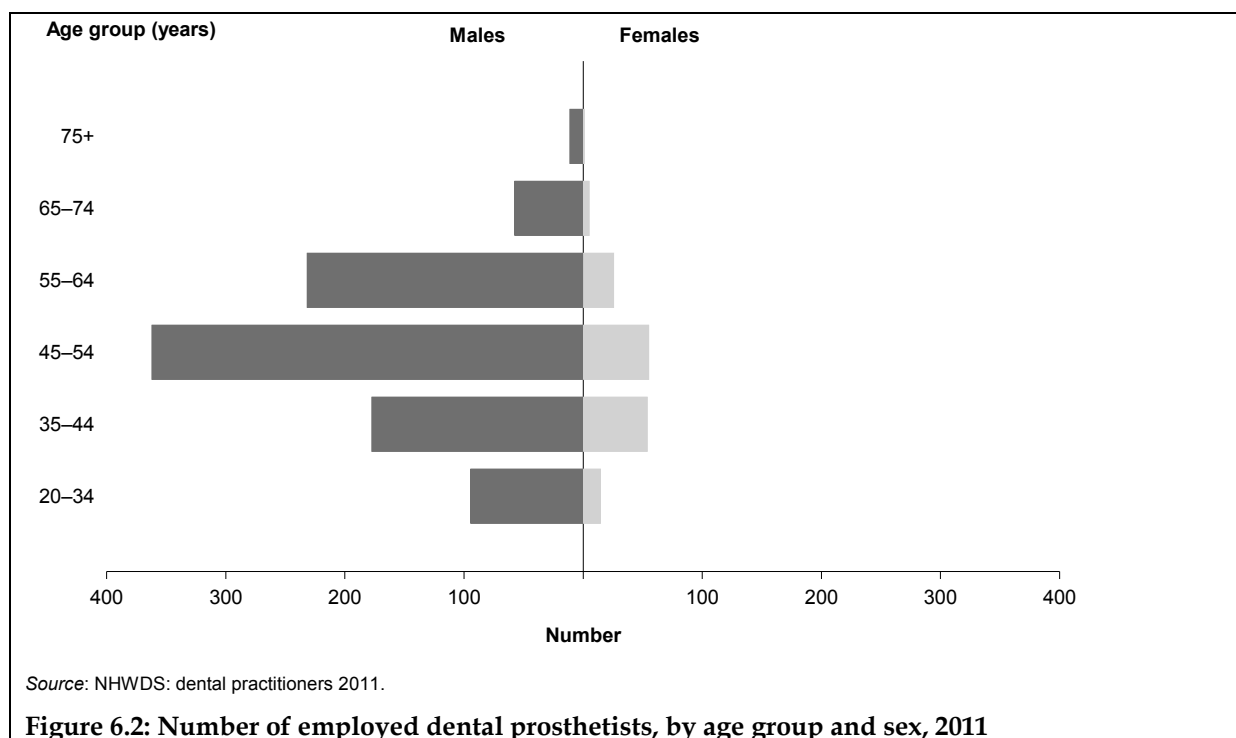
6.2 Dental prosthetists employed in dental prosthetics in Australia

A dental prosthetist who reported working in dental health in the week before the survey is considered to have been employed in dentistry, or to be an 'employed dental prosthetist', at the time of the survey (see Glossary).

The characteristics and supply of dental prosthetist employed in Australia are the focus of the remainder of this section.

6.2.1 Age and sex

In 2011, the average age of employed dental prosthetists was 49.3 years, slightly younger than the average of 50.1 in 2006 (Table 6.9). The proportion of women in the dental prosthetists workforce was 14.2% in 2011.



6.2.2 Aboriginal and Torres Strait Islander dental prosthetists

There were four employed dental prosthetists who identified themselves as Aboriginal and Torres Strait Islanders, representing about 0.4% of employed dental prosthetists who responded to the question.

6.2.3 Field of dental prosthetics

The principal role in dentistry describes the types of work undertaken by employed dental prosthetists. The 2011 survey categorised the roles as clinician, administrator, teacher/educator, researcher, and other. In 2011, the largest group was clinicians, accounting for 89.4% of employed dental prosthetists.

Table 6.3: Employed dental prosthetists: principal role of main job, selected characteristics 2011

Principal role of main job	Number	Average age	Aged 55 and over (per cent)	Women (per cent)	Average weekly hours	FTE rate ^(a)
Clinician	973	49.2	29.6	13.7	42.9	4.9
Non-clinician	115	50.1	37.3	18.6	40.7	0.6
Administrator	10	52.5	n.p.	n.p.	34.8	—
Teacher/educator	28	49.0	n.p.	n.p.	39.0	0.1
Researcher	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
Other	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
Total	1,088	49.3	30.5	14.2	42.6	5.5

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

Source: NHWDS: dental practitioners 2011.

Area of dentistry

Survey respondents were asked to indicate the principal area of their main job in dentistry in the week before the survey. Fourteen response categories were provided, with only one response allowed. Table 6.4 provides these responses disaggregated by selected characteristics of the respondent with smaller categories aggregated with 'Other' for confidentiality purposes.

Table 6.4: Employed dental prosthetists: principal area of main job, selected characteristics, 2011

Principal area of main job	Number	Average age	Aged 55 and over (per cent)	Women (per cent)	Average weekly hours	FTE rate ^(a)
General dental practice	94	49.7	n.p.	n.p.	43.1	0.5
Orthodontics	4	53.9	n.p.	n.p.	30.4	—
Prosthodontics	564	50.9	36.3	13.7	43.0	2.9
Public health dentistry	18	48.7	n.p.	n.p.	37.6	0.1
Special needs dentistry	10	46.7	n.p.	n.p.	46.3	0.1
Other	307	46.8	24.6	14.4	42.8	1.5
Not stated/inadequately described	90	47.3	n.p.	n.p.	40.1	0.4
Total	1,088	49.3	30.5	14.2	42.6	5.5

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

Source: NHWDS: dental practitioners 2011.

6.2.4 Work setting

Dental prosthetists were asked to indicate the setting of their main job in dentistry in the week before completing the Dental Workforce Survey 2011. The overwhelming majority working in private practice (82.9% of clinicians and 79.0% of all employed dental prosthetists) (Table 6.5).

Table 6.5: Employed dental prosthetists: work setting of main job and clinician status, number and average weekly hours worked, 2011

Work setting of main job	Clinicians ^(a)		All dental prosthetists	
	Number	Average weekly hours worked	Number	Average weekly hours worked
Private practice	807	43.3	859	43.1
Hospital	37	42.2	45	40.9
Other	64	40.1	113	41.6
Not stated	65	40.4	71	39.7
Total	973	42.9	1,088	42.6

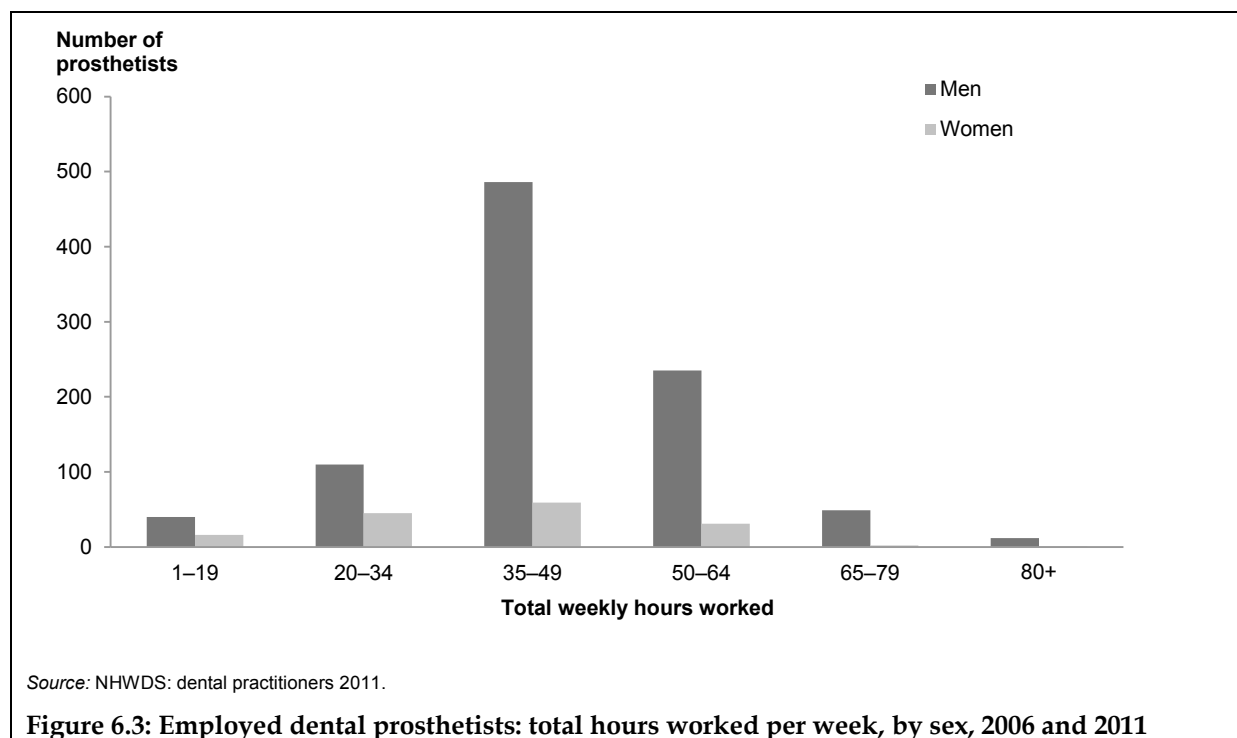
(a) Clinician includes those whose role in their main job was 'Clinician'.

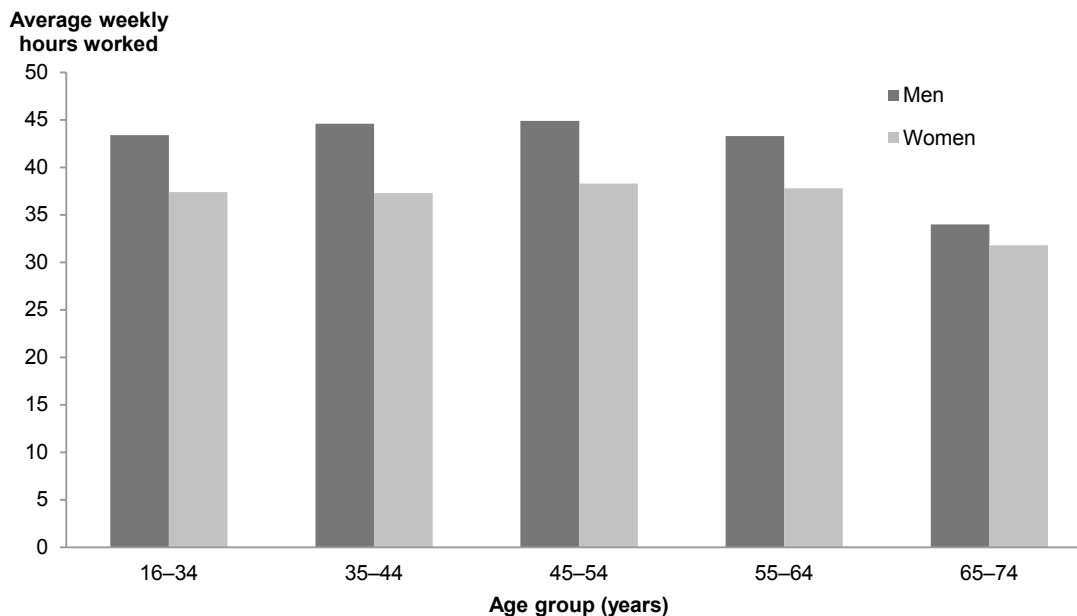
Source: NHWDS: dental practitioners 2011.

6.2.5 Working hours

Comparison of working hours over time should be undertaken with care, due to differences between the survey questions used in the Dental Workforce Survey 2011 and the previous National Dental Labour Force Collection (see Appendix A).

On average, employed dental prosthetists worked 42.6 hours a week in 2011, slightly down from 43.0 in 2006. About 1 in 5 (19.4%) worked part time (less than 35 hours per week) (Figure 6.4). Male dental prosthetists worked 43.5 hours per week on average while female prosthetists worked 37.5 hours on average. This gap remained relatively constant across age groups (Figure 6.5).





Source: NHWDS: dental practitioners 2011.

Figure 6.4: Employed dental prosthetists: average total weekly hours worked by age group, 2011

Work setting

Dental prosthetists working in private practice as their main job worked the most hours on average (43.3 per week) (Table 6.5).

States and territories

Dental prosthetists in Queensland tended to work the most average hours (44.6 per week) (Table 6.6).

Table 6.6: Employed dental prosthetists: average total weekly hours^(a) worked, sex, state and territory, 2006 and 2011

Sex	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
2006^(b)									
Persons	43.1	45.1	43.5	37.7	39.5	41.3	46.4	..	43.0
Men	43.8	45.6	44.0	38.6	39.3	44.2	46.4	..	43.8
Women	36.9	40.2	39.2	30.9	42.0	29.4	..	..	36.8
2011^(c)									
Persons	42.7	41.2	44.6	43.7	42.4	42.3	42.0	37.3	42.6
Men	43.7	41.9	45.9	44.7	42.5	40.9	42.0	39.0	43.5
Women	37.2	35.9	35.6	38.8	40.0	45.6	..	35.5	37.6

(a) Care should be taken in interpreting change in the estimates on hours worked due to changes in the question on hours worked from 2006 and 2011.

(b) State and territory estimates for 2006 are based on state or territory of registration and should be treated with caution due to small numbers of practitioners. Northern Territory not included. See Appendix A for further information.

(c) State and territory estimates for 2011 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'.

Source: National Dental Labour Force Collection 2006; NHWDS: dental practitioners 2011.

Remoteness areas

The Remoteness Areas from the Australian Standard Geographical Classification (ASGC) (ABS 2008) have been used in this report to show data by geographic region (see Glossary for further information).

Dental prosthetists in *Inner regional* areas worked the most hours on average (44.1 per week) in 2011, but in 2006 dental prosthetists working in *Outer regional* areas had similarly long hours (Table 6.7).

Table 6.7: Employed dental prosthetists: average total weekly hours^(a) worked, remoteness area^(b) of main job, 2006 and 2011

Sex	Major cities	Inner regional	Outer regional	Remote/Very remote ^(c)	Australia
2006					
<i>Persons</i>	45.6	45.5	46.6	46.7	45.6
Men	37.4	36.6	36.8	41.7	37.4
Women	42.7	42.7	43.4	44.9	42.8
2011					
<i>Persons</i>	42.1	44.1	43.6	n.p.	42.6
Men	43.3	44.4	42.7	n.p.	43.5
Women	35.6	41.8	49.3	n.p.	37.6

(a) Care should be taken in interpreting change in the estimates on hours worked due to changes in the question on hours worked from 2006 to 2011.

(b) 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'.

(c) Includes *Migratory* areas.

Sources: National Dental Labour Force Collection 2006; NHWDS: dental practitioners 2011.

Employment sector

There were more dental prosthetists in the private sector than in the public sector both in terms of numbers and in terms of full-time equivalents, with 1,011 full-time equivalents in the private sector and 208 in the public sector. Dental prosthetists in the public sector were more likely to work fewer hours than those in the private sector (29.4 hours compared with 39.5 hours per week on average, respectively).

Table 6.8: Employed dental prosthetists: selected characteristics, by employment sector, 2006 and 2011^(a)

Characteristic	2006	2011
Private		
Number	820	973
Average age	50.2	49.4
Aged 55 and over (per cent)	n.a.	31.3
Women (per cent)	9.1	13.2
Average weekly hours worked in sector	42.6	39.5
FTE number	919	1,011
Public		
Number	46	269
Average age	50.8	49.1
Aged 55 and over (per cent)	n.a.	28.7
Women (per cent)	18.2	16.7
Average weekly hours worked in sector	38.8	29.4
FTE number	47	208

(a) Care should be taken in interpreting change in the estimates over time due to changes in the way practitioners were assigned to a sector. Data for 2006 are based on sector of main job whereas data for 2011 refer to all persons working in that sector. For calculation of average hours worked, 2011 data are based on reported hours worked in each sector whereas the 2006 data are based on all hours worked classified by sector of main job.

Sources: National Dental Labour Force Collection, 2006; NHWDS: dental practitioners 2011.

The large apparent drop in average hours and increase in numbers in the public sector between 2006 and 2011 is due to a change in methodology; data before 2011 allocated all hours to the employment sector of the main job, whereas the 2011 data include both public and private hours worked and dental prosthetists appear in each sector that they work in.

6.3 Geographic profile of employed dental prosthetists

6.3.1 Remoteness areas of Australia

Information on the work location of dental prosthetists is collected in the Dental Workforce Survey 2011, providing a means, in combination with other data on hours and population, of examining variability in the supply of dental prosthetists across Australia.

Using the postcode of their main work location where available, each dental prosthetists is allocated to one of the following in the ASGC RA: *Major cities, Inner regional, Outer regional, Remote, Very remote* and *Migratory* (see Glossary). Otherwise, remoteness area of principal practice is used as a proxy; if remoteness area of principal practice is unavailable, remoteness area of residence is used. Records with no information on all three locations are coded to 'Not stated' location. In this report, the *Remote, Very remote* and *Migratory* categories have been combined due to small numbers (Table 6.9).

Table 6.9: Employed dental prosthetists: selected characteristics, by remoteness area, 2006 and 2011

Characteristic	Major cities	Inner regional	Outer regional	Remote/Very remote ^(a)	Australia
2006^(b)					
Number	622	240	54	4	921
Average age	50.4	49.5	48.7	55.0	50.1
Aged 55 and over (per cent)	29.1	32.1	20.4	50.0	29.6
Women (per cent)	10.2	9.8	9.5	—	10.0
Average weekly hours ^(c) worked	42.7	43.2	45.6	47.5	43.0
FTE rate ^(d)	4.9	6.7	3.3	1.0	5.0
2011^(e)					
Number	781	232	72	2	1,088
Average age	48.7	50.1	53.4	n.p.	49.3
Aged 55 and over (per cent)	28.2	33.0	46.3	n.p.	30.5
Women (per cent)	15.1	11.2	14.0	n.p.	14.2
Average weekly hours ^(c) worked	42.1	44.1	43.6	n.p.	42.6
FTE rate ^(d)	5.6	6.2	4.1	0.4	5.5

(a) Includes *Migratory* areas.

(b) Remoteness area of main job.

(c) Care should be taken in interpreting change in the estimates on hours worked due to changes in the question on hours worked from 2006 to 2011.

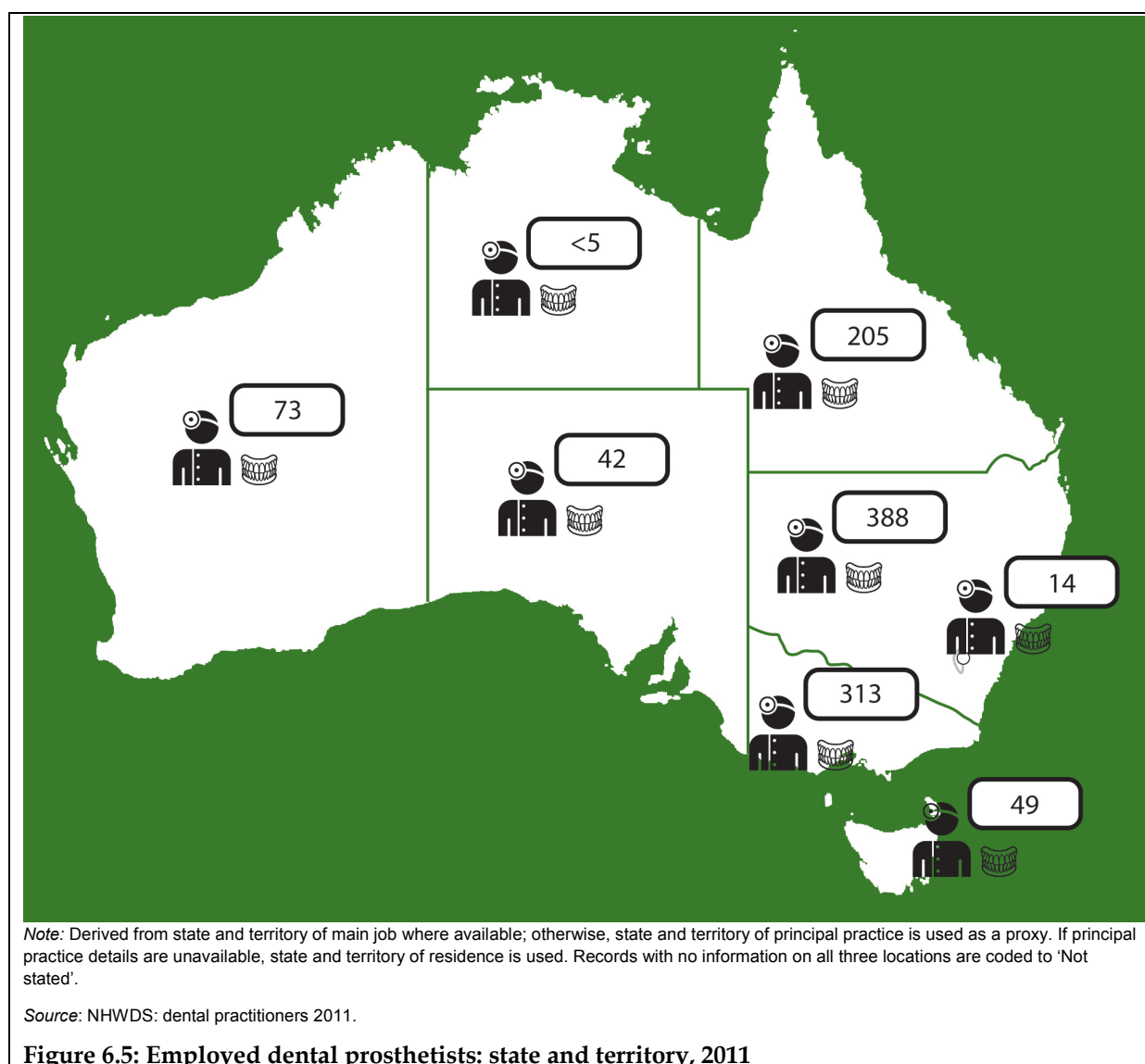
(d) Full-time equivalent (FTE) number per 100,000 population. FTE is based on total weekly hours worked (see Glossary).

(e) 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'.

Sources: National Dental Labour Force Collection 2006; NHWDS: dental practitioners 2011.

The supply of dental prosthetists has increased in *Major cities* and *Outer regional* areas but declined in *Inner regional* areas. *Major cities* have the highest supply at 5.6 FTE per 100,000 population, whereas the rate in *Remote* and *Very remote* areas is extremely low.

6.3.2 States and territories of Australia



Between 2006 and 2011, the number of employed dental prosthetists increased in all jurisdictions except Western Australia and the Australian Capital Territory (Table 6.10). The FTE rate increased most in South Australia, rising from 2.1 to 2.9 FTE per 100,000 population (39.2%) The largest decrease was for the Australian Capital Territory, where the rate fell from 5.1 to 4.2 FTE per 100,000 population (17.8%) (Table 6.10).

Table 6.10: Employed dental prosthetists: selected characteristics, state and territory, 2006^(a) and 2011^(b)

Characteristic	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
2006									
Number	343	258	145	86	31	44	14	..	921
Average age	49.2	48.4	53.3	53.0	50.8	48.8	56.0	..	50.1
Aged 55 and over (per cent)	28.6	23.6	40.7	32.6	32.3	31.8	42.9	..	29.6
Women (per cent)	10.9	8.9	8.9	11.1	15.0	18.2	—	..	10.0
Average weekly hours ^(c) worked	43.1	45.1	43.5	37.7	39.5	41.3	46.4	..	43.0
FTE rate ^(d)	5.7	6.0	4.1	4.1	2.1	9.8	5.1	..	5.0
2011									
Number	388	313	205	73	42	49	14	4	1088
Average age	48.3	49.5	49.8	49.9	48.3	51.7	56.4	45.3	49.3
Aged 55 and over (per cent)	27.9	31.5	32.0	n.p.	n.p.	n.p.	n.p.	n.p.	30.5
Women (per cent)	16.2	11.1	12.5	n.p.	n.p.	n.p.	—	n.p.	14.2
Average weekly hours ^(c) worked	42.7	41.2	44.6	43.7	42.4	42.3	42.0	37.3	42.6
FTE rate ^(d)	6.0	6.1	5.4	3.6	2.9	10.7	4.2	1.7	5.5

(a) State and territory estimates for 2006 are based on state or territory of registration and should be treated with caution due to low response rates in some jurisdictions. See Appendix A for further information.

(b) 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'.

(c) Care should be taken in interpreting change in the estimates on hours worked due to changes in the question on hours worked from 2006 to 2011.

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

Sources: National Dental Labour Force Collection 2006; NHWDS: dental practitioners 2011.

6.4 Supply of dental prosthetists

6.4.1 Overall supply

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

To do this, information on the number of employed dental prosthetists, together with their average hours worked, has been used to calculate an FTE number of practitioners, based on a standard full-time working week of 38 hours (Box 3.2).

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

6.4.2 Supply of dental prosthetists

Across Australia, the overall supply of dental prosthetists increased between 2006 and 2011, from 5.0 FTE per 100,000 population in 2006 to 5.5 in 2011 (Table 6.9).

7 Oral health therapists






Practitioners who are qualified in both dental therapy and hygiene are commonly referred to as oral health therapists (OHTs). They are eligible to register both as dental therapists and dental hygienists, but may not necessarily maintain dual registration (AIHW DSRU 2012).

The emergence of the OHT labour force has followed substantial change in the structure of educational programs. Historically, hygiene and therapy programs were single qualification Advanced Diplomas. Since the early 2000s, these programs have been replaced by Bachelor of Oral Health courses, training dual-qualified hygienists and therapists.

In 2006, information on OHT registrations was available for the five largest states. Tasmania, the Northern Territory and the Australian Capital Territory did not have dual practitioners. In 2009, information was available for all jurisdictions except Tasmania.

7.1 Registered oral health therapists

7.1.1 At a glance

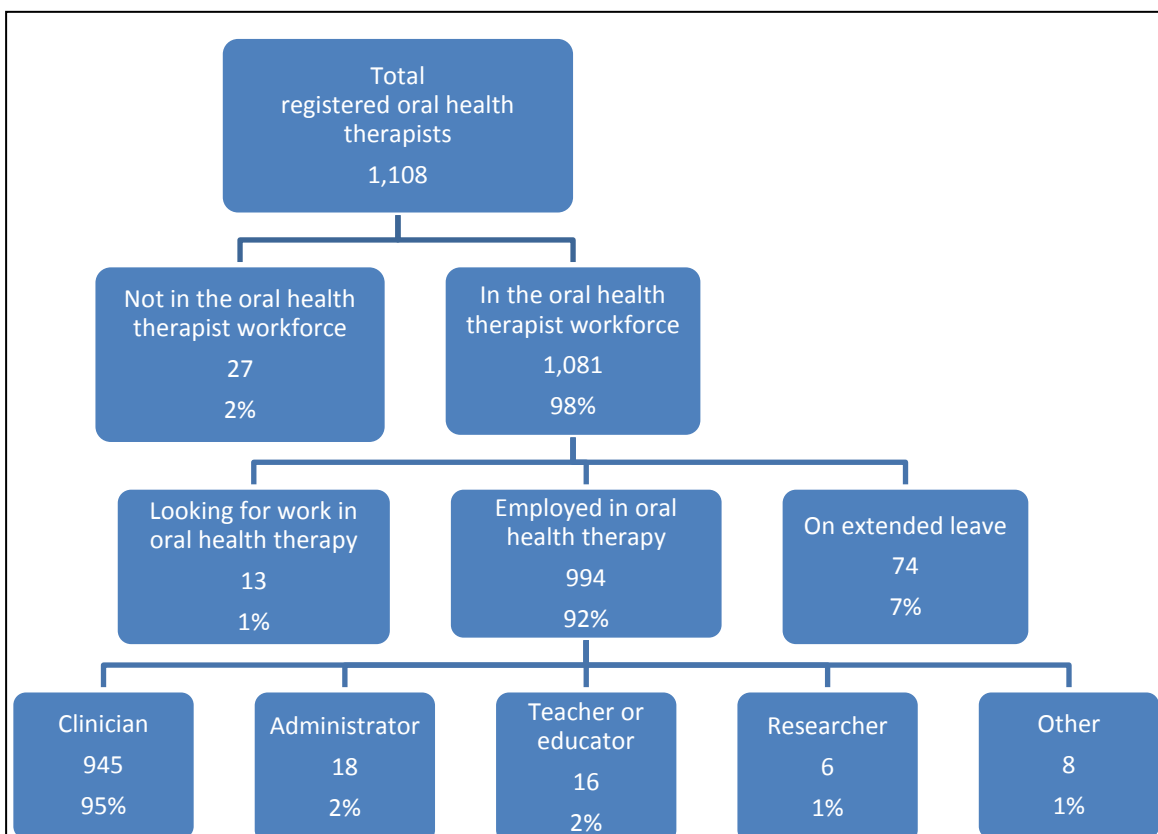
	In 2011, there were 1,108 oral health therapists, 994 of whom were employed in oral health therapy.
	About 1 in 8 oral health therapists were men (12.1%).
	The average age of oral health therapists was 32.6 years; only about 1 in 40 (2.4%) were aged 55 or older.
	Oral health therapists worked 33.3 hours per week on average, and 41.8% worked part time (less than 35 hours per week).
	About half of oral health therapists worked in general dental practices, accounting for 50.7% of all employed.

Source: NHWDS: dental practitioners 2011.

Box 7.1: Services performed by oral health therapists

Oral health therapists can practise as either or both a dental hygienist and therapist.

Source: AIHW DSRU 2012.



Source: NHWDS: dental practitioners 2011.

Figure 7.1: Oral health therapists: workforce status, 2011

7.1.2 Workforce status

The number of registered oral health therapists, (including persons registered as both dental hygienists and dental therapists) in 2011 was 1,108 (Figure 7.1). Of the 1,108 registered oral health therapists in 2011, 994 (89.7%) were employed in dentistry in Australia (Table 7.1).

Between 2006 and 2011, the number of oral health therapists employed in dentistry increased by 167% from 371 to 994 (Table 7.1). Due to the creation of the new dental profession of OHTs representing those dual qualified as hygienists and therapists, care should be taken in comparing these three categories over time. Notably the 2006 data did not include Tasmania, the Australian Capital Territory or the Northern Territory.

Table 7.1: Oral health therapists: workforce status 2006, 2009 and 2011

Workforce status	2006	2009	2011	Change between 2006 and 2011 (per cent)
In the dental workforce	397	625	1,081	172.2
Employed in dentistry	371	590	994	167.8
<i>Looking for work in dentistry</i>	<i>15</i>	<i>10</i>	<i>13</i>	-10.7
Employed elsewhere	..	..	n.p	..
Not employed	..	..	n.p	..
On extended leave	11	27	74	572.0
Not in the dental workforce	—	25	27	..
Overseas	..	4	n.p	..
<i>Not looking for work in dentistry</i>	<i>..</i>	<i>21</i>	<i>22</i>	..
Employed elsewhere	..	4	n.p	..
Not employed	..	11	n.p	..
Retired	..	..	n.p	..
Total oral health therapists	397	651	1,108	179.1
Multiple registrations ^(a)	11	16	..	..
Total registrations	410	663	..	..

(a) For 2006 and 2009, oral health therapists may have been registered in more than one state or territory; this figure accounts for this potential source of double counting. See Appendix A for further information.

Sources: National Dental Labour Force Collection, 2006 and 2009; NHWDS: dental practitioners 2011.

Changes to the new nationally standardised survey questionnaire have resulted in a slight change in the pattern of responses to the employment-related questions. As such, comparing data over time should be done with caution. (See Appendix A for further information on changes to the employment-related questions.)

Table 7.2: Oral health therapists: workforce status and principal role of main job, state and territory^(a), 2011

Workforce status	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia^(b)
In the dental workforce	198	247	423	n.p.	n.p.	3	17	11	1,081
<i>Employed in dentistry</i>	<i>181</i>	<i>231</i>	<i>387</i>	<i>46</i>	<i>117</i>	<i>3</i>	<i>17</i>	<i>11</i>	<i>994</i>
Clinician	171	228	357	44	n.p.	3	17	n.p.	945
Non-clinician	10	3	30	3	n.p.	—	—	n.p.	48
On extended leave or looking for work in dentistry	17	16	37	n.p.	n.p.	—	—	—	87
Not in the dental workforce	6	6	7	n.p.	n.p.	—	—	—	27
Total registered oral health therapists	204	252	431	55	133	3	17	11	1,108

(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 oral health therapists who did not state or adequately describe their state or territory, and those who were overseas. Therefore, state and territory totals may not sum to the national total. In particular, the total for 'Not in the dental workforce' is higher than the sum of the state and territory figures due to oral health therapists working overseas.

Source: NHWDS: dental practitioners 2011.

As outlined previously, the data transitioned from state- and territory-based systems to a national registration system in 2010. Before the NRAS was introduced, data were reported by state of registration. With the new system, data in this report are being reported on the basis of the most current address at the time the survey was undertaken, unless stated otherwise.

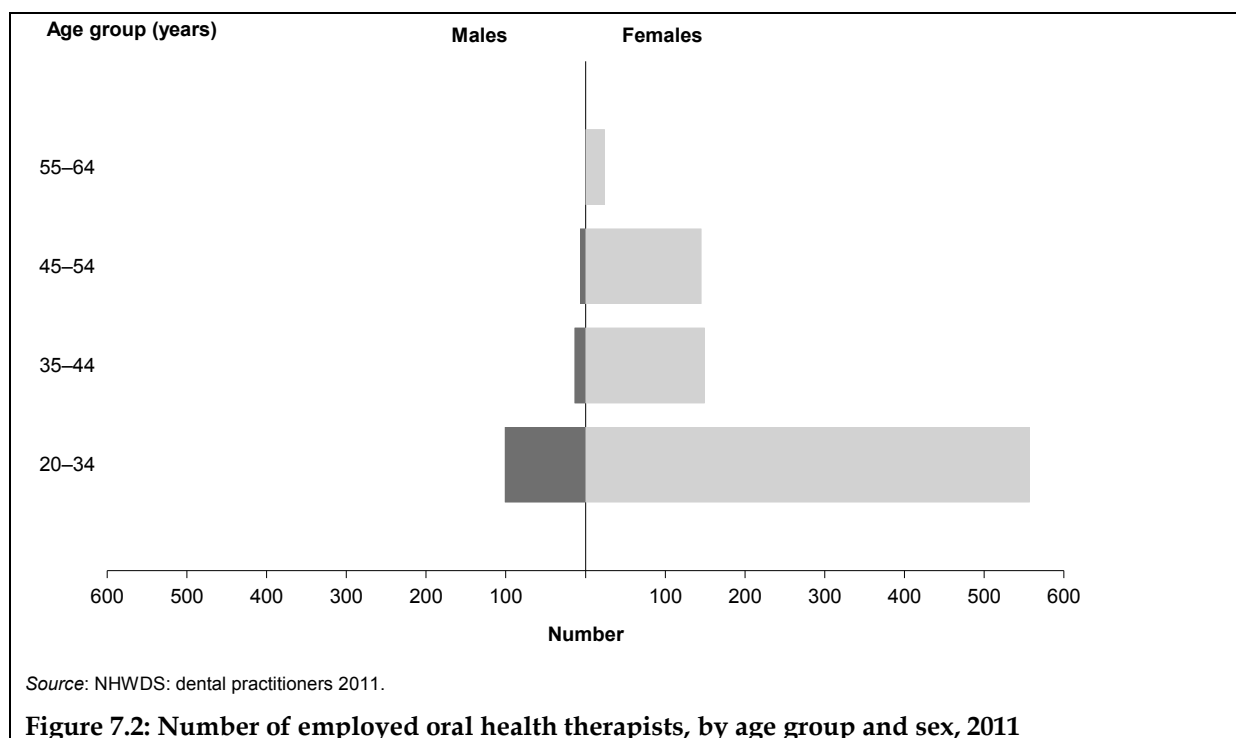
7.2 Oral health therapists employed in oral health therapy in Australia

An oral health therapist who reported working in dental health in the week before the survey is considered to have been employed in dentistry, or to be an employed oral health therapist, at the time of the survey (see Glossary). In 2011, there were 994 oral health therapists employed in dentistry in Australia (Figure 7.1).

The characteristics and supply of oral health therapists employed in Australia are the focus of the remainder of this section.

7.2.1 Age and sex

In 2011, the average age of employed oral health therapists was 32.6 years, slightly younger than the average of 36.4 in 2006 (Table 7.9). The majority (87.9%) were women.



7.2.2 Aboriginal and Torres Strait Islander oral health therapists

There were seven employed oral health therapists who identified themselves as Aboriginal and Torres Strait Islanders, representing about 0.7% of employed oral health therapists who responded to the question.

7.2.3 Field of oral health therapy

The principal role in dentistry describes the types of oral health therapy work undertaken by employed oral health therapists. The 2011 survey categorised the roles as clinician, administrator, teacher/educator, researcher, and other. In 2011 the largest group was clinicians, with 95.0% of employed oral health therapists identifying as clinicians. The oldest group was administrator, with an average age of 45.4 (Table 7.3).

Table 7.3: Employed oral health therapists: principal role of main job, selected characteristics, 2011

Principal role of main job	Number	Average age	Aged 55 and over (per cent)	Women (per cent)	Average hours	FTE rate ^(a)
Clinician	945	32.1	2.4	87.5	33.2	3.7
<i>Non-clinician</i>	48	42.2	<i>n.p.</i>	<i>n.p.</i>	35.7	0.2
Administrator	18	45.4	<i>n.p.</i>	<i>n.p.</i>	36.9	0.1
Teacher/educator	16	43.4	<i>n.p.</i>	<i>n.p.</i>	36.8	0.1
Researcher	6	33.7	<i>n.p.</i>	<i>n.p.</i>	30.6	—
Other	8	39.7	<i>n.p.</i>	<i>n.p.</i>	35.2	—
Total	994	32.6	2.4	87.9	33.3	3.9

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

Source: NHWDS: dental practitioners 2011.

Area of dentistry

Survey respondents were asked to indicate the principal area of their main job in dentistry in the week before the survey. Fourteen response categories were provided, with only one response allowed. Table 7.4 provides these responses disaggregated by selected characteristics of the respondent with smaller categories aggregated with 'Other' for confidentiality purposes.

General dental practice was the most common area of practice, accounting for 50.7% of all employed oral health therapists. Public health dentistry was the next largest category, with 14.8% (Table 7.4).

Table 7.4: Employed oral health therapists: principal area of main job, selected characteristics, 2011

Principal area of main job	Number	Average age (years)	Aged 55 and over (per cent)	Women (per cent)	Average weekly hours	FTE rate ^(a)
General dental practice	504	31.5	2.5	86.1	33.2	2.0
Orthodontics	76	33.4	n.p.	n.p.	31.6	0.3
Paedodontics	44	35.0	n.p.	n.p.	36.1	0.2
Periodontics	108	30.3	0.9	90.5	31.5	0.4
Public health dentistry	147	36.4	4.1	89.4	35.2	0.6
Special needs dentistry	4	41.0	n.p.	n.p.	21.5	—
Other	51	31.8	2.0	86.8	32.7	0.2
Not stated/inadequately described	61	33.4	0.0	89.4	33.8	0.2
All	994	32.6	2.4	87.9	33.3	3.9

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

Source: NHWDS: dental practitioners 2011.

7.2.4 Work setting

Oral health therapists were asked to indicate the setting of their main job in dentistry in the week before completing the Dental Workforce Survey 2011. About two-thirds were working in private practice (67.2% of clinicians and 64.4% of all employed dental hygienists). Nearly two-thirds of oral health therapists in private practice were working in group practices (58.9% of clinicians and 59.2% of all employed dentists) (Table 7.5).

Table 7.5: Employed oral health therapists: work setting of main job and clinician status, number and average weekly hours worked, 2011

Work setting of main job	Clinicians ^(a)		All oral health therapists	
	Number	Average weekly hours worked	Number	Average weekly hours worked
<i>Private practice</i>	635	32.2	640	32.1
Solo private practice	258	30.9	258	30.9
Group private practice	374	33.2	379	33.1
Locum private practice	3	17.5	3	17.5
Community health care services	75	34.4	79	35.2
Hospital	49	36.9	53	36.5
Educational facilities	95	34.0	114	34.0
Other government department or agency	32	36.3	38	36.8
Other	17	35.8	20	36.0
Not stated	42	35.5	50	35.8
Total	945	33.2	994	33.3

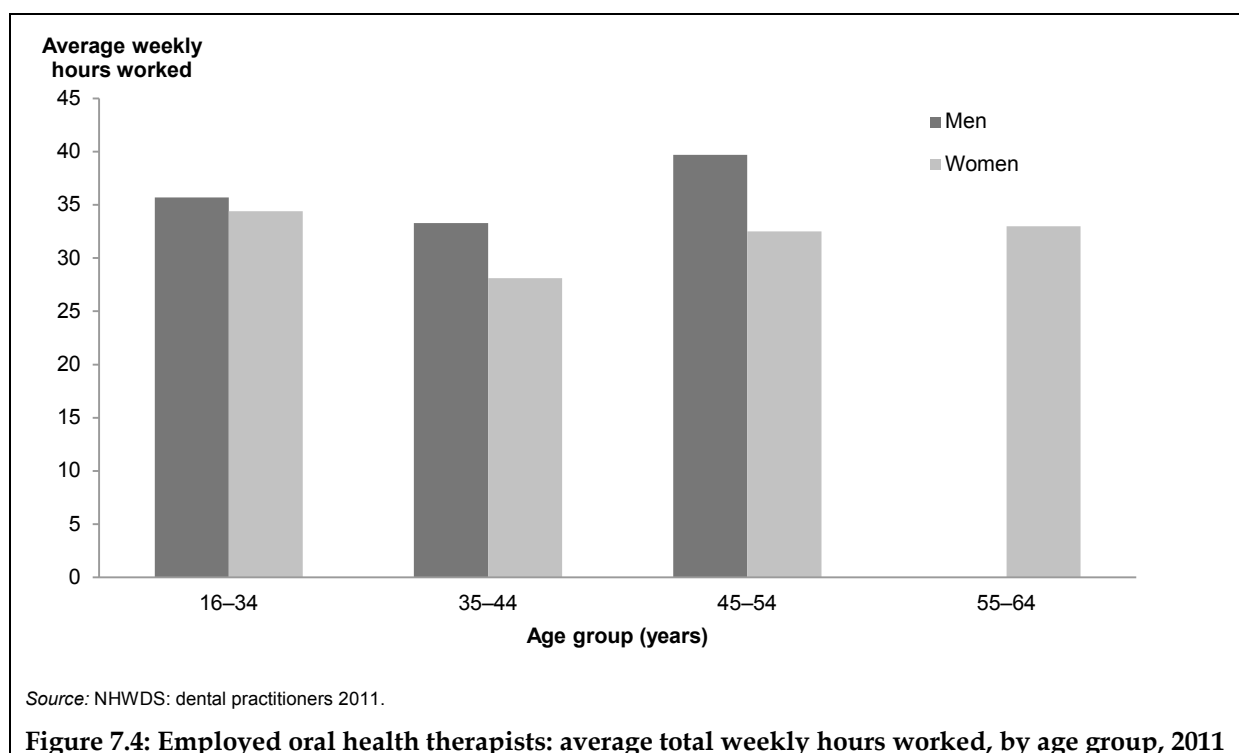
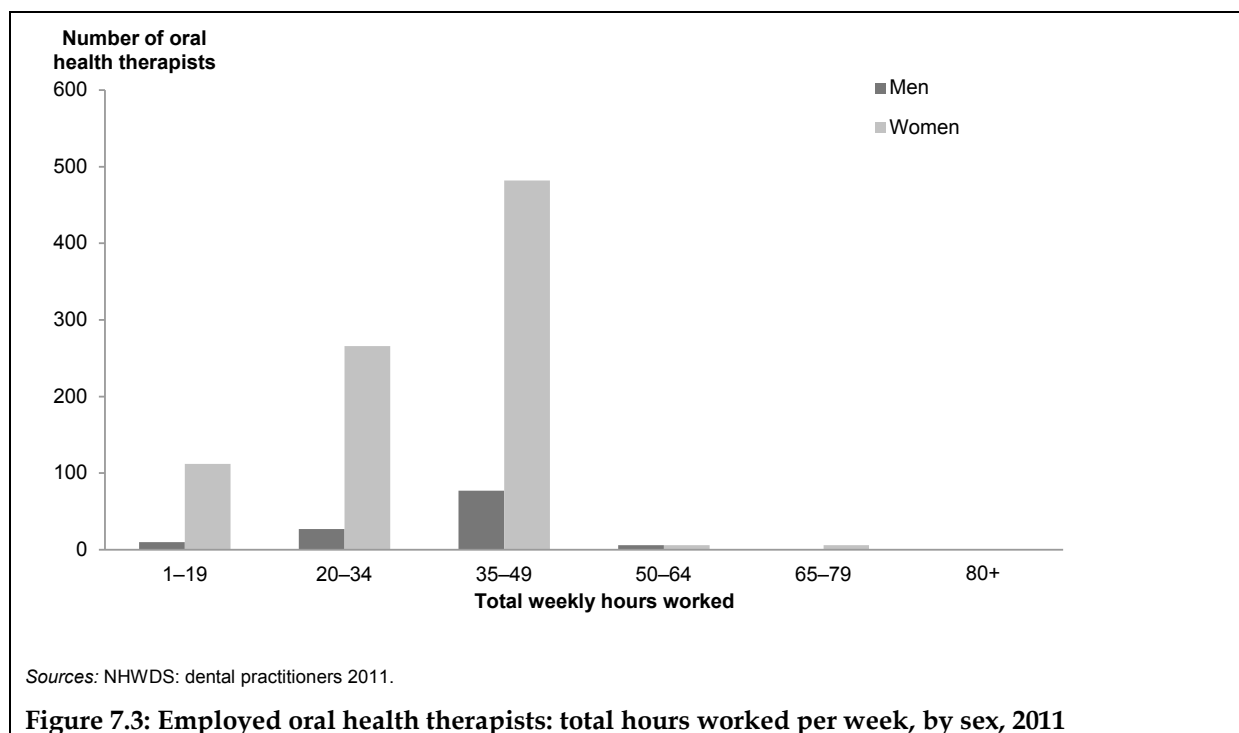
(a) Clinician includes those whose role in their main job was 'Clinician'.

Source: NHWDS: dental practitioners 2011.

7.2.5 Working hours

Comparison of working hours over time should be undertaken with care, due to differences between the survey questions used in the Dental Workforce Survey 2011 and the previous National Dental Labour Force Collection (see Appendix A).

On average, employed oral health therapists worked 33.3 hours a week in 2011, similar to the average hours in 2006 (33.4). Two-fifths (41.8%) worked part time (less than 35 hours per week) (Figure 7.3).



Work setting

Oral health therapists working in hospitals as their main job worked the most hours on average (36.9 per week) (Table 7.5).

States and territories

Oral health therapists in the Northern Territory tended to work the most hours on average (36.7 hours per week) while those in Western Australia worked the fewest (28.4) (Table 7.6).

Table 7.6: Employed oral health therapists: average weekly hours^(a) worked, sex, state and territory, 2006 and 2011

Sex	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
2006^(b)									
Persons	32.9	35.4	34.5	25.3	34.0	..	..	..	33.4
Men	50.0	38.0	40.1	..	29.0	..	..	..	39.1
Women	32.5	35.3	34.2	25.3	34.6	..	..	..	33.2
2011^(c)									
Persons	31.7	35.2	33.6	28.4	32.9	38.0	30.5	36.7	33.3
Men	35.0	38.2	35.4	..	33.4	38.0	..	30.0	35.6
Women	30.9	34.7	33.4	28.4	32.8	..	30.5	37.4	33.0

(a) Care should be taken in interpreting change in the estimates on hours worked due to changes in the question on hours worked from 2006 and 2011.

(b) State and territory estimates for 2006 are based on state or territory of registration and should be treated with caution due to low response rates in some jurisdictions. Excludes Tasmania, Australian Capital Territory and Northern Territory. See Appendix A for further information.

(c) State and territory estimates for 2011 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'.

Source: National Dental Labour Force Collection 2006; NHWDS: dental practitioners 2011.

Remoteness areas

Oral health therapists in *Outer regional* areas worked the most average total weekly hours (36.3) in 2011, while those in *Major cities* worked the fewest (32.6).

Table 7.7: Employed oral health therapists: average total weekly hours^(a) worked, remoteness area^(b) of main job, 2006 and 2011

Sex	Major cities	Inner regional	Outer regional	Remote/Very remote ^(c)	Australia
2006					
Persons	33.3	32.6	35.4	39.2	33.4
Men	39.9	35.0	—	—	39.1
Women	32.9	32.5	35.4	39.2	33.2
2011					
Persons	32.6	34.7	36.3	35.8	33.3
Men	35.2	36.1	37.8	30.0	35.6
Women	32.2	34.5	36.0	36.3	33.0

(a) Care should be taken in interpreting change in the estimates on hours worked due to changes in the question on hours worked from 2006 to 2011.

(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) Includes *Migratory* areas.

Sources: National Dental Labour Force Collection 2006; NHWDS: dental practitioners 2011.

Employment sector

Oral health therapists in the public sector were similar in average age, sex distribution and hours worked to those working in the private sector (Table 7.9). The large apparent drop in average hours in the public sector between 2006 and 2011 is due to a change in methodology: data prior to 2011 allocated total hours to the employment sector of the main job, whereas the 2011 data includes both public and or private hours worked and oral health therapists appear in each sector that they work in.

Table 7.8: Employed oral health therapists: selected characteristics, by employment sector, 2006 and 2011^(a)

Characteristic	2006	2011
Private		
Number	186	764
Average age	34.9	31.7
Aged 55 and over (per cent)	n.a.	1.9
Women (per cent)	95.5	88.3
Average weekly hours worked in sector	30.8	29.2
FTE number	151	587
Public		
Number	104	375
Average age	37.7	34.2
Aged 55 and over (per cent)	n.a.	3.8
Women (per cent)	91.6	86.7
Average weekly hours worked in sector	36.2	28.7
FTE number	99	283

(a) Care should be taken in interpreting change in the estimates over time due to changes in the way practitioners were assigned to a sector. Data for 2006 are based on sector of main job whereas data for 2011 refer to all persons working in that sector. For calculation of average hours worked, 2011 data are based on reported hours worked in each sector whereas the 2006 data are based on all hours worked classified by sector of main job.

Sources: National Dental Labour Force Collection, 2006; NHWDS: dental practitioners 2011.

7.3 Geographic profile of employed oral health therapists

7.3.1 Remoteness areas of Australia

The distribution of oral health therapists across the remoteness classification in Australia is of considerable interest to both government and communities. Information on the work location of oral health therapists is collected in the Dental Workforce Survey 2011, providing a means, in combination with other data on hours and population, of examining variability in the supply of oral health therapists across Australia.

Using the postcode of their main work location where available, each dental hygienist is allocated to one of the following in the ASGC RA: *Major cities, Inner regional, Outer regional,*

Remote, Very remote and Migratory (see Glossary). Otherwise, remoteness area of principal practice is used as a proxy; if remoteness area of principal practice is unavailable, remoteness area of residence is used. Records with no information on all three locations are coded to 'Not stated' location. In this report, the *Remote, Very remote and Migratory* categories have been combined due to small numbers.

Oral health therapists have shown considerable growth across all remoteness areas. *Major cities* have the highest supply of oral health therapists at 4.0 FTE per 100,000 population (Table 7.9).

Table 7.9: Employed oral health therapists: selected characteristics, remoteness area, 2006 and 2011

Characteristic	Major cities	Inner regional	Outer regional	Remote/Very remote ^(a)	Australia
2006^(b)					
Number	277	56	35	3	371
Average age	35.9	38.1	37.2	40.5	36.4
Aged 55 and over (per cent)	1.4	3.6	—	—	1.6
Women (per cent)	93.9	95.4	100.0	100.0	94.8
Average weekly hours ^(c) worked	33.3	32.6	35.4	39.2	33.4
FTE rate ^(d)	1.7	1.2	1.7	0.6	1.6
2011^(e)					
Number	729	173	79	12	994
Average age	32.5	33.2	32.1	33.1	32.6
Aged 55 and over (per cent)	1.8	4.7	—	n.p.	2.4
Women (per cent)	88.2	89.4	82.0	n.p.	87.9
Average weekly hours ^(c) worked	32.6	34.7	36.3	35.8	33.3
FTE rate ^(d)	4.0	3.7	3.7	2.2	3.9

(a) Includes *Migratory* areas.

(b) Remoteness area of main job.

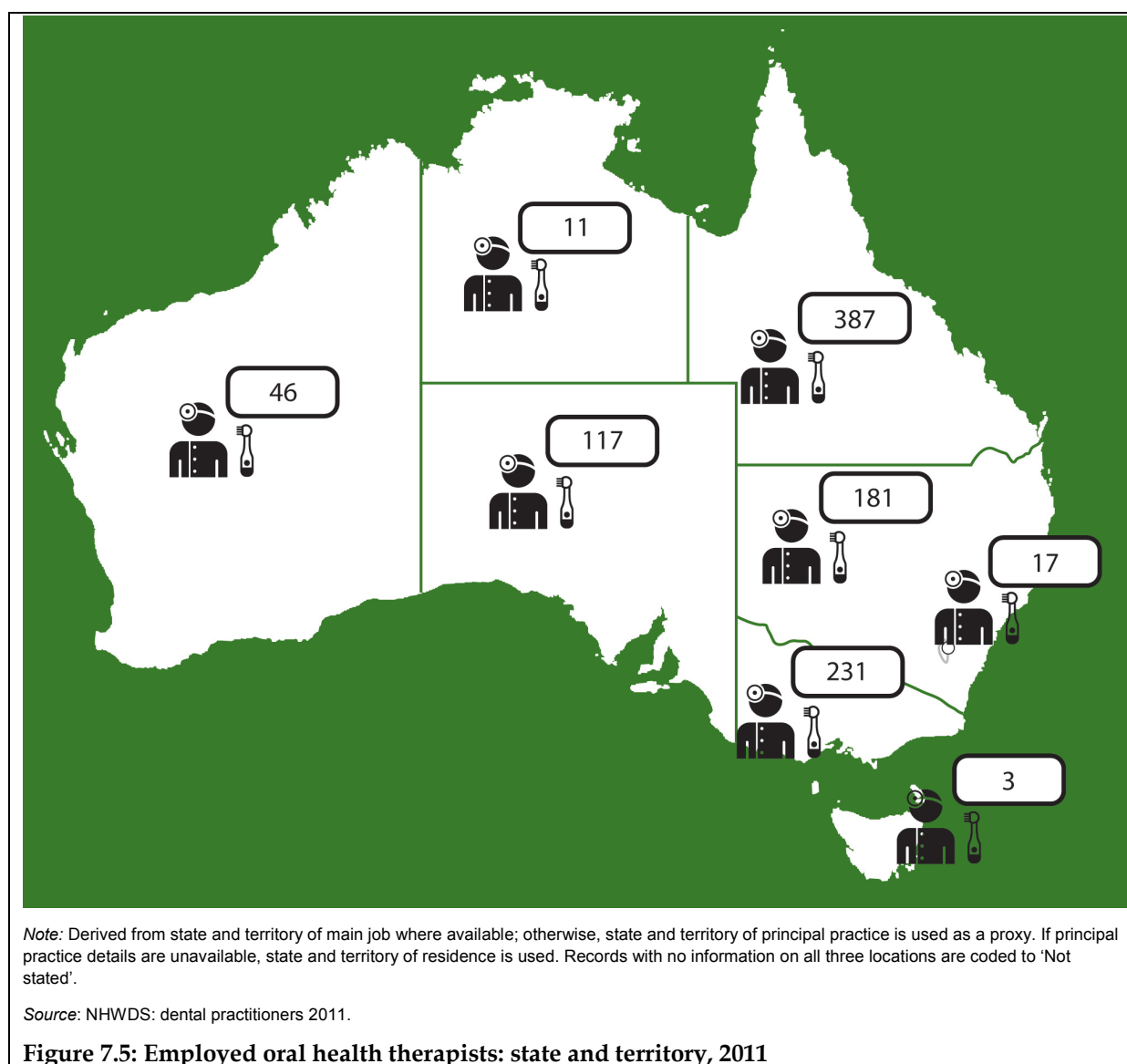
(c) Care should be taken in interpreting change in the estimates on hours worked due to changes in the question on hours worked from 2006 to 2011.

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

(e) 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'.

Sources: National Dental Labour Force Collection 2006; NHWDS: dental practitioners 2011.

7.3.2 States and territories of Australia



Between 2006 and 2011, the number of employed oral health therapists increased in all reported jurisdictions (Table 7.10).

Table 7.10: Employed oral health therapists: selected characteristics, state and territory, 2006 and 2011

Characteristic	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
2006^(a)									
Number	39	41	228	38	26	..	..	..	371
Average age	36.5	32.8	37.2	39.9	29.9	..	..	..	36.4
Aged 55 and over (per cent)	5.1	—	1.3	2.6	—	..	..	..	1.6
Women (per cent)	97.8	95.5	93.8	96.7	91.7	..	..	..	94.6
Average weekly hours ^(d) worked	32.9	35.4	34.5	25.3	34	..	..	..	33.4
FTE rate ^(e)	0.5	0.7	5.1	1.2	1.5	..	..	..	1.6
2011^(b)									
Number	181	231	387	46	117	3	17	11	994
Average age	31.0	28.8	35.9	40.2	28.6	24.0	35.3	29.9	32.6
Aged 55 and over (per cent)	0.6	2.0	3.6	n.p.	—	—	—	—	2.4
Women (per cent)	80.6	86.7	92.7	n.p.	81.3	—	n.p.	n.p.	87.9
Average weekly hours ^(c) worked	31.7	35.2	33.6	28.4	32.9	38.0	30.5	36.7	33.3
FTE rate ^(d)	2.1	3.9	7.6	1.5	6.2	0.6	3.7	4.6	3.9

(a) State and territory estimates for 2006 are based on state or territory of registration and should be treated with caution due to low response rates in some jurisdictions. See Appendix A for further information.

(b) 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'.

(c) Care should be taken in interpreting change in the estimates on hours worked due to changes in the question on hours worked from 2006 to 2011.

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

Sources: National Dental Labour Force Collection 2006; NHWDS: dental practitioners 2011.

7.4 Supply of oral health therapists

7.4.1 Overall supply

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

To do this, information on the number of employed oral health therapists, together with their average hours worked, has been used to calculate an FTE number of practitioners, based on a standard full-time working week of 38 hours (Box 3.2).

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

7.4.2 Supply of employed oral health therapists

Across Australia, the overall supply of oral health therapists increased between 2006 and 2011, from 1.6 FTE per 100,000 population in 2006 to 3.9 in 2011 (Table 7.11). As noted earlier, because oral health therapists have dual qualification/registrations as dental hygienists and dental therapist, and some issues with potential double counting in earlier years, the separate trends for oral health therapists, dental hygienists and dental therapists are not clear.

8 Sources of new entrants and re-entrants to the dental workforce

There are three sources of recruits to the dental workforce. The main source is through the training of new graduates. The time required for students to complete training and enter the workforce is such that any acute change in the demand for dental practitioners cannot be met by this group. In addition, the pool of dental practitioners who have maintained their registration or enrolment but who are not employed in dental health is a potential source of re-entrants. The third source of recruits is through the migration of overseas-trained people. This chapter discusses data relevant to the first two sources.

Data on migrant, overseas-trained dental practitioners will become available as the NRAS matures and new entrants can be tracked more thoroughly.

8.1 Dental practitioner training

Information on dentistry student commencements and completions of higher education (university) courses are derived from data provided by the Department of Education, Employment and Workplace Relations. Data on dental hygienist, therapist and prosthetist training is sourced from the National Centre for Vocational Education Research (NCVER).

To qualify as a dental practitioner in Australia, a student must meet the entry requirements of one of the Australian tertiary education institutions offering dental courses, and then complete the required academic and clinical training. If dentists wish to specialise, they must complete extra study after completing a period of clinical experience in general practice.

Box 8.1: The Australian Dental Council

The Australian Dental Council (ADC) is an independent national standards body for dental education and training. It acts as the external accreditation authority for the Dental Board of Australia under the Health Practitioner Regulation National Law Act 2009.

In the interest of promoting and protecting the oral health of the Australian community the ADC ensures the standards and quality of education and training programs and assessment for the dental and oral health professions by:

- leadership in developing national statements of attributes and competencies for the dental and oral health professions
- developing national accreditation standards for education and training courses leading to registration of graduates as dental practitioners
- implementing accreditation processes for education and training courses that are peer-based, independent, professional, effective and well regarded by the public, the profession, educational institutions, registration authorities and government
- assessing the qualifications and conducting examinations of overseas qualified dental professionals leading to registration for practice in Australia.

(continued)

Box 8.1 (continued): The Australian Dental Council

The main activities of the ADC are:

- assessing programs of study that lead to general or specialist registration of graduates for practice as dental practitioners in Australia to determine whether the programs meet approved accreditation standards
- overseeing the assessment of the knowledge, clinical skills and professional attributes of overseas qualified dental practitioners who are seeking registration to practise in Australia and whose qualifications are not approved qualifications under the Health Practitioner Regulation National Law Act.

No nationally consistent curriculum model exists across the universities. Undergraduate degrees last 4–5 years. Universities are continuously reviewing competencies and subject units. Theory and clinical study is undertaken, and at the end of the degree successful students are fully qualified dentists. During assessment, students must demonstrate the 'Professional Attributes and Competencies of the Newly Qualified Dentist' as detailed by the Australian Dental Council's publication (Version 1.0, June 2010), to become a qualified dentist.

There are three ways in which overseas qualified dental practitioners can enter the profession in Australia:

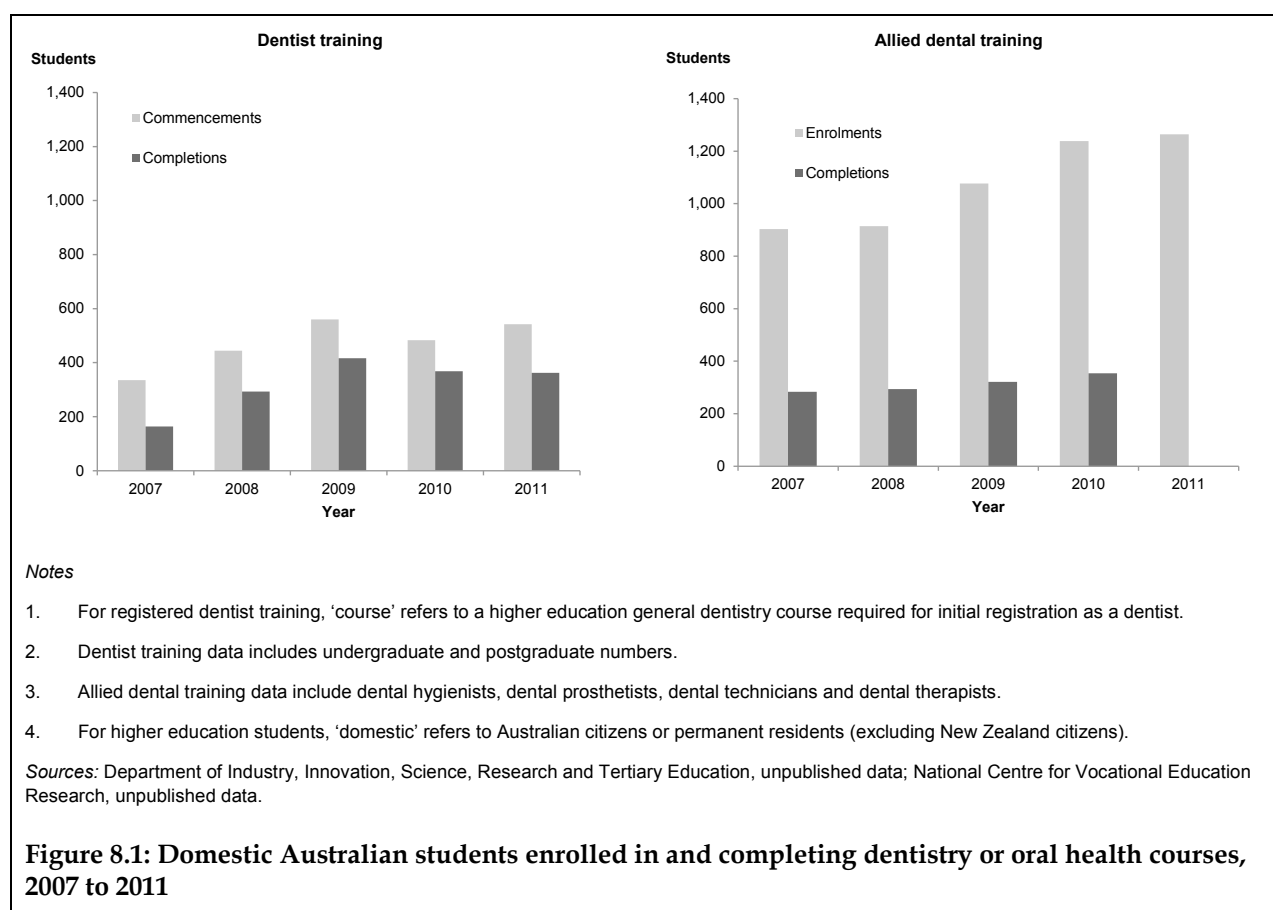
- by enrolling with an Australian education provider with an accredited program of study in the relevant discipline, where they may be granted some credit for previous study
- by recognition of their overseas qualifications by the Dental Board of Australia
- by successfully completing the ADC examinations.

Under the Trans-Tasman Mutual Recognition Arrangement (TTMRA), individuals registered or licensed to practise an occupation in New Zealand are entitled to practise the equivalent occupation in any Australian state and territory, and vice versa. The TTMRA applies irrespective of where training was undertaken.

The ADC conducts examinations for overseas qualified general dentists and undertakes assessment of overseas qualified dental hygienists and dental therapists in conjunction with other examining bodies authorised by the ADC.

Source: Australian Dental Council website, 2013

Commencements in university courses leading to qualification as a dentist by domestic students in Australia have increased by 61.8%, from 335 in 2007 to 542 in 2011. Over the same period, completions have increased by 120.7%, from 164 to 362 (Figure 8.1). Enrolments in vocational education and training courses leading to qualifications as a dental hygienist, prosthetist, technician or therapist have increased by 40.0%, from 903 in 2007 to 1,264 in 2011.



8.2 Dental practitioners not employed in dental health

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

Among dentists, the youngest group not actively employed in dentistry are those not employed and looking for work in dentistry (38.5 years) (Table 8.1). Not surprisingly, the group with the oldest average age are the retired dentists (65.0 years). The proportion of women among dentists not actively employed in dentistry is higher than the proportion of women among employed dentists (43.6% and 35.6%, respectively).

Table 8.1: Dentists not actively employed in dentistry in Australia: selected characteristics, 2011

Workforce status	Number	Average age	Aged 55 and over (per cent)	Women (per cent)	Metropolitan residence (per cent) ^{(a)(b)}
Dentists not actively employed in oral health in Australia					
On extended leave of 3 months or more	477	40.8	18.5	54.9	90.8
<i>Looking for work in dentistry</i>	78	38.8	13.3	59.0	88.3
Employed elsewhere	11	40.1	20.7	12.3	67.6
Not employed	66	38.5	12.0	67.1	91.9
Overseas	464	43.2	20.3	34.2	..
<i>Not looking for work in dentistry</i>	261	44.3	26.4	50.3	80.3
Employed elsewhere	112	46.4	29.5	37.1	74.4
Not employed	149	42.7	24.1	60.3	84.8
Retired from regular work	165	65.0	89.2	19.9	90.1
Total	1,445	44.9	28.3	43.6	69.6
Total employed dentists					
	12,734	43.5	23.0	35.6	93.4

(a) Based on postcode of home residence concorded to ASGC regions. (See Glossary.)

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

Source: NHWDS: dental practitioners 2011.

Among other oral health practitioners, the youngest group not actively employed in dentistry are those not employed and looking for work in dentistry (35.3 years) (Table 8.2). The group with the oldest average age are the retired practitioners (59.4 years). The proportion of women among practitioners not actively employed in dentistry is higher than the proportion of women among employed practitioners (85.8% and 73.1%, respectively).

Table 8.2: Other oral health practitioners not actively employed in oral health in Australia: selected characteristics, 2011

Workforce status	Number	Average age	Aged 55 and over (per cent)	Women (per cent)	Metropolitan residence (per cent) ^{(a)(b)}
Other oral health practitioners not actively employed in oral health in Australia					
On extended leave of 3 months or more	230	38.6	8.7	86.6	87.7
<i>Looking for work in oral health</i>	36	40.2	9.6	75.4	96.1
Employed elsewhere	16	46.3	21.5	91.2	100.0
Not employed	20	35.3	—	62.6	93.0
Overseas	26	37.9	9.3	92.2	..
<i>Not looking for work in oral health</i>	119	41.0	11.1	90.8	85.2
Employed elsewhere	44	45.0	13.1	89.7	72.8
Not employed	74	38.6	9.9	91.4	92.6

(continued)

Table 8.2 (continued): Other oral health practitioners not actively employed in oral health in Australia: selected characteristics, 2011

Workforce status	Number	Average age	Aged 55 and over (per cent)	Women (per cent)	Metropolitan residence (per cent)^{(a)(b)}
Other oral health practitioners not actively employed in oral health in Australia					
Retired from regular work	23	59.4	75.6	62.5	91.3
Total	434	40.5	13.1	85.8	83.8
Total employed Other oral health practitioners					
	4,190	41.6	13.5	73.1	90.8

(a) Based on postcode of home residence concorded to ASGC regions. (See Glossary.)

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

Source: NHWDS: dental practitioners 2011.

Appendix A: Explanatory notes on Dental Workforce 2011 data sources

A.1 National Health Workforce Data Set: dental practitioners

Background

Dental practitioners are required by law to be registered with the Dental Board of Australia to practise in Australia.

The National Health Workforce Data Set (NHWDS): dental practitioners is a combination of data collected through the registration renewal process for dental practitioners. The majority of dental practitioners are due to renew their registrations on 30 November each year. Dental practitioners can renew their registration either online via the AHPRA website or by using a paper form provided by the AHPRA.

When they are first registered, the process is more exhaustive. Graduates of approved (accredited) programs of study can apply for registration online, and later provide supplementary supporting documentation. Other applicants must initially apply in hard copy. Registration data collected include demographic information such as age, sex, country of birth, and details of health qualification(s) and registration status (see <<http://www.dentalboard.gov.au/Registration-and-Endorsement/Forms.aspx>>). The Health Practitioner Registration National Law (National Law) requires the AHPRA to publish the 'the qualification relied upon for registration'. However, this may not include all of the qualifications held by the practitioner.

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

When dental practitioners renew their registration on a paper form, they are also asked to complete a paper version of the Dental Workforce Survey questionnaire. The paper registration and survey forms are sent back to the AHPRA, where the paper registration forms are scanned and the data added to the registration data obtained from those who renew online. The AHPRA sends the paper survey forms to Health Workforce Australia (HWA) to be scanned into a data set. HWA then sends this data set to the AIHW for merging with the registration data for all registrants and the survey data for those who have completed the process online.

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: dental practitioners. The AIHW produces and releases reports and data tables based on the NHWDS: dental practitioners. These reports and data tables are available from the

AIHW website at <<http://www.aihw.gov.au/workforce-publications/>> (select link to *Dental workforce 2011*).

A.2 National Registration and Accreditation Scheme registration data

The Council of Australian Governments at its meeting of 26 March 2008 signed an Intergovernmental Agreement on the Australian health workforce, for the first time creating the National Registration and Accreditation Scheme (NRAS) (see <http://www.coag.gov.au/coag_meeting_outcomes/2008-03-26/docs/iga_health_workforce.rtf>). Ten health professions were included in the initial national system implemented on 1 July 2010 (18th October for Western Australia): chiropractors, dental practitioners, medical practitioners, nurses and midwives, optometrists, osteopaths, pharmacists, physiotherapists, podiatrists and psychologists.

For these professions, practitioners need to be registered with their respective professional boards to practise in Australia. As part of the initial registration and registration renewal process, the AHPRA collects information on the registration details and demographic characteristics of practitioners. Much of the data held on the AHPRA database for people registered before June 2010 was migrated from state and territory systems. The information is collectively referred to as the 'registration data'.

In 2011, dental practitioners were the third profession, after medical practitioners in 2010 and nursing and midwifery in 2011, to be included in the NRAS reporting cycle.

Scope and coverage

The AHPRA is scheduled to provide the AIHW with an extract of registration data as at the end of the annual dental practitioner registration renewal process in November. Due to a number of factors, a revised data set containing dental practitioners with valid registration data as at 15 January 2012 (the effective cut-off date for the November 2011 registration process) was extracted from the AHPRA back-up database of 2 February 2012.

Data for dental practitioners was merged with the Dental Workforce Survey 2011 data to create a national data set, the NHWDS: dental practitioners 2011.

Table A1: Registered dental practitioners: state and territory, 2006^(a), 2009^(a) and 2011^(b)

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia ^(c)
Dentist									
2006 ^(a)	4,135	2,706	2,280	868	1,186	182	86	245	11,686
2009 ^(a)	4,466	3,062	2,539	1,326	1,004	208	252	84	12,941
2011 ^(b)	4,687	3,349	2,716	1,460	1,077	204	251	104	14,179
Oral health therapist									
2006 ^(a)	42	46	243	40	26	..	..	..	398
2009 ^(a)	52	163	263	51	84	..	11	10	616
2011 ^(b)	204	253	431	55	133	3	17	11	1,108
Hygienist									
2006 ^(a)	160	145	76	159	173	7	38	12	770
2009 ^(a)	287	157	114	200	170	14	40	9	978
2011 ^(b)	351	168	116	264	221	14	51	7	1,206
Dental therapist									
2006 ^(a)	275	233	254	359	139	59	20	25	1,364
2009 ^(a)	299	186	283	356	118	60	22	17	1,338
2011 ^(b)	244	179	210	339	107	56	13	17	1,165
Dental prosthetist									
2006 ^(a)	416	271	150	108	34	46	14	..	1,040
2009 ^(a)	435	311	202	104	44	48	19	5	1,157
2011 ^(b)	409	323	215	80	45	51	15	5	1,145
All dental practitioners									
2006 ^(a)	5,028	3,401	3,003	1,534	1,558	294	158	282	15,258
2009 ^(a)	5,539	3,879	3,401	2,037	1,420	330	344	125	17,030
2011 ^(b)	5,895	4,271	3,687	2,198	1,583	328	346	144	18,803

- (a) Before 2011, the AIHW DSRU Dental Labour Force Survey collected state and territory of registration as reported in this table. The survey was administered by individual state and territory health departments or authorities, or the AIHW Dental Statistics Research Unit; therefore, the estimates above include a factor to remove the effect of dental practitioners who were registered in more than one jurisdiction, except where this was suppressed for confidentiality reasons in 2009 data.
- (b) 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'.
- (c) Includes 'Not stated' and overseas for 2011 and for earlier years may include a greater allowance for removing the effect of dental practitioners who were registered in more than one jurisdiction because this was suppressed for confidentiality reasons for some jurisdictions in 2009 but not in 2006.

Sources: National Dental Labour Force Collection, 2006, and 2009; NHWDS: dental practitioners 2011.

Data issues

The following data issues need to be considered when interpreting registration data from the NRAS in the NHWDS: dental practitioners 2011 (see the Data Quality Statement at Appendix E, and online *User guide for the NHWDS: dental practitioners 2011* available from the AIHW website at <<http://www.aihw.gov.au/workforce-publications/>> (select link to *Dental workforce 2011*)).

- *Incomplete registration data* – (for example, due to migrated data from state and territory dental boards/councils). In particular, some records had some or all of date of birth, sex, and state and territory of principal practice missing. This is an issue because these data items are required for weighting and imputation purposes. Tasmanian data was most affected with almost a third of sex data being missing.
- *Issues with overseas residents* – many dental practitioners who are overseas could not be identified by the registration process. They have been included with those whose state or territory of principal practice could not be determined. Therefore, the missing values of state and territory of principal practice cannot be imputed, and thus affected the calculation of survey weights.
- *Invalid postcode formats* – postcode of principal practice and residence contained text strings, such as invalid postcodes, suburb names and overseas postal codes. Therefore, after cleaning and recoding, many of these were still coded to the 'Not stated' category. As a result, the derivation of ASGC Remoteness Area (RA) categories for these records was not possible.
- *Invalid year formats* – invalid values entered in data fields relating to years may have affected data items such as date of birth.
- *Non-supply of many registration variables* – only a subset of the originally agreed registration variables to be supplied by the AHPRA were made available to the AIHW. This is due to a range of reasons: lack of migrated data, the fact that AHPRA does not collect or maintain the requested field, the scope of the data requested from AHPRA and AHPRA data management constraints. This resulted in large numbers of missing values or data of questionable quality for some fields. As a result, the following data were incomplete or not supplied: Date of death, (not required for collection under the National Law), country of first qualification, country of birth (these data were excluded by agreement in 2012), Citizen status (not required under the National Law for registration purposes and excluded from data set by agreement in 2012), Endorsement (not originally requested but will be provided in future data transfers), initial qualification, state of first qualification, year of first qualification, (all excluded from data transfer by agreement in 2012), registration end date, registration start date, resident status (not collected for registration purposes) and Student identifier (the student register is not a publicly accessible database under the National Law).

A.3 Dental Workforce Survey

The Dental Workforce Survey 2011 collected information on the employment characteristics, primary work location and work activity of dental practitioners in Australia who renewed their registration with the Dental Board of Australia via the NRAS. This survey data was then combined with the NRAS registration data to form the NHWDS: dental practitioners 2011.

The estimates published in this report are not always directly comparable with estimates derived from the earlier AIHW Dental Labour Force Survey data. This is due to a change in the data collection methodology, including the survey design and questionnaires (see 'A.5: Comparison with previous AIHW Dental Labour Force Survey data'). For further information, refer to the Data Quality Statement (Appendix E) and the online *User guide for the NHWDS: dental practitioners 2011*, available from the AIHW website at <http://www.aihw.gov.au/workforce-publications/> (select link to *Dental workforce 2011*).

Scope and coverage

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

Estimation procedures

The AIHW uses the NRAS registration data collected in tandem with that from the Dental Workforce Survey 2011 to derive estimates of the total dental practitioner workforce. Not all dental practitioners who receive a survey 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 dental practitioners who receive a questionnaire respond.

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

Both of these procedures are described below.

Imputation: estimation for item non-response

The imputation process involves an initial examination of all information provided by a respondent. If possible, a reasonable assumption is made about any missing information based on 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. Imputation is usually applied only in cases where the proportion of missing values is less than 5% of the total.

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

Age and sex values within each state and territory of principal practice are first imputed to account for missing values. Other variables deemed suitable for this process were then imputed. These include hours worked in dental practice the week before the survey and principal role of main job.

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 dental practitioners in Australia is used to benchmark the survey (see 'Data issues' in this section).

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 Dental Workforce Survey 2011, all renewing registrants were sent a workforce survey questionnaire when registration renewal was due. Therefore, technically, it was a census of dental practitioners. However, because not all renewing registrants in scope respond 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 practitioners in each state and territory (based on the location of principal practice), by dental division, age group and sex within the NRAS registration data supplied by the 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 Dental Workforce Survey 2011). 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: dental practitioners 2011, that is all variables *other* than state and territory of principal practice, dental division, 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 Dental Workforce Survey 2011 was 80.3%; that is, the number of responses to the survey represented 80.3% of registered dental practitioners (Table A.2). Of these respondents, 84.5% completed the survey online and 15.5% used the paper form.

Table A2: Survey response rate: state and territory, 2006, 2009^(a) and 2011^(b)

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Dentist									
2006 ^(a)	90.7	77.0	73.8	67.5	86.9	62.2	33.1	49.5	79.6
2009 ^(a)	75.1	86.8	62.3	58.2	71.6	59.3	59.2	56.4	72.5
2011 ^(b)	80.5	80.3	81.3	76.4	88.0	79.6	87.6	84.0	80.7
Oral health therapist									
2006 ^(a)	97.8	93.6	78.5	66.7	92.3	..	..	..	82.0
2009 ^(a)	80.8	81.0	34.2	94.1	69.0	..	100.0	70.0	50.2
2011 ^(b)	75.2	71.3	73.9	70.9	76.5	50.0	84.2	90.9	74.1
Dental hygienist									
2006 ^(a)	89.2	87.8	66.7	68.1	77.3	100.0	31.7	n.a.	76.7
2009 ^(a)	68.5	88.6	34.2	50.9	69.9	57.1	52.5	55.6	53.3
2011 ^(b)	80.5	79.4	82.1	76.0	80.1	78.6	88.1	85.7	79.9
Dental therapist									
2006 ^(a)	91.4	75.5	78.4	79.1	79.6	96.7	95.0	52.0	81.4
2009 ^(a)	74.1	95.8	34.2	59.0	83.7	78.3	59.1	46.9	58.1
2011 ^(b)	94.3	82.2	85.8	73.2	99.1	83.6	93.3	100.0	84.7
Dental prosthetist									
2006 ^(a)	56.3	69.3	69.9	31.5	64.9	100.0	57.1	n.a.	61.3
2009 ^(a)	60.9	80.1	53.5	35.7	59.1	100.0	68.4	60.0	64.0
2011 ^(b)	85.5	69.7	75.5	67.5	88.9	78.4	81.3	100.0	77.6
All dental practitioners									
2011 ^(b)	81.3	79.0	80.3	75.4	86.7	79.9	87.5	87.1	80.3

(a) Before 2011, the AIHW Dental Labour Force Survey collected state and territory of registration and reported in this table. The survey was administered by a mix of AIHW DSRU and individual state and territory boards and councils; therefore, some dental practitioners 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 are unavailable, state and territory of residence is used. Records with no information on all three locations are coded to 'Not stated'.

Sources: National Dental Labour Force Collection, 2006 and 2009; NHWDS: dental practitioners 2011.

As previously stated, the jurisdiction-based data collection used to collect information on the workforce characteristics of the dental workforce 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.

Survey response rates rose in 2011 for all groups, and specifically for dentists by 8.1 percentage points from 72.5% in 2009 to 80.7% in 2011.

Data issues

A number of data issues need to be considered when interpreting dental practitioners' workforce survey data in the NHWDS: dental practitioners 2011. These issues are outlined in this section.

Sample

The NHWDS: dental practitioners will be produced annually during the national registration renewal process, conducted from early October to 30 November (the renewal date) each year. While the reference time is notionally the renewal date, legislation allows for a one month rate period beyond the registration expiry date. Thus, the official registration closure date is one month after the renewal date. The AHPRA allows a further 2 weeks to allow for mail and data entry delays before the registrations are considered expired. 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

The Dental Practitioners Workforce Survey 2011 used only a single survey forms for all types of dental practitioners.

In 2011, 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.

The order of the response categories to the 'Reason not working in dental in Australia' question appears to be an issue. The question has 'Retired from regular work' after 'Not working in paid employment at all', which may not be logical as dental practitioners may be retired but still work irregularly (for example, as an occasional locum). On this basis, the category 'Retired from regular work' should appear before 'Not working in paid employment at all'. The issue with the order in the 2011 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.

A number of survey questions have allowed invalid responses to be recorded. A number of these responses could not be recoded to a valid category – for example, text entered as responses to the 'hours worked' questions.

Variation between the online and paper surveys has resulted in additional data quality issues for a number of questions. For example, the state and territory of main job question included the category 'Other territories' on the paper form while the same response category in the online form was labelled 'Other'. The data showed a large number in the 'Other' category captured in the online method, which was not similarly found in the paper responses. In addition, both state and territory of principal practice and residence data items do not include the category 'Other territories' or 'Other'. Another issue is that the 'temporary resident status' question is explicitly asked only on the paper survey form (see 'A.5: Comparison with previous AIHW Dental Labour Force Survey data').

It is expected that the online and paper versions of the survey questionnaire will be harmonised in future iterations.

Data structure

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

Issues with the online survey, such as sequencing and allowing invalid values, will be corrected in future iterations of the data collection.

A.4 Data inconsistencies between survey and registration data

There were a number of inconsistencies between the data sourced from the NRAS registration data and the workforce survey data. It is not known if these are due to real changes that occurred between the time the survey was completed and the date the registration data was captured, or if they are due to other sources of error.

State and territory, and location (postcode and suburb) of principal practice recorded in the registration data, were in some instances different from the corresponding details of the main job recorded in the survey. Although this is generally valid for states and territories with common borders, there were some records where the state or territory of the principal practice did not adjoin the state or territory of the main job. It was apparent from this that the principal practice address was not accurately reflecting the current location of people in some cases. However, under the National Law, medical practitioners are required to reconfirm their principal place of practice each year as part of the registration renewal cycle. Under the National Law, *Principal place of practice, for a registered health practitioner, means the address declared by the practitioner to be the address –*

at which the practitioner is predominantly practising the profession; or

if the practitioner is not practising the profession or is not practising the profession predominantly at one address, that is the practitioner's principal place of residence.

The registration data also contains residential addresses that have been migrated from state systems and may be a number of years out of date. As a result, the derivation of ASGC RA categories for place of residence may not be current.

Overall, in spite of the high number of not stated records in the state or territory of main job, the comparison of the number of people within states and territories aligns reasonably between main job and principal practice. The state or territory with the poorest alignment is the Northern Territory, where it appears that 9.4% more dental 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. This may reflect temporary movement to the Northern Territory.

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 is used in all tables except where otherwise stated. As a consequence of this methodology, those who were working overseas but maintained an Australian contact address have been allocated in state tables to the state where that contact address was.

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

Table A.3: Dental practitioners comparison of different state variables, states and territories^(a), 2011

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Other ^(a)	Australia
Employed										
Derived (used in tables unless specified otherwise)	5,329	3,957	3,419	1,982	1,464	304	322	134	14	16,925
Principal practice (derived for weights)	5,333	3,966	3,421	1,991	1,463	298	316	123	13	16,925
Principal practice (original)	5,329	3,957	3,410	1,988	1,416	301	315	120	88	16,925
Main job	5,101	3,751	3,256	1,871	1,400	293	307	132	814	16,925
Residence	5,317	3,953	3,439	1,984	1,467	293	305	113	53	16,925
Registered										
Derived (used in tables unless specified otherwise)	5,895	4,271	3,687	2,198	1,583	328	346	144	350	18,803
Principal practice (derived for weights)	5,899	4,277	3,688	2,206	1,586	323	343	132	349	18,803
Principal practice (original)	5,875	4,253	3,664	2,197	1,533	325	340	129	486	18,803
Main job	5,289	3,882	3,364	1,957	1,457	308	314	134	2,099	18,803
Residence	5,863	4,249	3,693	2,191	1,585	316	329	120	458	18,803

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

Source: NHWDS: dental practitioners 2011.

A.5 Comparison with previous Dental Labour Force Survey data

In the past, dental labour force data published by the AIHW was produced using dental labour force questionnaires developed by the Dental Statistics and Research Unit (University of Adelaide). The Dental Workforce Survey collects similar data items, but the survey methodology has changed, as has the method of obtaining benchmark data on which the numbers of total registrations are based. With the establishment of the AHPRA, there is one source of benchmark data, and there is less chance of inconsistency between jurisdictions and years in the scope of benchmark data.

In 2011, dental practitioners renewing their registration could either complete the voluntary Dental Workforce Survey online (at the end of the formal registration process) or complete

the paper form sent to their postal address with their registration form. The use of online and/or paper surveys varied between jurisdictions and between years with the previous AIHW Dental Labour Force Survey.

Some data items previously collected as part of the AIHW Dental Labour Force Survey – such as date of birth, country of first qualification, specialty of practice, and sex – are now collected as part of the registration and renewal process. However, the data for some of these items are either incomplete, or the data migrated from previous jurisdictional registration systems are inaccurate, or were not provided in the latest extracts, by agreement.

Some oral and maxillofacial surgeons are dual-registered dentists and medical practitioners and may have their specialties on only one of or both the medical register and the dental register.

The 2011 Dental Workforce Survey questionnaire contains fewer questions related to workforce information than was collected before 2010. The survey questions were agreed for inclusion with Health Workforce Australia.

A significant point of difference is that the previous AIHW Dental Labour Force Survey consisted of three different forms covering dentists, allied dental and dental prosthetist workforces separately.

Due to the differences in data collection methods, it is recommended that comparisons between data from the NHWDS: dental practitioners 2011 and previous AIHW Dental Labour Force Survey data be made with caution.

Differences between the 2011 questionnaire and surveys in previous years

The following data items collected in the Dental Workforce Survey 2011 questionnaire were either not collected previously in the AIHW Dental Labour Force Survey or were collected using different questions or response categories.

Question 1—Indigenous status

The Dental Workforce Survey 2011 collected Indigenous status from dental practitioners in both the online and paper form. This question was not included in past AIHW Dental Labour Force Surveys.

Question 2—Temporary resident status and visa category number

The Dental Workforce Survey 2011 collected temporary resident status and visa category number from dental practitioners in both the online and paper form. However, the online question does not ask respondents to answer whether or not they are a temporary resident, but only to enter their visa category number if they self-identify as a temporary resident. The paper form, however, asks respondents to check 'Yes' or 'No' to the temporary resident question, and if 'No' to move on to question 3, or if 'Yes' to provide the visa category number. This may have created some variation in the data between the online and paper respondent groups. All three 2009 surveys had a three category tick box question for Australian citizen, Permanent resident and Temporary resident.

Questions 3 to 5—Employment

The three employment-related questions in the Dental Workforce Survey 2011 questionnaire are nationally consistent. This is an improvement on the previous AIHW Dental Labour Force Survey where the questionnaire was different in this respect from that for other professions. The 2011 questions have been grouped and sequenced logically: the first question relates to the working status of the dental practitioner, followed by the reason why they are not working in dentistry in Australia, and then whether or not they are looking for work.

The new questions in the Dental Workforce Survey 2011 were designed based on a combination of the questions previously used by jurisdictions in the Dental Labour Force Survey. Because this survey is based nationally, the components of the employment questions relating to working in other states were not required.

Question 10—Principal area of main job in dentistry

The question response options used before 2011 in the AIHW Dental Labour Force Survey were different from those used in the 2011 Dental Workforce Surveys. The 2011 response categories are, however, slightly different in scope and the same for all three groups which had different forms previously.

Question 11—Work setting of main job in dentistry

Work setting response categories in the 2011 survey are similar to those in previous years. The 2011 response categories are, however, slightly different in scope and the same for all three groups which had different forms previously.

Question 12—Number of years worked in dentistry in Australia

Number of years worked in dentistry in Australia was not previously collected by the AIHW Dental Labour Force Survey.

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

Number of years a dental practitioner intends to remain in the dental workforce was not previously collected by the AIHW Dental Labour Force Survey.

A.6 Comparison with ABS Census data

The ABS Census of Population and Housing, conducted every 5 years, collects information from all persons aged 15 and over about their employment status, occupation and qualifications. The results of the 2006 and 2011 Censuses include data on occupations classified using the Australian and New Zealand Standard Classification of Occupations (ANZSCO) (ABS 2006) for 2006 and ANZSCO revision 1 (ABS 2009) for 2011. Occupation data are collected for the main job held during the week before Census night.

Unlike the AIHW definition of a dentist, the ANZSCO definition excludes non-clinicians. For this reason, the AIHW data in this appendix relate to dentists working primarily as clinicians. Dentists reported in the Census totalled 9,071 for 2006 and 10,986 for 2011. The total number of employed dentists working primarily as clinicians derived from AIHW data was 10.6% higher than the number derived from the Census of Population and Housing for 2011 and 10.3% higher for 2006.

Table A4: Employed dentists: ABS Census of Population and Housing and AIHW data, state and territory, 2006 and 2011

Year	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
AIHW dental workforce surveys									
2006 ^(a)	3,433	2,357	1,959	1,030	757	172	218	75	10,001
2011 ^(b)	4,092	2,959	2,412	1,269	915	183	224	87	12,154
ABS Census									
2006	3,313	2,143	1,747	921	780	134	167	63	9,071
2011	3,714	2,696	2,169	1,103	872	170	195	67	10,986
Per cent difference									
2006	3.6	10.0	12.1	11.8	-2.9	28.4	30.5	19.0	10.3
2011	10.2	9.8	11.2	15.0	4.9	7.6	14.9	29.9	10.6

(a) State and territory estimates for 2006 are based on state or territory of registration and should be treated with caution due to low response rates in some jurisdictions. See Appendix A for further information.

(b) State and territory estimates for 2011 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'. Australian total includes dentists who did not state or adequately describe their state or territory and those who were overseas.

Sources: AIHW dental Labour Force Survey, 2006; NHWDS: dental practitioners 2011; ABS 2006 Census of Population and Housing data; ABS 2011 Census of Population and Housing data.

The reasons for the higher estimates in the AIHW data than in the Census data are not well understood. There are a range of differences in the scope and collection methodologies of the two collections, and these may contribute to the differences in the figures between the two sources. Several key differences are highlighted below.

In the Census, responses are handwritten, which are interpreted using intelligent character recognition technology and then coded using ANZSCO. The Census method may result in under identification of dentists with accurate coding dependent on the level of detail provided and the legibility of responses. There were 189,017 not stated and unknown responses in the Census, plus 32,125 Professionals (not further defined) and 2,114 Health professionals (not further defined) coded in the Census.

In the 2006 AIHW data, estimates of the number of dentists are derived from survey responses weighted to registration numbers provided by state and territory dental boards (known as benchmarks) and adjusted for multi-state registrations. These weighted figures are not likely to underestimate numbers of dentists. The 2011 data is based on the NRAS registrations and survey data combined.

A proportion of part-time clinicians are excluded from both data sources, but via different methods. The Census gathers information about a person's main job only, so if they work part-time as a clinical dentist and it is not their main job then they will not be classed as a dentist. This also excludes some dentists who undertake clinical work in addition to a non-clinical main job (for example, research, teaching, administration, etc.).

For the AIHW data, a clinician is a dentist who reported their role in their main job was a clinical one ('General practice', 'Registered specialist' and 'Restricted practice' for 2006 and 'Clinician' for 2011) during the week before the survey (see Glossary). Dentists who stated that most of their time was spent working outside clinical practice, as an educator, administrator, researcher, teacher, or other are classed as non-clinicians. As a result, the number of clinicians reported by the AIHW will not include those clinicians who spend less

time on clinical work than in other fields. However, unlike the Census, the AIHW data on clinical dentists includes those dentists who undertake clinical work in addition to a non-dental main job.

State and territory allocation may also differ. The AIHW 2006 data is based on state or territory of registration, where dentists indicated that they mainly or only worked in that state or territory at the time of the survey. The AIHW 2011 data is based largely on state of main job reported in the survey. The state or territory from the Census data was based on the self-reported place of work on Census night.

The 2006 registration periods and processes differed across jurisdictions, resulting in the survey administration taking place throughout the year. The 2011 workforce survey nominally ended 30 November 2011, while the registration data was based on an extract of 2 February 2012. This may have resulted in some variation in state and territory allocation compared with the Census, which provides a point-in-time snapshot.

Appendix B: 2011 dental registration numbers from the Australian Health Practitioner Regulation Agency

Numbers of registrations from the Australian Health Practitioner Regulation Agency are contained in Table B1 and B2 for comparison purposes.

Table B1: Registered practitioners by profession, principal place of practice and registration type, reported by the Australian Health Practitioner Regulation Agency, 30 June 2011

Dental practitioner	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Not stated	Australia
Number										
General	5,026	3,582	3,189	1,868	1,384	281	283	106	499	16,218
General and specialist	440	346	281	140	131	5	35	4	45	1,427
Limited	103	95	55	28	42	7	7	2	90	429
Non-practising	45	62	16	40	4	5	—	1	36	209
Specialist	5	7	1			17	1		5	36
Total	5,619	4,092	3,542	2,076	1,561	315	326	113	675	18,319
Percentage of total registrations										
General	89.4	87.5	90.0	90.0	88.7	89.2	86.8	93.8	73.9	89.4
General and specialist	7.8	8.5	7.9	6.7	8.4	1.6	10.7	3.5	6.7	7.8
Limited	1.8	2.3	1.6	1.3	2.7	2.2	2.1	1.8	13.3	1.8
Non-practising	0.8	1.5	0.5	1.9	0.3	1.6	—	0.9	5.3	0.8
Specialist	0.1	0.2	—	—	—	5.4	0.3	—	0.7	0.1
Total	100	100	100	100	100	100	100	100	100	100

Source: AHPRA 2011.

Table B2: Registered practitioners by profession, principal place of practice and division, reported by the Australian Health Practitioner Regulation Agency, 30 June 2011

Dental divisions	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Not stated	Australia
Number										
Dental hygienist	337	161	118	251	203	12	36	6	24	1,148
Dental hygienist and dental prosthodontist	1	—	—	—	—	—	—	—	—	1
Dental hygienist and dental prosthodontist and dental therapist	1	1	—	—	—	—	—	—	—	2
Dental hygienist and dental therapist	7	127	7	49	273	88	1	56	3	610
Dental prosthodontist	351	323	212	76	46	48	18	4	82	1,160
Dental therapist	259	183	215	340	116	56	15	18	4	1,206
Dentist	4,507	3,231	2,580	1,360	1,071	198	245	77	561	13,830
Oral health therapist	108	66	143	—	37	1	5	1	1	362
Dental practitioner total	5,619	4,092	3,542	2,076	1,561	315	326	113	675	18,319
Percentage of total registrations										
Dental hygienist	6.0	3.9	3.3	12.1	13.0	3.8	11.0	5.3	3.6	6.3
Dental hygienist and dental prosthodontist	—	—	—	—	—	—	—	—	—	—
Dental hygienist and dental prosthodontist and dental therapist	—	—	—	—	—	—	—	—	—	—
Dental hygienist and dental therapist	0.1	3.1	0.2	2.4	17.5	27.9	0.3	49.6	0.4	3.3
Dental prosthodontist	6.2	7.9	6.0	3.7	2.9	15.2	5.5	3.5	12.1	6.3
Dental therapist	4.6	4.5	6.1	16.4	7.4	17.8	4.6	15.9	0.6	6.6
Dentist	80.2	79.0	72.8	65.5	68.6	62.9	75.2	68.1	83.1	75.5
Oral health therapist	1.9	1.6	4.0	—	2.4	0.3	1.5	0.9	0.1	2.0
Dental practitioner total	100	100	100	100	100	100	100	100	100	100

Source: AHPRA 2011.

Appendix C: Additional information available from the AIHW website

Tables

In addition to the tables in this report, more detailed tabulations from the Dental Workforce Survey 2011 are published on the AIHW website <<http://www.aihw.gov.au/workforce-publications/>> (select link to *Dental workforce 2011*).

Workforce Survey questionnaire

The questionnaire used in the Dental Workforce Survey 2011 is available from the AIHW website <<http://www.aihw.gov.au/workforce-publications/>> (select link to *Dental workforce 2011*).

Data Quality Statement: NHWDS: dental practitioners 2011

A full description of the data quality of the data set is in Appendix E or available from the AIHW's METeOR website at <<http://meteor.aihw.gov.au>>.

User guide for the NHWDS: dental practitioners 2011

A user guide for the NHWDS: dental practitioners 2011, which provides further information on the survey components and data specifications, is available from the AIHW website at <<http://www.aihw.gov.au/workforce-publications/>> (select link to *Dental workforce 2011*).

Appendix D: Population estimates

This report presents time series information about dental practitioners, using measures such as number per 100,000 population and FTE rate. To derive these measures, the population estimates (often referred to as 'estimated resident population') are obtained from the 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, and short-term travellers to Australia and absences from Australia.

These figures are used to derive population and FTE rates in this report.

Table D1: Population estimates at 30 June: remoteness area and state and territory, 2006 to 2011

Remoteness area	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia ^(a)
2006									
Major cities	4,946,348	3,834,245	2,438,355	1,139,198	1,470,503	..	333,609	..	14,162,258
Inner regional	1,386,564	1,037,150	897,047	188,761	258,570	316,805	510	..	4,085,407
Outer regional	445,099	250,368	621,118	180,797	191,557	162,980	..	115,385	1,967,304
Remote	33,528	4,777	84,648	45,239	92,747	7,565	..	46,547	315,051
Very remote ^(b)	4,548	..	49,740	13,893	46,004	2,601	..	48,695	165,481
Total	6,816,087	5,126,540	4,090,908	2,059,381	1,567,888	489,951	334,119	210,627	20,697,880
2007									
Major cities	5,009,607	3,904,620	2,501,482	1,508,259	1,151,585	..	341,065	..	14,416,618
Inner regional	1,395,750	1,045,527	910,664	268,271	191,383	319,324	502	..	4,131,421
Outer regional	442,405	249,779	629,955	193,313	180,225	164,032	..	118,525	1,978,234
Remote	32,960	4,681	84,921	93,987	45,321	7,638	..	47,396	316,904
Very remote ^(b)	4,482	..	50,067	50,011	14,045	2,574	..	49,100	170,279
Total	6,885,204	5,204,607	4,177,089	2,113,841	1,582,559	493,568	341,567	215,021	21,013,456
2008									
Major cities	5,088,411	3,983,643	2,567,410	1,553,374	1,163,488	..	346,809	..	14,703,135
Inner regional	1,407,822	1,055,226	925,585	280,150	194,398	322,473	499	..	4,186,153
Outer regional	442,587	249,585	640,923	195,818	179,734	165,803	..	122,541	1,996,991
Remote	32,587	4,634	85,711	95,036	45,531	7,730	..	48,625	319,856
Very remote ^(b)	4,482	..	50,462	54,199	14,192	2,559	..	49,769	175,663
Total	6,975,891	5,293,088	4,270,091	2,178,577	1,597,343	498,565	347,308	220,935	21,381,798
2009									
Major cities	5,169,841	4,073,714	2,634,657	1,602,275	1,177,493	..	353,280	..	15,011,260
Inner regional	1,419,339	1,067,238	942,458	291,642	197,228	325,858	526	..	4,244,289
Outer regional	443,548	249,600	651,304	198,060	179,572	167,932	..	126,542	2,016,558
Remote	32,521	4,585	86,181	96,405	45,741	7,786	..	49,794	323,013
Very remote ^(b)	4,458	..	50,826	58,277	14,341	2,518	..	50,505	180,925
Total	7,069,707	5,395,137	4,365,426	2,246,659	1,614,375	504,094	353,806	226,841	21,776,045

(continued)

Table D1 (continued): Population estimates at 30 June: remoteness area by state and territory, 2006 to 2011

Remoteness area	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia ^(a)
2010									
Major cities	5,236,573	4,137,647	2,677,643	1,636,822	1,189,755	..	360,145	..	15,238,858
Inner regional	1,428,330	1,077,999	951,668	300,769	200,092	328,773	608	..	4,288,239
Outer regional	443,190	248,259	656,996	199,030	179,173	169,138	..	129,131	2,024,917
Remote	32,390	4,525	86,586	97,635	45,844	7,801	..	50,334	325,115
Very remote ^(b)	4,445	..	51,265	61,873	14,570	2,495	..	50,850	185,498
Total^(c)	7,144,928	5,468,430	4,424,158	2,296,129	1,629,434	508,207	360,753	230,315	22,062,354
2011									
Major cities	5,295,728	4,195,976	2,715,743	1,676,314	1,198,438	..	367,136	..	15,449,335
Inner regional	1,436,745	1,087,651	958,313	310,794	201,501	331,136	616	..	4,326,756
Outer regional	442,387	246,455	661,321	200,259	177,911	169,934	..	130,050	2,028,317
Remote	32,191	4,444	87,172	99,167	45,757	7,675	..	50,358	326,764
Very remote ^(b)	4,417	..	51,549	65,681	14,625	2,450	..	50,923	189,645
Total	7,211,468	5,534,526	4,474,098	2,352,215	1,638,232	511,195	367,752	231,331	22,323,933

(a) Includes Other territories in Australian total but not in remoteness area estimates.

(b) Includes *Migratory* areas.

Source: Unpublished ABS estimated resident population data.

Appendix E: Data Quality Statement: National Health Workforce Data Set: dental practitioners 2011

Summary of key issues

The National Health Workforce Data Set (NHWDS): dental practitioners 2011 contains information on the demographics, employment characteristics, primary work location and work activity of all dental practitioners in Australia who renewed their dental registration with the Dental Board of Australia via the National Registration and Accreditation Scheme (NRAS) introduced on 1 July 2010.

This is the first data published for dental practitioners from the new national registration scheme. The data set is comprised of registration (including demographic) information provided by the Australian Health Practitioner Regulation Agency (AHPRA) and workforce details obtained by the Dental Workforce Survey. The survey instrument varies significantly in some areas from previous years, however, is now nationally consistent.

This data quality statement should be read in conjunction with the detailed commentary on specific data issues in Appendix A.2 to A.5 and in footnotes and commentary accompanying tables throughout the publication.

Description

The NHWDS: dental practitioners 2011 is a combination of data collected through the dental practitioner registration renewal process.

Dental practitioners are required to renew their registration with the Dental Board of Australia through the NRAS, either online via the AHPRA website or using a paper form provided by the AHPRA. For initial registration, dental practitioners must use a paper form and provide supplementary supporting documentation. This information is referred to as 'registration data'. Data collected include demographic information such as age, sex, country of birth; and details of health qualification(s) and registration status (see <<http://www.dentalboard.gov.au/Registration/Types.aspx>>, select link to *Registration type* then *Registration form*).

When dental practitioners renew their registration online they are also asked to complete an online version of the Dental Workforce Survey questionnaire. The questionnaire collects information on the employment characteristics, work locations and work activity of dental practitioners (see <<http://www.aihw.gov.au/workforce-publications/>>, select link to *Dental workforce 2011*). The AHPRA stores both the online registration data and the survey information in separate databases. They then send these two data sets to the Australian Institute of Health and Welfare (AIHW), where they are merged into a de-identified national data set.

When dental practitioners renew their registration on a paper form they are also asked to complete a paper version of the Dental Workforce Survey questionnaire. The paper registration and survey forms are sent back to the AHPRA, where the paper registration forms are scanned and merged with the data obtained from the online process. The AHPRA sends the paper survey forms to Health Workforce Australia (HWA) to be scanned into a

data set. The HWA then sends this data set to the 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: dental practitioners, containing information sourced from registration data and workforce survey data.

Institutional environment

The 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 and Ageing 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 data sets based on data from each jurisdiction, to analyse these data sets and disseminate information and statistics.

The *Australian Institute of Health and Welfare Act 1987*, in conjunction with compliance to the *Privacy Act 1988* (Cwlth), 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 at <<http://www.aihw.gov.au>>.

The AIHW receives registration (including demographic) information on dental practitioners via the mandatory national registration process administered by the AHPRA and the voluntary Dental 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: dental practitioners 2011.

The AIHW is the data custodian of the NHWDS: dental practitioners 2011.

Timeliness

The NHWDS: dental practitioners will be produced annually from the national registration renewal process, conducted between 1 October and 30 November (the renewal date) each year. While the reference time is notionally the renewal date, legislation allows for a 1-month period of grace. Thus, the official registration closure date is 1 month after the renewal date. The AHPRA allow a further 2 weeks to allow for mail and data entry delays before the registrations are considered expired. 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.

The Dental Workforce Survey will also be collected between 1 October and 30 November, 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 the registrant is renewed on the anniversary of their commencement. Limited and provisional registrations renewals are given paper forms only. These responses are included with the regular survey respondents.

Due to significant delays with release of data from the new national registration system, complete and final data were provided to the AIHW much later than originally scheduled. Initial data provided needed joint reviews by the 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. The process also led to improvements in AHPRA's extracting scripts to provide consistency in data exchange specifications. This process delayed the supply of data but improved the overall quality. The AIHW expected to receive both the registration and workforce survey data simultaneously in February 2012. Due to the factors above, the AIHW received complete useable registration and workforce survey data from AHPRA in October 2012. AHPRA have indicated that future data provision is anticipated to be timely and provided six weeks from the close of registration on 30 November.

Accessibility

Results from the NHWDS: dental practitioners 2011 are published in the *Dental workforce 2011* 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 *Dental workforce 2011*).

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: dental practitioners 2011 is in Appendix A of the *Dental Workforce 2011* report. The report is based on this data set. See 'Accessibility' for details.

Relevance

Scope and coverage

The NHWDS: dental practitioners 2011 contains registration details of all registered dental practitioners in Australia at the renewal date of 30 November 2011.

Dental practitioners are required by law to be registered with the Dental Board of Australia to practice in Australia, and must complete the formal registration renewal form(s). This is the compulsory component of the renewal process. Registration details on NHWDS: dental practitioners 2011 were collected either from the compulsory registration renewal form or registration details migrated from the respective state and territory dental boards before their dissolution. See 'Accuracy' for quality of migrated data.

The Dental 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: dental practitioners 2011 contains registration details of all registered dental practitioners in Australia at 30 November 2011.

The data set also contains workforce information for registered dental practitioners who completed the Dental Workforce Survey. The overall response rate was 80.3 %. Of these respondents, 84.5 % completed the survey online and 15.5 % used the paper form.

The data include employed dental practitioners who did not state or adequately describe their location variables and employed dental practitioners currently overseas. Therefore, the national estimates include this group.

Response rates for 2011 are not directly comparable with 2009 and earlier years because the previous jurisdiction-based data collection used to collect information on the workforce characteristics of dental practitioners was replaced with a single data collection as part of the national registration scheme introduced on 1 July 2010.

Registration data from the NRAS

Some data items collected, up to and including 2009, as part of the previous AIHW Dental Labour Force Survey, such as date of birth, sex and specialty of practice, are now data items collected as part of the registration and renewal process. However, the data for some of these items is incomplete due to the quality of the data migrated from previous jurisdictional registration systems.

There were a number of data items that had significant numbers of incomplete records. In particular, date of birth, sex and state and territory of principal practice, which are items used in the survey estimation process. Missing values of date of birth and sex were imputed. The jurisdiction most affected was Tasmania where almost a third of records were missing sex.

Only a subset of the originally agreed registration variables to be supplied by AHPRA was made available to the AIHW. Large numbers of missing values, technical issues or data of questionable quality mean that the following data was not supplied: Date of first registration, Date of death, Country of first qualification and others, Country of birth, Citizen status, Endorsement, Initial qualification. State of first qualification. Year of first qualification, Registration end date, Registration start date, Resident status and Student identifier.

Many dental practitioners who were overseas could not be identified by the registration process. They have been included with practitioners whose state or territory of principal practice could not be determined. Therefore, the missing values cannot be imputed, and thus affected the weighting method.

Some data items have allowed invalid responses to be recorded as a valid category, for example registration type of 'General and specialist'.

The NRAS allows a dental practitioner to record more than one specialty, with up to three specialties recorded for dental practitioners in 2011. However the National Law does not require or enable practitioners to identify their primary specialty. The non-identification of a main specialty of practice also means headcounts are not possible. While the primary specialty of practice is not identified, for the small number of practitioners with more than one specialty the survey data item, Area of practice was used to decide which specialty to allocate them to. Almost all of these dental specialists were allocated to the oral and maxillofacial surgeon category.

In addition, there were 185 dental practitioners who were also on the 2011 medical practitioner registration file – 16 of these were oral and maxillofacial surgeons only on the dental register, 7 were oral and maxillofacial surgeons only on the medical register and 72 were oral and maxillofacial surgeons on both registers. Given the registration files are as at different points in time, this comparison is only indicative.

Workforce Survey 2011 sample

All registered dental 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 2011 design

In 2011, 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 labour force status or not assigned a status due to incomplete data.

The order of the response categories for the 'Reason not working in dental practice in Australia' question appears to be an issue. The question has 'Retired from regular work' after 'Not working in paid employment at all' which may not be logical as practitioners may be retired but still work irregularly (for example, as an occasional locum). On this basis, the category 'Retired from regular work' should appear before 'Not working in paid employment at all'. The issue with the order in the 2011 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, the state of main job included the category 'Other territories' on the paper form while the same response category in the online form was labelled 'Other'. The data showed a large number in the 'Other' category captured in the online method, which was not similarly found in the paper responses. In addition, state/territory of principal practice and residence data items does not include the category 'Other territories' or 'Other'.

In 2011, the online Dental Workforce Survey did not ask practitioners 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. However, the paper form asked practitioners to check 'Yes' or 'No' to the temporary resident question and, depending on the response, either answer or skip the visa category question. In both cases a number of respondents entered permanent visa code.

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.

Location of principal practice recorded in the registration data was different from the corresponding details of their main job self-reported by practitioners in the survey. Although this is valid for states and territories with common borders, there were some records where the two locations did not adjoin each other.

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 is used in all tables except where otherwise stated

Structure and format of data items

Due to unstructured data entry formats, a number of items in the NHWDS: dental practitioners 2011 that required a numeric value contained text string responses. Where possible, these were recoded to the appropriate numeric value, but this was not possible in all instances. For example, for a number of records, 'Postcode of principal practice' contained values other than valid post codes, including text strings, overseas postal identifiers, etc. Conversely, 'Suburb of main job' contained invalid suburb names and 4-digit codes resembling postcodes.

Coherence

Workforce Survey 2011

Dental labour force data for 2009 and earlier years published by the AIHW was the result of collated jurisdiction-level occupation-specific surveys. The current survey, Dental Workforce Survey 2011, collects similar data items; 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 Dental Workforce Survey 2011 is also different to that of the previous surveys because in some jurisdictions not all types of registered dental practitioners were sent a survey form.

The dental workforce survey for 2009 and earlier years had three different forms, one for dentists, one for dental prosthetists and one for allied dental practitioners. There are a number of differences between these forms and between them and the Dental Workforce Survey 2011 form.

Date of birth, country of initial qualification, specialty of practice and sex are some data items previously collected by the Dental 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, in 2011, is recorded as part of the registration data by the NRAS. A small number of dental practitioners (54) have more than one specialty. The data collected by the NRAS does not identify the primary specialty. However, the AIHW allocated a primary specialty on the basis of the responses to question 10, Principal area of main job.

In 2009 and earlier years, specialty information was self-reported by registered dental practitioners in the Dental Labour Force Survey.

There have also been minor changes in the classification of categories of specialty of practice used in the NHWDS: dental practitioners 2011 compared with that used in the Dental Labour Force Surveys. There were only eight specialties specified in the question for the Dental Labour Force Surveys. There are 13 valid specialties in the NHWDS: dental practitioners 2011, with the addition of Oral medicine, Oral surgery, Public health dentistry (community dentistry), Special needs dentistry, and Forensic odontology. In particular, because of the addition of the Oral surgery category, there has been a large apparent decline in the Oral and maxillofacial surgery category. Thus, comparison of 2011 specialty data with results from AIHW Dental Labour Force Survey should be treated with caution.

In the AIHW Dental Labour Force Surveys of 2009 and earlier years, temporary resident status was collected on a different basis with a question directed as to whether the respondent was an Australian Citizen a permanent resident or a temporary resident. Visa category number was not collected in previous years.

Work setting response categories in 2011 are somewhat different to those in 2009 and earlier years. The 2011 categories are more similar to categories in other collections, while the 2009 and earlier categories are more specific to dental practice. For example, there are now three categories of private practice (solo, group and locum) compared with seven in previous years (solo, solo with assistant, partnership, associateship, assistant, locum and health fund) available in previous years for dentists. The Allied Dental Labour Force Survey categories for work setting were very different, including categories such as Private: general practice, Private: specialist orthopaedic practice, Private: specialist periodontal practice, and Private: specialist other.

The number of years worked in dental in Australia was not previously collected by the Dental Labour Force Survey (last conducted in 2009).

Due to the differences in data collection methods, including survey design and questionnaire, it is recommended that comparisons between workforce data in the NHWDS: dental practitioners 2011 and Dental Labour Force Survey data up to and including 2009 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 Dental Workforce Survey 2011, responses were weighted to the number of registered dental practitioners by division of registration (that is, type of practitioner) in each state and territory, by sex and age group to take account of survey questionnaire non-response. These numbers are referred to as 'benchmarks' throughout this report, and may not be equivalent to that reported in the Australian Health Practitioner Regulation Agency 2010–11 annual report, due to scope and reporting time differences.

Clinical area of dental/oral health activity: The area where dental practitioners were working the most hours in the week before the survey. The categories comprise:

- general dental practice
- dento-maxillofacial radiology
- endodontics
- oral and maxillofacial surgery
- oral surgery
- oral medicine
- oral pathology
- orthodontics
- paedodontics
- periodontics
- prosthodontics
- public health dentistry
- special needs dentistry
- other.

Clinician: A clinician is a dental practitioner who spends the majority of his or her time working in the area of clinical practice; that is, the diagnosis, care and treatment and including recommended preventive action, of patients or clients.

Employed: An employed dental practitioner is one who either:

- worked for a total of 1 hour or more in the week before the survey in a job or business for pay, commission, payment in kind or profit, mainly or only in a particular state or territory
- usually worked, but was away on leave (with some pay) for less than 3 months, on strike or locked out, or rostered off.

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

FTE number is calculated by: the number of employed dental practitioners in a particular category multiplied by the average hours worked by employed dental practitioners in the category divided by the standard working week hours. In this report, 38 hours is assumed to be a standard working week and equivalent to 1 FTE.

Full-time equivalent (FTE) rate: The FTE rate (number of FTE dental 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 dental practitioners divided by the relevant population count multiplied by 100,000.

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

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 2011, average weekly hours are calculated only where hours are greater than zero. That is, employed respondents with 'Not stated' hours worked are excluded from the calculation.

For 2011 data, average weekly hours was 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.

Principal role: Unless otherwise stated in this report, the role of the dental practitioner refers to the main role (that is, the core role with the most number of hours worked in the week before the survey) in the dental practitioner's main job (that is, the job with the most number of hours worked in the week before the survey). Core roles are divided into two main groups, with several categories in each group, as follows:

- *Clinical role:* Before 2011: for dentists this included general practice, registered specialist restricted practice. For 2011: clinician.
- *Non-clinical role:* this comprises:
 - administrators
 - teacher/educator
 - researcher
 - other.

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

The Remoteness Area Structure of the ASGC is based on the Accessibility/Remoteness Index of Australia, where the remoteness index value of a point is based on the physical road

distance to the nearest town or service in each of six population size classes based on the 2006 Census of Population and Housing. These classes are:

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

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

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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The number of dental practitioners registered in Australia in 2011 was 18,803, of whom 14,179 were dentists. The supply of employed dentists increased from 50.9 to 56.1 full-time equivalent practitioners per 100,000 population between 2006 and 2011, which reflected a 22.4% increase in dentists.

The gender balance continued to shift, with women making up 35.6% of dentists in 2011 compared with 29.0% in 2006. The average hours worked each week by dentists decreased slightly from 38.5 to 37.4.