

Australia's Future Health Workforce – Oral Health Detailed

August 2014

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The Australia's Future Health Workforce – Oral Health Detailed report was developed by Health Workforce Australia with the input of key stakeholders for the consideration of Commonwealth, State and Territory Health Ministers.

Health Workforce Australia was abolished on 8 October 2014.

The Australia's Future Health Workforce – Oral Health Detailed report was approved for publication by the Commonwealth and all State and Territory Health Ministers on 10 October 2014.

The recommendations contained in the Australia's Future Health Workforce – Oral Health Detailed report will be the subject of further consideration.

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Introduction

Australia's Future Health Workforce Reports

Australia's Future Health Workforce Reports (AFHW) provide medium to long-term national workforce planning projections for different professions and sectors. Workforce planning projections identify potential gaps between the future supply of, and demand for, the workforce in scope under a range of scenarios. A scenario represents a particular vision of future health care delivery, and in the health workforce context, scenarios are often developed to reflect potential government policy decisions, higher education/training sector activities, employer practices, trends within the existing health workforce and trends within service demand.

The identification of potential workforce gaps through workforce planning projections provides government, professional bodies, employers, and higher education and training providers the opportunity to develop and implement plans to minimise such gaps. Such plans can involve workforce reform, changes to training intakes or pathways, changes to immigration levels, or a combination of all factors. It is this step that is essential in the delivery of a sustainable health workforce.

AFHW focuses on workforce planning at the national level. It is at this level that questions of aggregate supply and demand can be separated from issues of allocation and distribution – the principal aim being to ensure an appropriate pool of professionals is available to meet aggregate demand in Australia.

Australia's Future Health Workforce – Oral health

Demand for oral health care services is expected to continue to grow in response to population growth, increased tooth retention into older age, greater awareness of the importance of oral health, and more advanced restorative procedures and technologies.¹ Recent federal funding can also be expected to have flow-on implications for the oral health workforce.

It is therefore timely for HWA to examine the oral health workforce, with a focus on workforce planning projections. In particular, this work will complement the *National Oral Health Plan 2014-2023*, providing a strong evidence-base for recommendations made on the oral health workforce.

Australia's Future Health Workforce – Oral Health (AFHW – Oral Health) provides the results of the oral health workforce planning projections conducted by HWA. It is presented in two publications.

- **AFHW – Oral Health – Overview.** This publication presents HWA's workforce planning projections for the total oral health workforce, along with a brief description of Australia's oral health services and demand for those services, particularly amongst specific population groups (children, older people, low income and socially disadvantaged people, people with special needs, Aboriginal and Torres Strait Islander people, and people living in rural and remote areas).
- **AFHW – Oral Health – Detailed.** This publication supports the overview, and provides:
 - information on the methodology used to generate the workforce projections for individual oral health workforces
 - workforce planning projection results for dentists, oral health practitioners (comprised of dental hygienists, dental therapists and oral health therapists) and dental prosthetists
 - workforce profiles for each oral health workforce, including a brief overview of their role and training pathway, presentation of information describing the number and characteristics of the existing workforce, a summary of issues expected to impact supply and/or demand for the workforce, and an assessment of existing workforce position (whether workforce supply matches demand for services or not).

Workforce projections for the oral health workforce

AFHW – Oral health – Overview provided the workforce planning projections for the total oral health workforce, along with a brief description of Australia's oral health services and demand for those services, particularly amongst specific population groups (children, older people, low income and socially disadvantaged people, people with special needs, Aboriginal and Torres Strait Islander people, and people living in rural and remote areas).

In this report, workforce projections are presented for components of the overall oral health workforce. This includes:

- Dentists, including dental specialists
- Oral health practitioners (comprised of oral health therapists, dental hygienists and dental therapists)
- Dental prosthetists

Workforce projections were not able to be conducted separately for:

- Dental specialists
- Oral health therapists
- Dental hygienists
- Dental therapists
- Dental assistants
- Dental technicians.

For dental specialists, this was because of the small numbers of registered specialists in most specialties. The increasingly common training pathway and overlap in scopes of practice for oral health therapists, dental hygienists and dental therapists meant combining them into one group was the best approach for the workforce projections; while for the unregistered component of the oral health workforce (dental assistants and dental technicians) data limitations meant workforce projections could not be conducted. For the unregistered workforces, there is no systematic collection of workforce data able to be used to establish workforce supply. A description of the number and characteristics of the unregistered oral health workforce is provided later in this report.

It should be noted substantial data limitations exist in determining workforce demand for dentists (including dental specialists), oral health practitioners and dental prosthetists. These limitations, and the consequent approach taken by HWA to assigning demand to these workforces, are described further below. It should also be noted that the demand component of the workforce planning projections are

based on current utilisation patterns, and any potential unmet need is not accounted for.

Along with the workforce planning projections, a set of indicators – collectively called the workforce dynamics indicator (WDI) – has also been generated and is used to highlight aspects of the current workforce that may be of concern into the future.

Information about the workforce projection methodology, planning scenarios and WDI, along with the workforce planning and WDI results, is presented in this chapter.

Workforce planning methodology

Workforce planning – ensuring the right people with the right skills are in the right place at the right time – is enabled by developing workforce projections. Workforce projections require two components – predicting future demand for the workforce, and predicting future workforce supply.

AFHW – Oral Health used a dynamic stock and flow model to estimate future workforce supply at the national level in Australia. Demand projections employed the utilisation method – which measures expressed demand – and are based on utilisation patterns as they currently exist for five-year age and gender cohorts.

Appendix A contains detail on the supply and demand workforce projection methodology, including the key assumptions underpinning the workforce projections and details of the scenarios modelled. Appendix B contains the list of data sources used in generating the oral health workforce planning projections.

Assigning demand to individual workforces

In *AFHW – Oral health – Overview*, utilisation patterns were calculated based on Australian Research Centre for Population Oral Health (ARCPOH) National Dental Telephone Interview Survey (NDTIS) data on visits and services provided between 1994 and 2010. This utilisation was applied to the total oral health workforce for which the workforce projections were generated, that is, dentists, dentist specialists, oral health therapists, dental hygienists, dental therapists and dental prosthetists. To generate the workforce projections for the component oral health workforces, separate utilisation rates need to be generated for each individual workforce.

Data limitations in assigning demand

Ideally, for the workforce planning projections for the component oral health workforces, data would be available identifying which oral health professional provided each oral health service, to accurately calculate service utilisation for each component workforce.

While the ARCPOH NDTIS collects data on services, this does not include information on which oral health professional provided the services recorded in their survey.

Other data sources which could potentially provide information on the number of services by practitioner were not suitable, either due to coverage concerns or availability:

- Information from the Commonwealth Government (collected by Medicare and the Department of Veterans Affairs) and State and Territory departments covers services provided under Commonwealth funded schemes and by states and territories, which only account for a small percentage of all oral health services provided.
- Available Private Health Insurance Administration Council data does not provide information on which practitioner type provided which service, the same as the NDTIS.
- Information from individual insurance funds, which could identify the practitioner providing the service, was not available. Additionally, there are coverage concerns, as this only covers those people who hold extras cover and can claim dental through their private health insurance.

Given these limitations, an approach to identifying separate utilisation rates for the component oral health workforces had to be developed.

Approach taken to assigning demand

Given the limitations with other potential data sources, and a desire to maintain consistency with the workforce planning projections presented in *AFHW – Oral health – Overview*, it was decided that the ARCPOH NDTIS data would form the basis for calculating the utilisation rates for the component oral health workforces. Therefore an approach to apportion the total utilisation rate that was calculated from the ARCPOH NDTIS data and used in *AFHW – Oral health – Overview*, needed to be determined.

One method available was to assume services are provided in accordance with workforce size, and apportion on that basis. For example, dentists (including dentist specialists) account for approximately three-quarters (75.8 per cent) of the registered oral health workforce, therefore it could be assumed they provide 75.8 per cent of services. This proportion can then be applied to the total utilisation rate, to determine the utilisation rate for the dentist workforce projections. This would then be repeated for each of the component workforces.

However stakeholder advice was that this assumption does not hold true for the oral health workforce. Therefore the following approach was used:

1. The Medicare schedule was used to identify dental item numbers.
2. These item numbers were split across public and private sectors, and adults and children.

3. Stakeholders were supplied with this list of item numbers, and provided advice on the oral health practitioner that most commonly supplied that service (according to sector and adult/child)
4. This information was aggregated, and proportions then determined of services provided by practitioner type.
5. This proportion was then applied to the total utilisation rate, to determine utilisation for each practitioner type.

Table 1 shows the results of this consultation process. The 'weighted public and private' proportions were applied to the total utilisation rate, to determine the utilisation rate for each practitioner type.

Table 1: Practitioner weighting methodology

Practitioner type	Dentist	Dental Prosthetist	Oral Health Practitioners (DH, DT, and OHT)	Total
% based on workforce size	75.8%	6.1%	18.1%	100.0%
Public (Adult)	87.6%	6.6%	2.3%	99.0%
Public (Children)	75.0%	1.7%	21.9%	100.0%
Public (Total)	81.3%	4.1%	12.1%	97.5%
Private (Adult)	88.1%	0.8%	11.4%	100.3%
Private (Children)	82.7%	0.0%	17.2%	99.9%
Private (Total)	85.4%	0.4%	14.3%	100.1%
Weighted Public & Private	84.1%	2.0%	13.9%	100.0%

Using the above approach, the following utilisation rates were used in the workforce projections, and projected forward against future demographic structures (using population projections from the Australian Bureau of Statistics population series B, ABS Cat No. 3222.0, Population Projections, Australia).

Practitioner type	Utilisation rate
Dentist (including dentist specialists)	1.9%
Oral health practitioner	0.5%
Dental prosthetist	0.1%

The approach described above was taken in the absence of available data showing which oral health professional provided each oral health service. Given this limitation, the workforce projection results presented in this publication for the individual oral health workforces should be interpreted with caution.

Future data requirements

For future oral health workforce projections, the National Health Workforce Dataset (NHWDS) will continue to be used to:

- define the workforce in the base year, including providing information on age, gender, labour force status, registration type, jurisdiction, hours worked, and specialty (where relevant)
- calculate workforce exits.

For workforce inflows, Department of Immigration and Border Protection visa grant data will continue to drive the immigration component of the workforce projections. This will be supplemented with NHWDS survey data which reports visa status. For graduates, Australasian Council of Dental Schools data will continue to be used for dental graduates, and Department of Education and National Centre for Vocational Education Research for oral health therapists, dental hygienists and dental therapists.

Investigations will be conducted into the ability to use AHPRA student registration information to calculate graduate numbers.

For workforce demand, improved information is required to be able to generate more robust workforce projections for the component oral health workforces. As outlined in *AFHW – Oral Health – Overview*, one approach may be to develop a national minimum data set for dental services.

Planning scenarios

Scenario modelling is used to demonstrate the impact of potential policy options on future workforce supply and demand. The general method used is to present a comparison scenario, where current trends are assumed to continue into the future, and use this to compare with a range of alternative scenarios. The alternative scenarios are generated by altering parameters in the model, with the flow through effect to the future workforce measured through the impact relative to the comparison scenario.

The same scenarios presented in *AFHW – Oral Health – Overview*, are presented in this report. These scenarios are:

1. **Medium self-sufficiency** – showing the impact of reducing net international migration and international students graduating from Australian dental programmes.
2. **Productivity** – showing the impact of an arbitrary five per cent productivity gain over the projection period.
3. **Low demand** – showing the impact of a reduction in demand for the oral health services.

4. **High demand** – showing the impact of an increase in demand for oral health services.
5. **Undersupply** – showing the impact on the workforce planning projections of a commencing supply gap, that is, workforce demand exceeds workforce supply.
6. **Oversupply** – showing the impact on the workforce planning projections of a commencing supply excess, that is, workforce supply exceeds workforce demand.
7. **Graduate reduction** – showing the impact of a reduction in the number of graduates (both domestic and international) from Australian dental programmes.

Details of the scenarios are provided in Appendix A. It is important to note the scenarios are not predictions of what will happen over the period to 2025 – each provides an estimate of a likely outcome given the set of conditions upon which it is based.

Workforce Dynamics Indicator

The workforce dynamics indicator (WDI) is used to highlight aspects of a current workforce that may be of concern into the future. The WDI was adapted from Health Workforce New Zealand's (HWNZ) medical discipline vulnerability ranking method, where a traffic light approach is used to score workforces against the selected indicators.

HWA selected the following indicators for scoring:

- **Average age** – workforces with a higher average age are more susceptible to higher exit rates (through retirement) with lower entry rates.
- **Replacement rate** – this item calculated the percentage of graduates to workforce exits in a given year. This indicates whether the number currently completing training is sufficient to replace those presently leaving the workforce. Note: this is an indicator for workforce dynamics assessment purposes only and is not intended to guide training numbers for the future.
- **Dependence on international dental graduates (IDGs)** – workforces with high percentages of international migrants are of greater concern due to their dependence on a less reliable supply stream (for example, changes in immigration policy may impact on supply).
- **Duration of training programme** – the greater the duration of training, the longer it takes to train a replacement workforce.
- **Percentage aged 55 years and over** – this can be a useful indicator of those potentially retiring or reducing working hours within the next 10 years, leading up to conventional retirement age in the mid-60s.
- **Annual change in average hours worked** – workforces with falling average weekly hours worked can be an indicator of sufficient workforce supply, or

supply exceeding demand, while workforces with increasing average weekly hours worked can indicate supply pressures.

The WDI results were produced using data calculated in the comparison scenario (except for the duration of training indicator). As such, the WDI results were only generated for those workforces for which workforce projections were generated, that is, dentists (including dentist specialists), oral health practitioners (comprised of oral health therapists, dental hygienists and dental therapists) and dental prosthetists.

The results are presented as at 2014 and 2025 – to show the projected change in workforce characteristics over the projection period.

Indicator range boundaries

Reflecting the fact the different workforces have different characteristics and training pathways, the WDI boundaries were developed separately for each workforce. The ranges for each indicator for each workforce was set to be relatively equal, rather than being established using a statistical base. The indicators used are basic measures only – ideally as data availability improves, more sophisticated measures can be developed.

Tables 2a–2c show the WDI indicator boundaries for each oral health workforce and their score range.

Table 2a: Workforce dynamics indicators – dentists

	Minimal concern	Minimal concern	Intermediate concern	Significant concern	Significant concern
Workforce Dynamics Indicator	1	2	3	4	5
Average age of existing workforce	<35	35-39	40-44	45-49	50+
Replacement rate: Percentage of new graduates to workforce exits (annual)	130+%	110-<130%	90%-110%	70%-90%	<70%
Dependence on IDGs (migrant inflow as a percentage of the workforce)	<12%	12-24%	25-37%	37-49%	50+%
Duration of training programme (years)	<=5	6	7	8	9+
Percentage aged 55+ years	<20%	20%-<30%	30%-<40%	40%-<50%	>50%
Annual change in average hours worked	<+/-0.3	+/-0.3 – < +/-0.6	+/-0.6 – < +/-0.9	+/-0.9 – < +/-1.2	+/-1.2+

Table 3b: Workforce dynamics indicators – oral health practitioners

	Minimal concern	Minimal concern	Intermediate concern	Significant concern	Significant concern
Workforce Dynamics Indicator	1	2	3	4	5
Average age of existing workforce	<30	30-34	35-39	40-44	45+
Replacement rate: Percentage of new graduates to workforce exits (annual)	130+%	110-<130%	90%-110%	70%-90%	<70%
Dependence on IDGs (migrant inflow as a percentage of the workforce)	<12%	12-24%	25-37%	37-49%	50+%
Duration of training programme (years)	<=3	4	5	6	7+
Percentage aged 55+ years	<20%	20%-<30%	30%-<40%	40%-<50%	>50%
Annual change in average hours worked	<+/-0.3	+/-0.3 –< +/-0.6	+/-0.6 – < +/-0.9	+/-0.9 – < +/-1.2	+/-1.2+

Table 4c: Workforce dynamics indicators – dental prosthetists

	Minimal concern	Minimal concern	Intermediate concern	Significant concern	Significant concern
Workforce Dynamics Indicator	1	2	3	4	5
Average age of existing workforce	<45	45-49	50-54	55-59	60+
Replacement rate: Percentage of new graduates to workforce exits (annual)	130+%	110-<130%	90%-110%	70%-90%	<70%
Dependence on IDGs (migrant inflow as a percentage of the workforce)	<12%	12-24%	25-37%	37-49%	50+%
Duration of training programme (years)	<=2	3	4	5	6+
Percentage aged 55+ years	<20%	20%-<30%	30%-<40%	40%-<50%	>50%
Annual change in average hours worked	<+/-0.3	+/-0.3 – < +/-0.6	+/-0.6 – < +/-0.9	+/-0.9 – < +/-1.2	+/-1.2+

Workforce planning projection and workforce dynamics indicator results

The workforce projection scenarios and WDI results for dentists, oral health practitioners and dental prosthetists are presented in the following sections. Workforce projections rely on two key inputs to produce relevant and reliable projections – the set of assumptions about future conditions and the data used in the model. The projections presented in this report should therefore be considered in this context, and in the context of the assumptions on which they are based (see Appendix A).

It is important to note the workforce projection scenarios are not predictions of what will happen over the period to 2025 – each provides an estimate of a likely outcome given the set of conditions upon which it is based.

Dentists

Table 3 presents the workforce projection scenario results for dentists, including specialist dentists. The comparison ('do nothing') scenario (based on the derived demand calculated from existing utilisation patterns) indicates the supply of dentists is projected to exceed demand across the entire projection period to 2025. Almost all other scenarios show the same result as the comparison scenario, except for the high demand scenario. This scenario has the greatest impact on the workforce gap relative to the comparison scenario, and results in a move from a position of supply exceeding demand in 2025, to demand exceeding supply. Detailed results of the workforce planning projections are in Appendix C.

Table 5: Dentists, summary of workforce supply and demand projections, 2020 and 2025

Scenario	2020 (headcount) – Supply	2020 (headcount) – Demand	2020 (headcount) – Difference	2025 (headcount) – Supply	2025 (headcount) – Demand	2025 (headcount) – Difference
Comparison	16,789	14,919	1,870	19,624	16,312	3,312
Medium self-sufficiency	16,344	14,919	1,425	18,383	16,312	2,072
Productivity	16,789	14,439	2,350	19,624	15,496	4,128
Low demand	16,789	13,999	2,790	19,624	14,812	4,812
High demand	16,789	17,269	-480	19,624	20,143	-519
Initial undersupply	16,789	15,571	1,218	19,624	16,966	2,658
Initial oversupply	17,313	14,919	2,394	20,044	16,312	3,732
Graduate reduction	16,383	14,931	1,452	18,809	16,333	2,476

Workforce dynamics indicators

Tables 4 presents the WDI results for dentists, including dentist specialists. The WDI highlight aspects of the dentist workforce that may be of concern into the future, with the assessment based on data calculated in the comparison scenario, except for the duration of training indicator.

The WDI results highlight no major areas of concern for the dentist workforce. Only two indicators, average age and dependence on IDGs, were rated in the mid-range of the assessment scale. However both of these indicators moved towards the ‘minimal concern’ rating over the projection period – with the average age rating falling into the second bracket, and the value of the dependence on IDGs also reducing (whilst staying in the same assessment bracket). The falling average age is driven by an increasing number of domestic graduates over the projection period, while the reducing reliance on IDGs is a result of a falling number of international graduations over the projection period, in combination with skilled and temporary migration being held constant.

Table 6: Dentist workforce dynamics indicator

Indicator	2014	2025
Average age	41 (intermediate concern)	39 (minimal concern)
Replacement rate	169% (minimal concern)	204% (minimal concern)
Dependence on IDGs	36% (intermediate concern)	32% (intermediate concern)
Duration of training programme	5 (minimal concern)	5 (minimal concern)
Percentage aged 55+ years	18% (minimal concern)	11% (minimal concern)
Annual change in average hours	-0.01 (minimal concern)	-0.02 (minimal concern)

Oral health practitioners

Table 5 presents the workforce projection scenario results for oral health practitioners, comprised of oral health therapists, dental hygienists and dental therapists. The comparison scenario indicates the supply of oral health practitioners is projected to exceed demand (which was derived from existing utilisation patterns) across the entire projection period to 2025. All other scenarios show the same result as the comparison scenario, with an excess supply of oral health practitioners projected from 2014 onwards. Detailed results of each scenario are presented in Appendix C.

Table 7: Oral health practitioners, summary of workforce supply and demand projections, 2020 and 2025

Scenario	2020 (headcount) – Supply	2020 (headcount) – Demand	2020 (headcount) – Difference	2025 (headcount) – Supply	2025 (headcount) – Demand	2025 (headcount) – Difference
Comparison	4,538	3,060	1,478	5,545	3,135	2,410
Medium self-sufficiency	4,498	3,060	1,438	5,435	3,135	2,300
Productivity	4,538	2,961	1,577	5,545	2,978	2,567
Low demand	4,538	3,012	1,526	5,545	3,058	2,487
High demand	4,538	3,131	1,407	5,545	3,251	2,294
Initial undersupply	4,538	3,208	1,330	5,545	3,284	2,261
Initial oversupply	4,616	3,060	1,556	5,613	3,135	2,478
Graduate reduction	4,343	3,067	1,276	5,182	3,146	2,036

Workforce dynamics indicators

The WDI highlight aspects of the oral health practitioner workforce that may be of concern into the future. The assessment is based on data calculated in the comparison scenario, except for the duration of training indicator.

Table 6 presents the WDI results for oral health practitioners. It highlights no major areas of concern for this workforce, with most indicators rated as minimal concern. While the average age indicator is rated in the mid-range of the assessment scale, over the projection period this indicator also moves towards the ‘minimal concern’ rating.

Table 8: Oral health practitioners – summary of workforce dynamics indicators

Indicator	2014	2025
Average age	37 (intermediate concern)	34 (minimal concern)
Replacement rate	186% (minimal concern)	166% (minimal concern)
Dependence on IDGs	10% (minimal concern)	8% (minimal concern)
Duration of training programme	3 (minimal concern)	3 (minimal concern)
Percentage aged 55+ years	6% (minimal concern)	2% (minimal concern)
Annual change in average hours	0.03 (minimal concern)	-0.06 (minimal concern)

Dental prosthetists

Table 7 presents the workforce projection scenario results for dental prosthetists. In contrast to the workforce projections for dentists and oral health practitioners, the workforce projections for dental prosthetists show that demand is projected to exceed supply across the entire projection period to 2025 under the comparison scenario. Of all the scenarios, the productivity scenario has the greatest impact in reducing the workforce gap for dental prosthetists relative to the comparison scenario in 2025. Detailed results of each scenario are presented in Appendix C.

Table 9: Dental prosthetists, summary of workforce supply and demand projections, 2020 and 2025

Scenario	2020 (headcount) – Supply	2020 (headcount) – Demand	2020 (headcount) – Difference	2025 (headcount) – Supply	2025 (headcount) – Demand	2025 (headcount) – Difference
Comparison	987	1,043	-56	970	1,049	-79
Medium self-sufficiency	985	1,043	-58	964	1,049	-85
Productivity	987	1,009	-22	970	997	-27
Low demand	987	1,043	-56	970	1,049	-79
High demand	987	1,043	-56	970	1,049	-79
Initial undersupply	987	1,095	-108	970	1,102	-132
Initial oversupply	1,017	1,042	-25	981	1,049	-68
Graduate reduction	951	1,043	-92	913	1,050	-137

Workforce dynamics indicators

Table 8 presents the WDI results for dental prosthetists, based on data calculated in the comparison scenario (except for the duration of training indicator). Almost all indicators were in the same assessment bracket in the two periods, except percentage aged 55 and over. For this indicator, the calculated increase in the percentage of those aged 55 resulted in the assessment moving to a higher bracket (of higher concern).

Table 10: Dental prosthetists – summary of workforce dynamics indicators

Indicator	2014	2025
Average age	48 (minimal concern)	47 (minimal concern)
Replacement rate	97% (intermediate concern)	96% (intermediate concern)
Dependence on IDGs	2% (minimal concern)	2% (minimal concern)
Duration of training programme	2 (minimal concern)	2 (minimal concern)
Percentage aged 55+ years	28% (minimal concern)	31% (intermediate concern)
Annual change in average hours	-0.02 (minimal concern)	0.02 (minimal concern)

Summary of results

For dentists and oral health practitioners, while the size and direction of the movement relative to the comparison scenario varies according to each scenario, almost all scenarios present the same result as the comparison scenario – that across the projection period the supply of the workforce is projected to exceed demand. The only exception to this was the high demand scenario for dentists, where demand was projected to exceed supply in 2025. In contrast, the workforce projections for dental prosthetists show that demand is projected to exceed supply across the projection period to 2025 under all scenarios. Despite this, overall the findings reflect those in *AFHW – Oral Health – Overview* – that there is extra capacity in the oral health workforce.

The WDI results are consistent with the workforce projection results, showing minimal areas of concern for each of the workforces now and into the future.

Detailed information for each oral health workforce

In workforce planning, understanding the number and characteristics of the existing workforce is the essential first step. This chapter brings together available information to describe the oral health workforces. For each workforce, where possible, information is provided on:

1. **What is the workforce?** A brief overview of the role and training pathway of the workforce, and the assessment process for overseas-trained practitioners.
2. **What issues are expected to impact supply of, and demand for, the workforce.** Considerations that may impact future workforce supply or demand are important in providing a real world context for interpreting historical trends, and developing an understanding of future workforce requirements. Consultation was conducted with employers and the profession to obtain their views on such considerations, which are presented in this publication.
3. **The existing workforce position of the workforce.** This is an assessment through stakeholder feedback of whether existing workforce supply matches demand for services or not. The following assessment scale was used, with ratings determined primarily through stakeholder feedback:
 - White: perceived current excess supply
 - Green: no current perceived shortage/workforce in balance
 - Orange: some level of expressed demand exceeding available workforce
 - Red: Perceived current shortage

Appendix D contains further detail on the existing workforce position assessment.

4. **What we know about the workforce.** Presentation of data describing the number and characteristics of the workforce, student and migration inflows into the workforce.

Data sources

Information for 'What we know about the workforce' is sourced from the following datasets:

National Health Workforce Dataset (NHWDS)

The NHWDS provides information on the registered dental practitioner types. The NHWDS combines data from the National Registration and Accreditation Scheme (NRAS) with dental practitioner workforce survey data collected at the time of annual registration renewal. The dental practitioner workforce survey is administered through the national registration body, the Australian Health Practitioner Regulation

Agency (AHPRA), on behalf of Health Workforce Australia. The dental practitioner NHWDS was collected for the first time in 2011, with data presented for 2011 and 2012 in this report. Survey response rates varied by dental practitioner type. The overall response rate to the dental practitioner workforce survey was 88.3 per cent in 2011 and 92.2 per cent in 2012. As it is a new collection, the NHWDS shows the current characteristics of the dental practitioner workforce.

[Australian Bureau of Statistics \(ABS\) Census of Population and Housing](#)

ABS Census information is used to describe the number and characteristics of the unregistered dental occupations – dental assistants and dental technicians. The census is a descriptive count of everyone who is in Australia on one night, and of their dwellings. Its objective is to accurately measure the number and key characteristics of people who are in Australia on census night, and of the dwellings in which they live. Information in the census is self-reported, meaning information is dependent on individuals' understanding and interpretation of the questions asked.

[Department of Education \(DE\)](#)

The DE conducts the Higher Education Statistics Collection, which provides a range of information on the provision of higher education in all Australian universities. Information on tertiary course commencements and completions is presented in this publication.

[National Centre for Vocational Education Research \(NCVER\)](#)

NCVER conduct the vocational education and training (VET) provider collection (also known as the Students and Courses collection). This is an administrative collection of information on students, the courses they undertake and their achievement in the VET sector. This information is sourced from student enrolment records and it is an annual national collection. The VET collection does not obtain information from all private VET registered training organisations, so complete coverage of those providing training, and consequently complete information on those obtaining qualifications, is not available.

[Department of Immigration and Border Protection \(DIBP\)](#)

DIBP information is administrative by-product data, reporting the number of temporary and permanent visa applications granted to dental practitioners.

Dentists

What is a dentist?

A dentist is someone who practises the prevention, diagnosis, and treatment of diseases, injuries and malformations of the teeth, jaws and mouth. Dentistry is a registered health profession under the National Registration and Accreditation Scheme (NRAS). Therefore a practitioner must be registered with the Dental Board of Australia (DBA) to practise as a dentist.

The DBAs Draft Scope of Practice registration standard and guidelines state that dentistry includes the following range of activities:

- the correction of malpositions of the human teeth or jaws or associated structures
- radiographic procedures and interpretation of radiographic images of the human teeth, jaws and associated structures
- the prescription, administration and possession of drugs and poisons in accordance with relevant State and Territory authorisation
- the construction or fitting or intra-oral adjustment of artificial teeth or corrective or restorative dental appliances; or provision of advice to any person for the purpose of fitting, inserting, adjusting, fixing, constructing, repairing or renewing of artificial dentures or restorative dental appliances
- the prevention of oral disease and the promotion of oral health
- the performance of any treatment on the human teeth, mouth or jaws or associated structures².

Most dentists work in private practice, and may practise all parts of dentistry.

How are dentists trained?

A person must successfully complete an approved programme of study and gain registration with the DBA to become a dentist.

There are currently nine approved programmes of study provided by Australian universities that lead to registration as a dentist³. Most of these are five-year bachelor degrees or four-year postgraduate degrees.

What is the assessment process for overseas-trained dentists?

The assessment of overseas-trained dentists is conducted by the Australian Dental Council (ADC), through the assessment of professional documents, experience and written and practical examinations. Applicants who completed their general dentistry qualifications from approved universities in New Zealand, the United Kingdom, Ireland or Canada may not be required to sit the ADC examinations. Applicants must also meet English language requirements.⁴

What issues have stakeholders identified for the dentist workforce?

In terms of workforce supply, while it was generally agreed there is excess supply of dentists compared with existing service demand, the distribution of the dental workforce was a primary concern, specifically:

- there are problems recruiting dentists to regional areas
- regional areas are often reliant on dentists working in the private sector
- most dentists working in the private sector, and there are extended waiting times for dental treatment in the public sector.

Other factors highlighted as potentially influencing future workforce supply were a trend towards earlier retirement, and possible changes to the training curriculum which could include increased course duration.

The variation in current scopes of practice for the oral health workforce across jurisdictions was another concern highlighted by stakeholders – specifically that it results in the overlapping of professions.

Existing workforce position

The existing workforce position was determined from expert opinion from jurisdictions and the profession. A traffic light approach was used (as described in Appendix D). The dentist existing workforce position was assessed as **white** – current perceived excess supply.

Workforce characteristics

In 2012, there were 12,767 practising dentists who reported their primary role as a clinician, an increase of six per cent (or 705 dentists) from 2011. Characteristics of those dentists were similar in 2011 and 2012, with:

- Approximately one-third female
- An average age of 43 years
- Average working hours of 37 hours per week (Table 9).

Table 11: Employed clinician dentists, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	12,062	12,767
% female	35.0	36.5
Average age	43.1	43.1
% over 55	22.1	22.7
Average working hours	37.4	37.1
Full-time equivalent	11,885	12,477

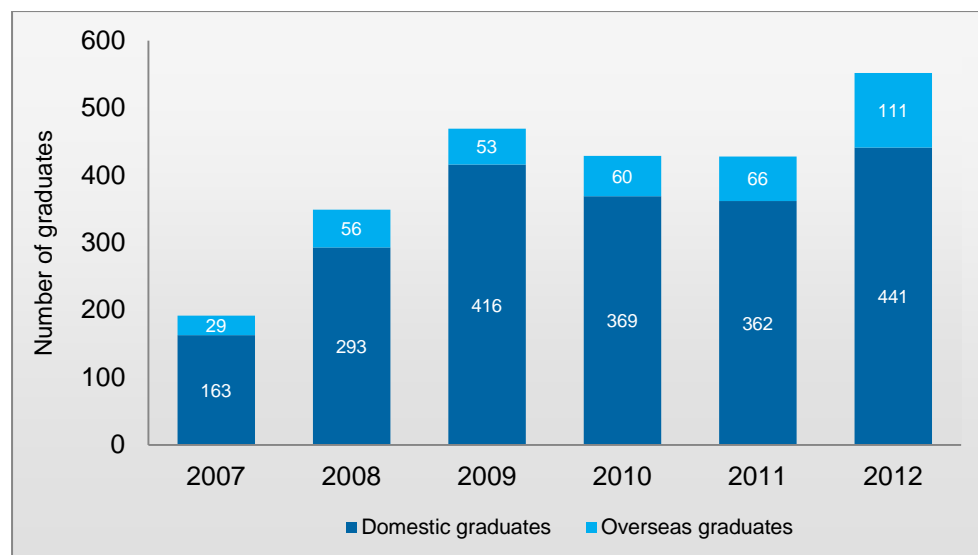
Source: National Health Workforce Dataset: dental practitioners 2011 and 2012

Workforce inflows

Graduates

The number of graduates from courses leading to registration as a dentist more than doubled from 2007 (192 graduates) to 2012 (552 graduates) (Figure 1).

Figure 1: Number of graduates of courses leading to registration as a dentist, 2007 to 2012

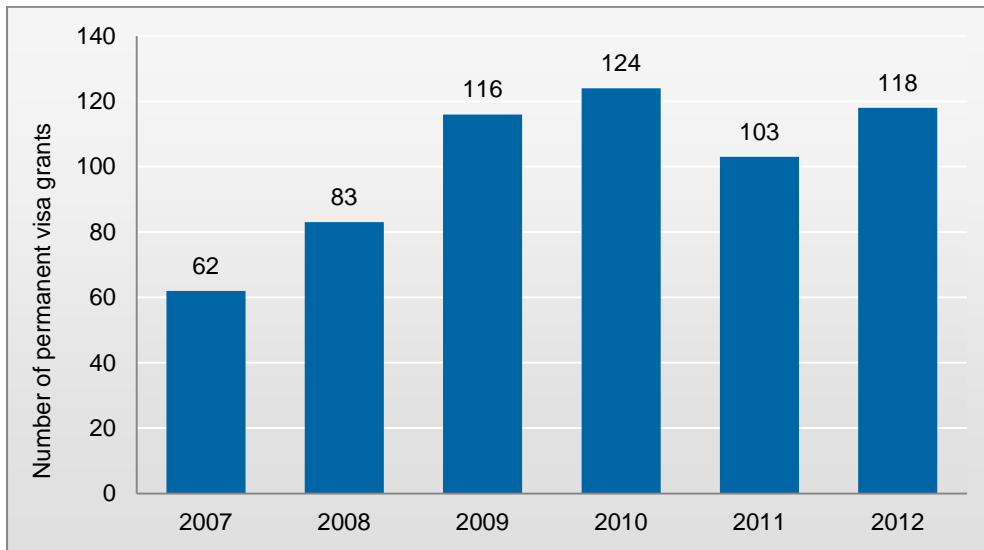


Source: Department of Education 2007 to 2011 and Australian Council of Dental Schools 2012

Migration

The number of permanent visas granted to dentists and dental specialists (who had not previously held a visa permitting them to work in Australia) has generally increased from 2007 to 2012 – reaching a peak of 124 visa grants in 2010 (Figure 2).

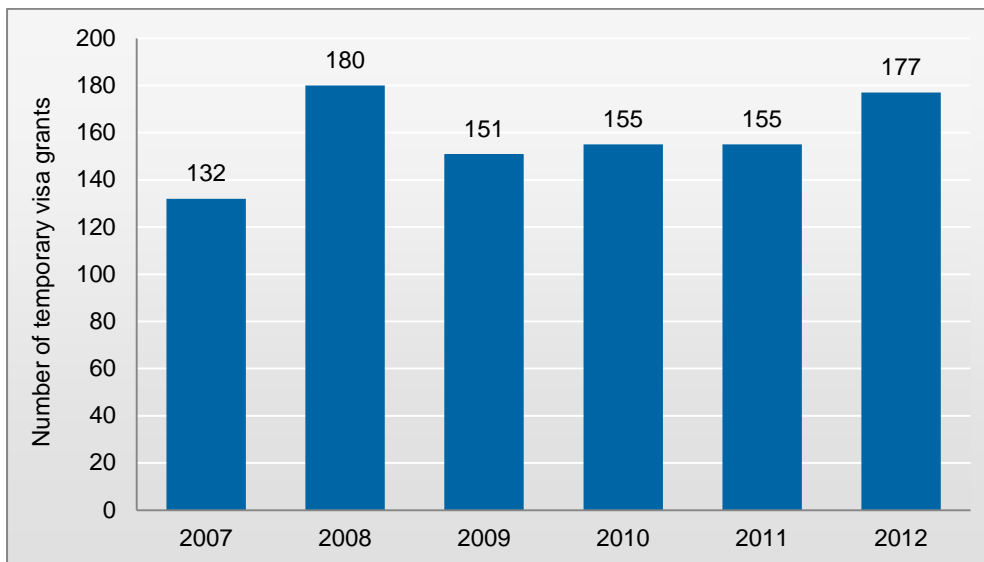
Figure 2: Number of permanent visa grants to dental practitioners (with no previous working visa), 2007 to 2012



Source: Department of Immigration and Border Protection

Temporary visas granted to dentists and dental specialists increased by 34 per cent (45 dentists) from 2007 to 2012 (Figure 3). Between these two years, the highest number of temporary visas granted was in 2008 (180 visas).

Figure 3: Number of temporary visa grants to dental practitioners, 2007 to 2012



Source: Department of Immigration and Border Protection

Dental specialties

Dental-maxillofacial radiology

What is a dental-maxillofacial radiologist?

Dental-maxillofacial radiologists work in the branch of dentistry that deals with diagnostic imaging procedures applicable to the hard and soft tissues of the oral (mouth) and maxillofacial (jaws and face) region, and to other structures that are relevant for the proper assessment of oral conditions.⁵ Specialists in dental-maxillofacial radiology may also use the titles Oral and Maxillofacial Radiologist or Dental Radiologist.

How are dental-maxillofacial radiologists trained?

To be eligible to gain specialist registration with the DBA as a dental maxillofacial radiologist, a person must be a qualified dentist, have a minimum of two years general dental practice experience, and complete an approved postgraduate programme of study in dental-maxillofacial radiology. Currently, the only approved programme of study is a three-year Doctor of Clinical Dentistry in Dento-Maxillofacial Radiology offered by the University of Queensland.⁶

What is the assessment process for overseas-trained dental-maxillofacial radiologists?

An overseas-trained dental-maxillofacial radiologist must have their specialist qualification assessed as substantially equivalent to an approved qualification for the specialty. The ADC review and make recommendations about overseas-trained dental-maxillofacial radiologist specialist applications to the DBA.

In addition to having their specialist qualification assessed as substantially equivalent, the DBA's Specialist Registration Standard requires specialist registration applicants to have completed a minimum of two years general dental practice in addition to meeting all other requirements for general registration as a dentist. The general practice requirement may be achieved by experience outside Australia, subject to assessment and approval by the DBA.⁷

What issues have stakeholders identified for the dental-maxillofacial radiologist workforce?

No specific issues were highlighted by stakeholders for the dental-maxillofacial radiologist workforce.

Workforce characteristics

Table 10 shows there are very few registered dental-maxillofacial radiology specialists in Australia. Although there were changes in the characteristics of dental-maxillofacial radiology specialists from 2011 to 2012, care should be taken when interpreting these figures due to the small number of specialists.

Table 12: Employed registered specialists: dental-maxillofacial radiologists, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	8	7
% clinician	64.3	85.9
% female	23.8	n.p.
Average age	46.4	50.3
% over 55	35.7	43.8
Average working hours	38.5	39.1
Full-time equivalent	9	7

n.p. not publishable

Source: NHWDS: dental practitioners 2011 and 2012

Table 11 shows the total number of employed dentists (including specialists and general dentists) who reported dental-maxillofacial radiology as their principal area of work. Across both years, approximately two-thirds of dentists working in dental-maxillofacial radiology were clinicians, and approximately one-quarter were female.

Table 13: Employed dentists (including specialists): principal area of main job reported as dental-maxillofacial radiology, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	18	14
% clinician	67.9	64.9
% female	25.4	28.3
Average age	48.6	53.7
% over 55	38.0	43.3
Average working hours	39.9	34.8
Full-time equivalent	19	13

Source: NHWDS: dental practitioners 2011 and 2012

Endodontics

What is an endodontist?

An endodontist works in the branch of dentistry concerned with the morphology (form and structure) and pathology of the human tooth, in particular the dental pulp, root and peri-radicular tissues. It includes the biology of the normal pulp, crown, root and peri-radicular tissues and the investigation or attribution of the cause, prevention, diagnosis and treatment of diseases and injuries that affect these tissues.⁸

How are endodontists trained?

A qualification in dentistry and a postgraduate qualification in endodontics, in addition to a minimum of two years general dental practice experience, are required to gain specialist registration with the DBA as an endodontist. Currently, there are three approved Doctor of Clinical Dentistry in Endodontics programmes in Australia, offered by the University of Adelaide, the University of Melbourne, and the University of Western Australia.⁹

What is the assessment process for overseas-trained endodontists?

An overseas-trained endodontist must have their specialist qualification assessed as substantially equivalent to an approved qualification for the specialty. The ADC review and make recommendations about overseas-trained endodontist specialist applications to the DBA.

In addition to having their specialist qualification assessed as substantially equivalent, the DBA's Specialist Registration Standard requires specialist registration applicants to have completed a minimum of two years general dental practice in addition to meeting all other requirements for general registration as a dentist. The general practice requirement may be achieved by experience outside Australia, subject to assessment and approval by the DBA.¹⁰

What issues have stakeholders identified for the endodontist workforce?

In regards to workforce supply, it was noted many overseas-trained endodontists who apply for specialist registration are assessed as having qualifications not equivalent to an Australian specialist qualification, or have completed programmes which cannot be assessed for equivalence.

Demand for endodontic services is expected to increase with the ageing of the Australian population and an increased expectation of people keeping their natural teeth. While it is anticipated most of this increased demand could be met by general dentists, demand for endodontists is still expected to increase with more referrals of complex cases.

Existing workforce position

The existing workforce position was determined from expert opinion from jurisdictions and the profession. A traffic light approach was used (as described in Appendix D). The endodontic existing workforce position was assessed as **green** in metropolitan areas – that there is no current perceived shortage; and **orange** in regional areas – some level of expressed demand exceeding available workforce.

Workforce characteristics

Table 12 shows the number and characteristics of employed endodontist specialists in 2011 and 2012. In both years, approximately nine out of ten employed endodontist specialists were clinicians, and approximately one out of five were female. With an average age of 46 years, endodontist specialists are one of the youngest dental specialty workforces.

Table 14: Employed registered specialists: endodontists, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	129	133
% clinician	92.8	92.9
% female	20.7	19.8
Average age	46.2	46.6
% over 55	23.6	25.4
Average working hours	40.1	40.8
Full-time equivalent	136	142

Source: NHWDS: dental practitioners 2011 and 2012

Table 13 shows the total number of employed dentists (both general dentists and specialists) who reported endodontics as their principal area of main job. The characteristics of these dentists is almost identical to those of the registered endodontist specialists (refer Table 12).

Table 15: Employed dentists (including specialists): principal area of main job reported as endodontics, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	142	151
% clinician	92.3	92.3
% female	19.8	19.9
Average age	45.4	45.9
% over 55	22.2	25.0
Average working hours	40.2	39.7
Full-time equivalent	150	158

Source: NHWDS: dental practitioners 2011 and 2012

Oral and maxillofacial surgery

What is an oral and maxillofacial surgeon?

Oral and maxillofacial surgery is the part of surgery that deals with the diagnosis, surgical and adjunctive treatment of diseases, injuries and defects of the human jaws and associated structures.¹¹

Oral and maxillofacial surgeons treat and care for patients who experience conditions such as problem wisdom teeth, facial pain and misaligned jaws. They also treat accident victims suffering facial injuries, offer reconstructive and dental implant surgery, and care for patients with tumours, cysts, and developmental craniofacial abnormalities of the jaws and face.¹²

Oral and maxillofacial surgery is regarded as both a medical surgery specialty and a dental specialty.

How are oral and maxillofacial surgeons trained?

The Royal Australasian College of Dental Surgeons delivers oral and maxillofacial surgery training. Training consists of a minimum of four years training and an approved research study (such as a postgraduate research degree). Upon successful completion of training, a person is eligible for a Fellowship in Oral and Maxillofacial Surgery.¹³

To be eligible for the training programme, a person must have completed both a dentistry and medical degree, including having completed an intern year and a surgery-in-general year; and hold general registration with the DBA and the Medical Board of Australia.

In addition to the Fellowship in Oral and Maxillofacial Surgery, a person must have a minimum of two years general dental practice to register with the DBA as an oral and maxillofacial surgeon.¹⁴

What is the assessment process for overseas-trained oral and maxillofacial surgeons?

An overseas-trained oral and maxillofacial surgeon must have their specialist qualification assessed as substantially equivalent to an approved qualification for the specialty. The ADC review and make recommendations about overseas-trained oral and maxillofacial surgeon specialist applications to the DBA.

In addition to having their specialist qualification assessed as substantially equivalent, the DBA's Specialist Registration Standard requires specialist registration applicants to have completed a minimum of two years general dental practice in addition to meeting all other requirements for general registration as a dentist. The general practice requirement may be achieved by experience outside Australia, subject to assessment and approval by the DBA.¹⁵

What issues have stakeholders identified for the oral and maxillofacial surgeon workforce?

It was highlighted that the supply of oral and maxillofacial surgeons is restricted by the number of training places, and that there is currently an insufficient number of training places to meet demand – it was reported that in 2013 there were 25 applicants who met the prerequisites to enter training, but only eight places available.

Another issue highlighted was the similarity of the scope of practice between oral and maxillofacial surgeons and oral surgeons. Oral surgery is recognised by the DBA as a specialist category, to represent those practitioners who were already registered in New South Wales at the time the national DBA was formed. However, there are currently no accredited training programmes in oral surgery. The Association of Oral and Maxillofacial Surgeons hold the view that another tier of training is not necessary for the oral surgery workforce.

Existing workforce position

The existing workforce position was determined from expert opinion from jurisdictions and the profession. A traffic light approach was used (as described in Appendix D). The oral and maxillofacial surgeons existing workforce position was assessed as **green** – no current perceived shortage.

Workforce characteristics

Table 14 shows the number and characteristics of employed registered oral and maxillofacial surgery specialists in 2011 and 2012. In both years, almost all oral and

maxillofacial surgeons worked primarily as clinicians. Few specialist oral and maxillofacial surgeons were female – less than one in ten. This was the lowest percentage of female registered specialists of all dental specialties.

Table 16: Employed registered specialists: oral and maxillofacial surgeons, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	162	167
% clinician	93.4	98.2
% female	8.1	9.0
Average age	51.9	52.6
% over 55	41.5	42.0
Average working hours	45.9	44.2
Full-time equivalent	196	195

Source: NHWDS: dental practitioners 2011 and 2012

Table 15 shows the total number of employed dentists (both specialists and general dentists) who reported oral and maxillofacial surgery as their principal area of work, and their selected characteristics in 2011 and 2012.

Table 17: Employed dentists (including specialists): principal area of main job reported as oral and maxillofacial surgery, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	195	185
% clinician	93.1	96.5
% female	9.0	8.5
Average age	47.1	47.7
% over 55	30.0	32.4
Average working hours	44.9	44.7
Full-time equivalent	230	218

Source: NHWDS: dental practitioners 2011 and 2012

Oral medicine specialists

What is an oral medicine specialist?

Oral medicine specialists practice that part of dentistry that deals with the clinical diagnosis, assessment and principally non-surgical, pharmacological (drug) management of patients with chronic and medically-related disorders of the oral and maxillofacial region.¹⁶

How are oral medicine specialists trained?

To be eligible to gain registration with the DBA as an oral medicine specialist, a person must be a qualified dentist, have a minimum of two years general dental practice experience, and complete an approved postgraduate programme of study in oral medicine. Currently, there are four approved three-year Doctor of Clinical Dentistry in Oral Medicine programmes in Australia, offered by the University of Melbourne, the University of Queensland, the University of Sydney and the University of Western Australia.¹⁷

What is the assessment process for overseas-trained oral medicine specialists?

An overseas-trained oral medicine specialist must have their specialist qualification assessed as substantially equivalent to an approved qualification for the specialty. The ADC review and make recommendations about overseas-trained oral medicine specialist applications to the DBA.

In addition to having their specialist qualification assessed as substantially equivalent, the DBA's Specialist Registration Standard requires specialist registration applicants to have completed a minimum of two years general dental practice in addition to meeting all other requirements for general registration as a dentist. The general practice requirement may be achieved by experience outside Australia, subject to assessment and approval by the DBA.¹⁸

What issues have stakeholders identified for the oral medicine specialist workforce?

No specific issues were highlighted by stakeholders for the oral medicine specialist workforce.

Workforce characteristics

There are a small number of registered oral medicine specialists in Australia (Table 16). Oral medicine specialists had a younger age profile than other dental specialties in 2012, with an average age of 46 years, and less than one in five aged 55 years or over.

Table 18: Employed registered specialists: oral medicine specialists, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	27	23
% clinician	84.4	95.6
% female	34.4	38.7
Average age	45.4	46.0
% over 55	18.8	17.8
Average working hours	40.4	38.7
Full-time equivalent	29	24

Source: NHWDS: dental practitioners 2011 and 2012

Table 17 shows the total number of employed dentists (both general dentists and specialists) who reported oral medicine as their principal area of main job. The majority of dentists working in oral medicine reported their primary role as clinicians (84 per cent in 2012) and approximately half were female (54 per cent in 2011 and 48 per cent in 2012).

Table 19: Employed dentists (including specialists): primary area of main job reported oral medicine, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	32	33
% clinician	74.0	84.1
% female	54.0	47.8
Average age	46.3	45.2
% over 55	28.8	18.8
Average working hours	34.9	39.6
Full-time equivalent	30	35

Source: NHWDS: dental practitioners 2011 and 2012

Oral pathology

What is oral pathology?

Oral pathology is the branch of dental practice that deals with diseases of the teeth, jaws, oral soft tissues and associated structures – examining their cause, development and effect, and establishing diagnoses.¹⁹

How are oral pathologists trained?

Completion of an approved qualification in dentistry and a postgraduate qualification in oral pathology, in addition to a minimum of two years general dental practice, are required to gain specialist registration with the DBA as an oral pathologist.

Currently, there are three approved three-year Doctor of Clinical Dentistry in Oral Pathology programmes in Australia, offered by the University of Adelaide, the University of Sydney and the University of Western Australia.²⁰ The Royal College of Pathologists of Australasia also offers an accredited five-year Fellowship programme.²¹

What is the assessment process for overseas-trained oral pathologists?

An overseas-trained oral pathologist must have their specialist qualification assessed as substantially equivalent to an approved qualification for the specialty. The ADC review and make recommendations about overseas-trained oral pathologist applications to the DBA.

In addition to having their specialist qualification assessed as substantially equivalent, the DBA's Specialist Registration Standard requires specialist registration applicants to have completed a minimum of two years general dental practice in addition to meeting all other requirements for general registration as a dentist. The general practice requirement may be achieved by experience outside Australia, subject to assessment and approval by the DBA.²²

What issues have stakeholders identified for the oral pathologist workforce?

No specific issues were highlighted by stakeholders for the oral pathologist workforce.

Workforce characteristics

Table 18 shows there are very few registered oral pathology specialists in Australia. Therefore care should be taken when interpreting these figures due to the small number of specialists.

Table 20: Employed registered specialists: oral pathologists, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	4	6
% clinician	26.8	66.8
% female	n.p.	n.p.
Average age	50.7	51.9
% over 55	51.3	50.9
Average working hours	36.0	45.0
Fill-time equivalent	4	7

n.p. not publishable

Source: NHWDS: dental practitioners 2011 and 2012

Consistent with the low number of registered oral pathology specialists, there were also few dentists (including specialists) reporting their principal area of main job as oral pathology (Table 19).

Table 21: Employed dentists (including specialists): principal area of main job reported as oral pathology, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	12	14
% clinician	17.3	31.3
% female	19.2	8.9
Average age	43.1	50.0
% over 55	8.6	30.5
Average working hours	34.3	39.8
Full-time equivalent	11	14

Source: NHWDS: dental practitioners 2011 and 2012

Oral surgery

What is oral surgery?

Oral surgery is the branch of dentistry concerned with the diagnosis and surgical management of conditions affecting the oral and dento-alveolar tissues. ²³

How are oral surgeons trained?

There are no currently approved programmes to train oral surgeons in Australia. Specialists wishing to register as an oral surgeon have their application evaluated by the DBA on a case-by-case basis.

What is the assessment process for overseas-trained oral surgeons?

Most overseas-trained dental specialists need to have their specialist qualification assessed as substantially equivalent to an approved qualification for the specialty. However there is no approved qualification for oral surgery in Australia. Therefore, an overseas-trained oral surgeon would have their application referred to a committee of the DBA with the requisite expertise and experience to be able to assess the overseas specialist qualification.

In addition, the DBA's Specialist Registration Standard requires specialist registration applicants to have completed a minimum of two years general dental practice in addition to meeting all other requirements for general registration as a dentist. The general practice requirement may be achieved by experience outside Australia, subject to assessment and approval by the DBA.²⁴

What issues have stakeholders identified for the oral surgeon workforce?

No specific issues were highlighted by stakeholders for the oral surgeon workforce.

Workforce characteristics

Table 20 shows the number and characteristics of employed registered specialists in oral surgery in 2011 and 2012. Oral surgery has the oldest age profile of the dental specialties, with an average age of 58.8 years and almost three-quarters of oral surgeons aged 55 years or over. As there are no accredited programmes to train oral surgeons in Australia, the oral surgery workforce can be expected to continue to age.

Table 22: Employed registered specialists: oral surgeons, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	17	18
% clinician	91.2	100.0
% female	12.2	22.8
Average age	59.3	58.8
% over 55	75.3	71.5
Average working hours	41.2	39.6
Full-time equivalent	19	18

Source: NHWDS: dental practitioners 2011 and 2012

Substantially more dentists (general dentists and specialists) reported their principal area of main job in oral surgery (Table 21) compared with the number of oral surgery specialists (Table 20).

Table 23: Employed dentists (including specialists): principal area of main job reported oral surgery, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	69	101
% clinician	91.4	93.5
% female	3.3	11.5
Average age	47.2	44.9
% over 55	36.5	28.9
Average working hours	34.9	35.2
Full-time equivalent	63	93

Source: NHWDS: dental practitioners 2011 and 2012

Orthodontics

What is an orthodontist?

Orthodontists practise the branch of dentistry that deals with the supervision, guidance and correction of the growing and mature dentofacial (pertaining to the mouth or jaw) structures. It includes the diagnosis, prevention, interception and

treatment of all forms of misalignment of the teeth and associated alterations in their surrounding structures.²⁵

How are orthodontists trained?

To be eligible to gain specialist registration with the DBA as an orthodontist, a person must be a qualified dentist, have a minimum of two years general dental practice experience, and complete an approved postgraduate programme of study in orthodontics. Currently there are six approved three-year Doctor of Clinical Dentistry in Orthodontics programmes in Australia, offered by James Cook University, the University of Adelaide, the University of Melbourne, the University of Queensland, the University of Sydney, and the University of Western Australia.²⁶

What is the assessment process for overseas-trained orthodontists?

An overseas-trained orthodontist must have their specialist qualification assessed as substantially equivalent to an approved qualification for the specialty. The ADC review and make recommendations about overseas-trained orthodontist applications to the DBA.

In addition to having their specialist qualification assessed as substantially equivalent, the DBA's Specialist Registration Standard requires specialist registration applicants to have completed a minimum of two years general dental practice in addition to meeting all other requirements for general registration as a dentist. The general practice requirement may be achieved by experience outside Australia, subject to assessment and approval by the DBA.²⁷

What issues have stakeholders identified for the orthodontist workforce?

The Australian Society of Orthodontists Inc. noted demand for orthodontic services has steadily increased over time, due to factors including:

- increased public awareness of orthodontics
- increased treatment efficiencies
- relatively reduced costs
- provision of third party funding
- an overall awareness of the importance of dental health and appearance.

It was noted the current supply of private sector orthodontists is sufficient to meet this demand, and specialist orthodontic services are widely available in most regions of Australia, including remote areas. It was also noted that there is current unmet demand for public orthodontic services.

Concerns about dental practitioners providing orthodontic services outside of their scope of practice were raised due to quality and safety concerns. This was highlighted as in the past, orthodontic services have been supplemented by some general dentists and paediatric dentists undertaking simple orthodontic treatments.

Short courses also exist in orthodontic treatments and procedures, which the Australian Society of Orthodontists Inc generally feel are insufficient.

Existing workforce position

The existing workforce position was determined from expert opinion from jurisdictions and the profession. A traffic light approach was used (as described in Appendix D). The orthodontist existing workforce position was assessed as white – current perceived excess supply.

Workforce characteristics

Orthodontics has the largest number of employed registered specialists of all the dental specialties, with approximately 500 orthodontist specialists in 2011 and 2012 (Table 22). Almost all orthodontists reported their primary role as a clinician, and approximately one in five were female. Orthodontists work close to standard full-time hours on average.

Table 24: Employed registered specialists: orthodontists, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	527	519
% clinician	96.4	96.2
% female	21.4	19.8
Average age	49.8	50.8
% over 55	36.3	40.2
Average working hours	38.3	37.1
Full-time equivalent	531	506

Source: NHWDS: dental practitioners 2011 and 2012

The number and characteristics of employed dentists (both specialist and general dentists) who reported orthodontics as their principal area of work were similar to those of employed registered orthodontist specialists (Table 23).

Table 25: Employed dentists (including specialists): principal area of main job reported as orthodontics, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	548	549
% clinician	94.8	94.3
% female	23.5	23.5
Average age	48.8	49.3
% over 55	35.0	38.2
Average working hours	38.1	37.5
Full-time equivalent	550	541

Source: NHWDS: dental practitioners 2011 and 2012

Paediatric dentistry

What is a paediatric dentist?

A paediatric dentist works in the part of dental practice that deals with the prevention and treatment of dental diseases and abnormalities in children. Paediatric dentistry provides preventative and therapeutic oral health care for children from birth through to adolescence and to those with special needs. It includes management of orofacial (relating to the mouth and face) problems related to medical, behavioural, physical or developmental disabilities.²⁸

How are paediatric dentists trained?

To be eligible to gain registration with the DBA as a paediatric dentist, a person must be a qualified dentist, have a minimum of two years general dental practice experience, and complete an approved postgraduate programme of study in paediatric dentistry. There are five approved three-year Doctor of Clinical Dentistry in Paediatric Dentistry programmes in Australia, offered by the University of Adelaide, the University of Melbourne, the University of Queensland, the University of Sydney, and the University of Western Australia.²⁹

What is the assessment process for overseas-trained paediatric dentists?

An overseas-trained paediatric dentist must have their specialist qualification assessed as substantially equivalent to an approved qualification for the specialty. The ADC review and make recommendations about overseas-trained paediatric dentist specialist applications to the DBA.

In addition to having their specialist qualification assessed as substantially equivalent, the DBA's Specialist Registration Standard requires specialist registration

applicants to have completed a minimum of two years general dental practice in addition to meeting all other requirements for general registration as a dentist. The general practice requirement may be achieved by experience outside Australia, subject to assessment and approval by the DBA.³⁰

What issues have stakeholders identified for the paediatric dentist workforce?

In relation workforce supply, distribution was the key issue highlighted for paediatric dentists – in terms of work settings and geography.

For work settings, it was noted there are a small number of paediatric dentists based in public hospitals, with numbers in the private sector growing over the last decade. Anecdotally, it was reported that most new Australian graduates opt to work in private practice settings due to higher remuneration compared with public hospital settings, and most of the current public hospital workforce is comprised of overseas-trained specialists.

In terms of geographic distribution, most paediatric dentists work within capital cities, with few, if any, working in either the private or public sectors in rural and remote communities. Feedback highlighted that full-time specialist dental practices are unlikely to be financially viable in small rural and remote communities, and therefore sufficient government funding is required to entice paediatric dentists currently working in the private sector to provide visiting services to areas of need.

Existing workforce position

The existing workforce position was determined from expert opinion from jurisdictions and the profession. A traffic light approach was used (as described in Appendix D). There was no common assessment for paediatric dentists, with the rating varying by sector and region:

- In the private sector in metropolitan areas, the paediatric dentist workforce was assessed as **green** (no current perceived shortage) to **white** (current perceived excess supply). At the current rate of increase, it is perceived that the supply of paediatric dentists will exceed demand in the near future.
- In the public sector and rural and remote areas, the paediatric dentist workforce was assessed as **orange** – some level of expressed demand exceeding available workforce.

Workforce characteristics

Table 24 shows the number of employed registered specialists in paediatric dentistry in 2011 and 2012. Approximately 60 per cent of specialists in paediatric dentistry were female in both years, a higher percentage than other dental specialties.

Table 26: Employed registered specialists: paediatric dentists, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	87	90
% clinician	92.7	86.3
% female	60.1	61.1
Average age	43.3	44.0
% over 55	17.8	20.9
Average working hours	40.4	38.9
Full-time equivalent	93	92

Source: NHWDS: dental practitioners 2011 and 2012

Table 25 shows the total number of employed dentists (both specialists and general dentists) who reported paedodontics as their principal area of main job, and their selected characteristics in 2011 and 2012.

Table 27: Employed dentists (including specialists): principal area of main job reported as paedodontics, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	118	148
% clinician	90.9	87.9
% female	63.4	63.7
Average age	42.6	42.7
% over 55	18.8	19.8
Average working hours	38.7	37.1
Full-time equivalent	120	144

Source: NHWDS: dental practitioners 2011 and 2012

Periodontics

What is a periodontist?

A periodontist specialises in the branch of dentistry that is concerned with the prevention, diagnosis and treatment of diseases or abnormalities of the supporting tissues of natural teeth or their substitutes.³¹

How are periodontists trained?

A qualification in dentistry and a postgraduate qualification in periodontics, in addition to a minimum of two years general dental practice, are required to gain specialist registration with the DBA as a periodontist. Currently, there are four approved three-year Doctor of Clinical Dentistry in Periodontics/Periodontology programmes in Australia, offered by the University of Adelaide, the University of Melbourne, the University of Sydney, and the University of Western Australia. A fifth approved three-year Doctor of Clinical Dentistry in Periodontology programme, offered by Griffith University, will be offered from 2014.³²

What is the assessment process for overseas-trained periodontists?

An overseas-trained periodontist must have their specialist qualification assessed as substantially equivalent to an approved qualification for the specialty. The ADC review and make recommendations about overseas-trained periodontist applications to the DBA.

In addition to having their specialist qualification assessed as substantially equivalent, the DBA's Specialist Registration Standard requires specialist registration applicants to have completed a minimum of two years general dental practice in addition to meeting all other requirements for general registration as a dentist. The general practice requirement may be achieved by experience outside Australia, subject to assessment and approval by the DBA.³³

What issues have stakeholders identified for the periodontist workforce?

Stakeholder feedback highlighted the current number of periodontists in Australia is adequate to meet demand, with supply exceeds demand in some metropolitan areas and difficulties experienced by new graduates in finding full-time work. There are some shortages in rural and remote areas, which stakeholders attributed to a lack of incentives to establish practices and specialist dental care programmes in regional areas.

In relation to workforce demand, stakeholders noted that demand for periodontists has been affected by the increased supply of dental hygienists and oral health therapists, who manage the preventative aspects of periodontal care. In particular, stakeholders highlighted demand for periodontists has slowed over the past ten years, with workforce supply increasing at a greater rate than demand.

Existing workforce position

The existing workforce position was determined from expert opinion from jurisdictions and the profession. A traffic light approach was used (as described in Appendix D). The periodontist existing workforce position assessment varied by sector and region:

- In metropolitan areas and inner regional areas, the workforce was assessed as **green** – no current perceived shortage.
- In outer regional and rural areas, the periodontist workforce was assessed as **orange** – some level of expressed demand exceeding available workforce.

Workforce characteristics

There were approximately 175 periodontists in Australia in 2011 and 2012 (Table 26). In both years, most periodontists worked primarily as clinicians, and approximately one-quarter were female.

Table 28: Employed registered specialists: periodontists, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	177	179
% clinician	91.8	90.8
% female	22.6	26.1
Average age	48.8	48.4
% over 55	31.4	31.4
Average working hours	39.7	38.1
Full-time equivalent	185	179

Source: NHWDS: dental practitioners 2011 and 2012

Table 27 shows the total number of employed dentists (both general dentists and specialists) who reported periodontics as their principal area of main job. The characteristics of these dentists is similar to those of the registered periodontist specialists (refer Table 26).

Table 29: Employed dentists (including specialists): principal area of main job reported as periodontics, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	199	203
% clinician	88.3	88.6
% female	28.0	32.9
Average age	46.3	46.1
% over 55	27.8	29.7
Average working hours	39.4	38.0
Full-time equivalent	206	203

Source: NHWDS: dental practitioners 2011 and 2012

Prosthodontics

What is a prosthodontist?

A prosthodontist specialises in the branch of dentistry that deals with the restoration and maintenance of oral health, function and appearance by coronal alteration or reconstruction of the natural teeth, or the replacement of missing teeth and contiguous oral and maxillofacial tissues with substitutes.³⁴

How are prosthodontists trained?

To be eligible to gain registration with the DBA as a prosthodontist, a person must be a qualified dentist, have a minimum of two years general dental practice experience, and complete an approved postgraduate programme of study in prosthodontics. Currently, there are three approved three-year Doctor of Clinical Dentistry in Prosthodontics programmes in Australia, offered by the University of Adelaide, the University of Melbourne, and the University of Sydney.³⁵

What is the assessment process for overseas-trained prosthodontist?

An overseas-trained prosthodontist must have their specialist qualification assessed as substantially equivalent to an approved qualification for the specialty. The ADC review and make recommendations about overseas-trained specialist applications to the DBA.

In addition to having their specialist qualification assessed as substantially equivalent, the DBA's Specialist Registration Standard requires specialist registration applicants to have completed a minimum of two years general dental practice in addition to meeting all other requirements for general registration as a dentist. The

general practice requirement may be achieved by experience outside Australia, subject to assessment and approval by the DBA.³⁶

What issues have stakeholders identified for the prosthodontist workforce?

Stakeholders noted that while current supply of prosthodontists is adequate to meet existing demand, there are concerns for the future with the ageing of the existing workforce. It was reported that dental schools have made efforts to increase prosthodontics programme intakes in response to this.

It was highlighted that prosthodontic services being provided by some general dentists is affecting demand for prosthodontist specialists.

Existing workforce position

The existing workforce position was determined from expert opinion from jurisdictions and the profession. A traffic light approach was used (as described in Appendix D). The dental existing workforce position was assessed as **green** – no current perceived shortage.

Workforce characteristics

Table 28 shows the number and selected characteristics of registered prosthodontic specialists in 2011 and 2012. Compared with other dental specialties, prosthodontists had a lower percentage of females (approximately 15 per cent in 2012) and one of the longer working weeks (an average of 40.2 hours in 2012).

Table 30: Registered specialists: prosthodontists, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	167	172
% clinician	88.8	89.3
% female	15.0	14.7
Average age	50.2	51.6
% over 55	36.1	40.9
Average working hours	40.3	40.2
Full-time equivalent	178	182

Source: NHWDS: dental practitioners 2011 and 2012

While the number of employed dentists (both specialist and general dentists) who reported prosthodontics as their principal area of main job was higher than the number of specialists (Table 29), their characteristics were similar – with a low

percentage of females and average weekly working hours of approximately 40 in 2011 and 2012.

Table 31: Dentists working in prosthodontics, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	200	256
% clinician	86.5	90.0
% female	16.1	16.8
Average age	49.9	47.8
% over 55	38.4	33.3
Average working hours	39.9	40.7
Full-time equivalent	210	275

Source: NHWDS: dental practitioners 2011 and 2012

Public health dentistry (community dentistry)

What is a specialist in public health dentistry?

A public health, or community, dentist is one who is concerned with the oral health education of the public, applied dental research and administration of dental care programmes including prevention and control of oral diseases on a community basis.³⁷

How are specialists in public health dentistry trained?

There are no currently approved programmes of study to train specialists in public health dentistry in Australia. Dentists wishing to register as specialists in public health dentistry will have their applications evaluated by the DBA on a case-by-case basis.

What is the assessment process for overseas-trained specialists in public health dentistry?

Most overseas-trained dental specialists need to have their specialist qualification assessed as substantially equivalent to an approved qualification for the specialty. However there is no approved qualification for public health dentistry in Australia. Therefore, an overseas-trained specialist in public health dentistry would have their application referred to a committee of the DBA with the requisite expertise and experience to be able to assess the overseas specialist qualification.

In addition, the DBA's Specialist Registration Standard requires specialist registration applicants to have completed a minimum of two years general dental practice in

addition to meeting all other requirements for general registration as a dentist. The general practice requirement may be achieved by experience outside Australia, subject to assessment and approval by the DBA.³⁸

What issues have stakeholders identified for the specialist in public health dentistry workforce?

No specific issues were highlighted by stakeholders for the public health dentistry workforce.

Workforce characteristics

There are a small number of registered specialists in public health dentistry in Australia (Table 30). Reflecting the nature of their specialty, which is concerned with education and research, specialists in public health dentistry have the lowest percentage of clinicians of all dental specialties. They also have one of the older age profiles – with an average age of 53.8 years and over half aged 55 years or over in 2012. However due to the small workforce numbers, care should be taken when interpreting these figures.

Table 32: Employed registered specialists: specialists in public health dentistry, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	10	12
% clinician	20.2	25.4
% female	30.6	32.5
Average age	55.5	53.8
% over 55	68.6	58.5
Average working hours	40.7	34.0
Full-time equivalent	11	11

Source: NHWDS: dental practitioners 2011 and 2012

Substantially more dentists (general dentists and specialists) reported their principal area of main job in public health dentistry (Table 31) compared with the number of public health dentist specialists (Table 30). This difference impacted on the characteristics of the workforce, with a substantially higher percentage working as clinicians, an increase in the percentage of females, and a reduction in the age profile and average weekly hours worked of dentists working in public health dentistry, compared with the registered specialist workforce.

Table 33: Employed dentists (including specialists): principal area of main job reported public health dentistry, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	234	371
% clinician	73.3	82.6
% female	47.6	54.0
Average age	47.4	45.0
% over 55	32.5	30.3
Average working hours	37.3	35.4
Full-time equivalent	230	346

Source: NHWDS: dental practitioners 2011 and 2012

Special needs dentistry

What is a specialist in special needs dentistry?

A person who specialises in special needs dentistry is one who is concerned with the oral health care of people with an intellectual disability or with medical, physical or psychiatric conditions that require special methods or techniques to prevent or treat oral health problems or where such conditions necessitate special dental treatment plans.³⁹ Specialists in special needs dentistry work with a diverse client group with complex needs, and liaise and work with all members of an individual's care team, taking a holistic view of oral health.

How are specialists in special needs dentistry trained?

To be eligible to gain registration with the DBA as a specialist in special needs dentistry, a person must be a qualified dentist, have a minimum of two years general dental practice experience, and complete an approved postgraduate programme of study in prosthodontics. Currently, there are three approved three-year Doctor of Clinical Dentistry in Special Needs Dentistry programmes in Australia, offered by the University of Adelaide, the University of Melbourne, and the University of Sydney.⁴⁰

What is the assessment process for overseas-trained specialists in special needs dentistry?

An overseas-trained specialist in special needs dentistry must have their specialist qualification assessed as substantially equivalent to an approved qualification for the specialty. The ADC review and make recommendations about overseas-trained specialist applications to the DBA.

In addition to having their specialist qualification assessed as substantially equivalent, the DBA's Specialist Registration Standard requires specialist registration applicants to have completed a minimum of two years general dental practice in addition to meeting all other requirements for general registration as a dentist. The general practice requirement may be achieved by experience outside Australia, subject to assessment and approval by the DBA.⁴¹

What issues have stakeholders identified for the specialists in special needs dentistry workforce?

A wide range of factors were highlighted by stakeholders as affecting the special needs specialist dental workforce. It was noted demand for the workforce is increasing, resulting from:

- Increased survival of children with complex or multiple disabilities, and an associated transition of care from paediatric dentists to appropriately trained dentists and specialists
- Increasing complexity of medical care provided and increasing population expectations with respect to retaining teeth
- Increasing life expectancy for people with disabilities and chronic disease, with more surviving into middle and old age
- Increasing number of people surviving cancer with oral morbidity
- Increasing volume of oral disease, particularly among socially disadvantaged groups such as people with disabilities – for some, potentially a by-product of increasing levels of independent living, where there may be less rigorous daily oral care, less supervision of diet, and less support in accessing oral health care services.

Despite increasing demand, stakeholders highlighted the following issues with the existing workforce:

- There are few registered specialists in special needs dentistry (Table 32), with no specialists currently registered in Western Australia, Tasmania, the Northern Territory and the Australian Capital Territory.
- The existing workforce is ageing, with an average age of over 50 years in 2012 – this will impact the ability of the workforce to meet demand in future.

Additional to concerns about the number and characteristics of the existing workforce, stakeholders also highlighted issues with the supply streams of education and immigration that will exacerbate existing supply issues:

- Limited capacity in the training pathway, with a total capacity of up to five students in each year for special needs dentistry training
- Potentially restricted numbers of overseas-trained special needs dentists migrating, due to the newness of the specialty both in Australia and internationally – this is likely to limit the number of overseas-trained specialists

found to have completed a substantially equivalent training programmes to those offered in Australia.

Further to the limited capacity of the training pathway, stakeholders also highlighted the number of people currently training is less than capacity, so attraction to the specialty as a career option is also an issue. Financial factors are thought to limit the attraction of special needs dentistry. A specialist training programme represents a significant investment in time and costs (including lost income for the three years of training) for dentists. As there is a high likelihood that employment for special needs dentistry specialists will be in the public sector, with lower remuneration compared with private practice, special needs dentistry may be a less attractive option to prospective specialists than other specialty fields.

Existing workforce position

The existing workforce position was determined from expert opinion from jurisdictions and the profession. A traffic light approach was used (as described in Appendix D). Reflecting the issues raised by stakeholders above, the existing workforce position for specialists in special needs dentistry existing was assessed as **red** – perceived current shortage.

Workforce characteristics

There are a small number of registered special needs dentist specialists in Australia (Table 32). In both years more than half of those specialists were female, and more than two-thirds worked primarily as clinicians. Care should be taken when interpreting these figures due to the small number of specialists.

Table 34: Employed registered specialists: special needs dentistry, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	12	13
% clinician	71.2	69.6
% female	54.2	54.0
Average age	49.8	50.9
% over 55	36.2	39.3
Average working hours	36.9	37.9
Full-time equivalent	11	13

Source: NHWDS: dental practitioners 2011 and 2012

Table 33 shows there were approximately three times more employed dentists (both specialists and general dentists) reporting special needs dentistry as their principal

area of main job than employed registered special needs dentist specialists in 2011 and 2012.

Table 35: Employed dentists (including specialists): principal area of main job reported as special needs dentistry, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	45	45
% clinician	82.6	88.9
% female	61.3	56.3
Average age	48.5	49.8
% over 55	37.8	41.4
Average working hours	33.3	33.7
Full-time equivalent	39	40

Source: NHWDS: dental practitioners 2011 and 2012

Forensic odontology

What is a forensic odontologist?

Forensic odontologists, or forensic dentists, work in the branch of dentistry that is involved with the examination and evaluation of dental evidence, which may then be presented in the interests of justice. Forensic odontologists are involved in:

- Identification of unknown human remains
- Identification of unknown deceased individuals following mass disasters
- Examination and assessment of bite mark injuries
- Examination and assessment of facial injuries following assault or trauma
- Age assessment of both living and deceased persons
- Examination and assessment of child abuse injuries
- Civil cases involving malpractice and fraud allegations.⁴²

How are forensic odontologists trained?

There are no currently approved programmes of study to train forensic odontologists in Australia. Specialists wishing to register as forensic odontologists will have their applications evaluated by the DBA on a case-by-case basis.

Non-approved courses in forensic odontology are offered at several universities in Australia. The University of Western Australia offers a Graduate Diploma in Forensic Odontology, of one year duration. The University of Adelaide also offers one-year Graduate Diploma in Forensic Odontology, as well as offering a Bachelor of Science in Dentistry with Honours in Forensic Odontology and higher research degrees in

forensic odontology. The University of Melbourne has previously offered a one-year Graduate Diploma in Forensic Odontology, but ceased intake for this programme in 2013.

The Royal College of Pathologists of Australasia offers a five-year Fellowship of the Faculty of Forensic Odontology.⁴³

What is the assessment process for overseas-trained forensic odontologists?

Most overseas-trained dental specialists need to have their specialist qualification assessed as substantially equivalent to an approved qualification for the specialty. However, there is no approved accredited qualification for forensic odontology in Australia. Therefore, an overseas-trained forensic odontologist would have their application referred to a committee of the DBA with the requisite expertise and experience to be able to assess the overseas specialist qualification.

In addition, the DBA's Specialist Registration Standard requires specialist registration applicants to have completed a minimum of two years general dental practice in addition to meeting all other requirements for general registration as a dentist. The general practice requirement may be achieved by experience outside Australia, subject to assessment and approval by the DBA.⁴⁴

What issues have stakeholders identified for the forensic odontologist workforce?

No specific issues were highlighted by stakeholders for the forensic odontologist workforce.

Workforce characteristics

Table 34 shows the number and selected characteristics of employed registered forensic odontologists in 2011 and 2012. In both years, average weekly working hours were lower than other dental specialty workforces.

Table 36: Employed registered specialists: forensic odontologists, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	24	25
% clinician	61.2	68.2
% female	43.4	31.7
Average age	53.5	52.7
% over 55	52.0	48.7
Average working hours	32.5	32.2
Full-time equivalent	21	22

Source: NHWDS: dental practitioners 2011 and 2012

Table 35 shows the number of employed dentists (both specialist and general dentists) who reported forensic odontology as their principal area of work in 2012 (2011 data is not available because forensic odontology was not included as a principal area of main job option on the 2011 survey).

While in 2012 there were 25 registered specialist forensic odontologists, there were only ten dentists who reported forensic odontology as their principal area of work. This means most forensic odontologists work in other areas of dentistry, and may indicate that there is insufficient demand for forensic odontologists to work on a full-time basis.

Table 37: Employed dentists (including specialists): principal area of main job reported forensic odontology, workforce characteristics, 2012

Workforce characteristic	2012
Number	10
% clinician	30.9
% female	19.5
Average age	59.9
% over 55	70.7
Average working hours	28.6
Full-time equivalent	8

Source: National Health Workforce Dataset, 2012

Oral health therapists

What is an oral health therapist?

Oral health therapists are practitioners who are dual qualified as a dental therapist and dental hygienist, and can operate within the scope of work of both roles. They provide oral health assessment, diagnosis, treatment, management and preventative services for children and adolescents, and, if educated and trained in a programme of study approved by the DBA, for adults of all ages. Their scope of practice may include restorative and fillings treatment, tooth removal, oral health promotion, periodontal/gum treatment, and other oral care to promote healthy oral behaviours. Oral health therapists may only work within a structured professional relationship with a dentist.⁴⁵

How are oral health therapists trained?

Completion of an approved programme of study is required in order to register and practise as an oral health therapist in Australia. Currently there are nine approved three-year bachelor degrees, and one approved one-year Graduate Diploma of Dental Therapy, offered by Australian universities which lead to registration as an oral health therapist.⁴⁶ These programmes incorporate a period of clinical experience, usually in public dental hospitals and university facilities.

What is the assessment process for overseas-trained oral health therapists?

The Department of Immigration and Border Protection (DIBP) uses the Australian and New Zealand Standard Classification of Occupations (ANZSCO) to categorise occupations for immigration purposes. Oral health therapist is not included as an occupation in ANZSCO, and therefore overseas-trained oral health therapists seeking to immigrate to Australia must apply for a visa as either a dental hygienist or a dental therapist (both of which are included in ANZSCO).

Dental hygienist and dental therapist are both included on the skilled occupation list and the consolidated sponsored occupation list. This means overseas-trained practitioners with qualifications in dental hygiene and dental therapy can migrate to Australia independently or through sponsored programmes including state and territory, regional and employer sponsored schemes. They are also eligible for temporary migration through the 457 Temporary Work (skilled) visa.

Skills and qualifications of oral health therapists are assessed for two purposes:

1. For visa grant purposes. This assessment is conducted by Vocational Education Training and Assessment Services (VETASSESS), with skills and qualifications assessed for equivalency to Australian standards. An oral health therapist can elect to be assessed for equivalency in either dental hygiene or dental therapy, not necessarily both.

2. For registration purposes. To be able to register with the DBA and practise in Australia, the ADC conduct a process which includes an assessment of documents, an English language test (dependent on country of origin), and written and clinical examinations. Only oral health therapists who hold qualifications obtained after at least two years' full-time study and who held registration or licensure in their country of training or country of residence are able to apply for the ADC assessment. The exception to this is those oral health therapists who are registered to practise in New Zealand – they are eligible to apply for general registration without having completed the ADC assessment (under trans-Tasman mutual recognition).

What issues have stakeholders identified for the oral health therapist workforce?

The following were the primary concerns raised by stakeholders in relation to the oral health therapist workforce:

- Lack of role clarity, resulting in practitioners not hiring oral health therapists
- Funding constraints result in most oral health therapists working in the private sector.

Existing workforce position

The existing workforce position was determined from expert opinion from jurisdictions and the profession. A traffic light approach was used (as described in Appendix D). The oral health therapist existing workforce position was assessed as **green** – no current perceived shortage.

Workforce characteristics

In 2012, there were 642 practicing oral health therapists who reported their primary role as being a clinician (Table 36). In 2012, clinician oral health therapists were:

- mostly female (84.3 per cent)
- worked part-time (average working hours 33.7 per week)
- were relatively young (with only two per cent of practitioners aged over 55 years).

The average age of oral health therapists in 2012 was substantially lower than the average age of dental hygienists and dental therapists (Table 37 and Table 40), which may reflect the recent emergence of the oral health therapist role.

Caution should be taken when comparing the 2011 and 2012 survey results for oral health therapists due to a change in survey methodology. In 2011, dual qualified dental hygienists and dental therapists were classified as oral health therapists. In the 2012 survey, practitioners holding dual qualifications were prompted to identify whether their main area of practice was as a dental hygienist, dental therapist, or oral health therapist, and have been classified accordingly. Future surveys will follow

the 2012 methodology, allowing comparisons between 2012 and future years' results to be made.

Table 38: Employed clinician oral health therapists, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	914	642
% female	87.2	84.3
Average age	32.3	30.7
% over 55	2.2	2.0
Average working hours	32.6	33.7
Full-time equivalent	785	570

Source: NHWDS: dental practitioners 2011 and 2012

Workforce inflows

Graduates

There is considerable overlap in approved oral health practice programmes of study, and most currently approved courses can lead to registration under more than one profession:

- Of the eight programmes of study currently approved as leading to registration as a dental therapist, all eight are also approved for registration as an oral health therapist, and seven are also approved for registration as a dental hygienist.
- Of the ten currently approved programmes of study which lead to registration as a dental hygienist, only three courses lead exclusively to registration as a dental hygienist, with the remaining seven allowing a graduate to register as an oral health therapist or a dental therapist.

Because of this overlap, and because there is no information available to show which profession graduates of each course elect to register as, information on the number of oral health therapist graduates is not presented.

Migration

As noted above, oral health therapist is not a recognised occupation in ANZSCO, and therefore overseas-trained oral health therapists wishing to migrate to Australia must apply as either a dental hygienist or a dental therapist.

Migration data is therefore not presented for oral health therapists.

Dental hygienists

What is a dental hygienist?

Dental hygienists provide oral health assessment, diagnosis, treatment, management, and education for the prevention of oral disease to promote healthy oral behaviours for patients of all ages. Their scope may include periodontal/gum treatment, preventative services and other oral care. Dental hygienists may only work within a structured professional relationship with a dentist.⁴⁷

How are dental hygienists trained?

To be eligible to gain registration with the DBA as a dental hygienist, a person must complete an approved programme of study. There are currently two approved two-year Advanced Diploma of Oral Health (Dental Hygiene) programmes (offered by RMIT and TAFE SA), and one three-year Bachelor of Oral Health (offered by the University of Newcastle), which lead to registration as a dental hygienist. There are also eight approved three-year bachelor degrees which can lead to registration as a dental hygienist, however practitioners who complete these degrees are also eligible to register as oral health therapists and undertake work in the dental therapist scope of practice as well as the dental hygienist scope of practice.⁴⁸ All approved programmes incorporate a period of clinical practice, usually in public dental hospitals and university facilities.

What is the assessment process for overseas-trained dental hygienists?

Dental hygienists are included on the skilled occupation list and the consolidated sponsored occupation list. This means overseas-trained practitioners with qualifications in dental hygiene can migrate to Australia independently or through sponsored programmes including state and territory, regional and employer sponsored schemes. They are also eligible for temporary migration through the 457 Temporary Work (skilled) visa.

Skills and qualifications of overseas-trained dental hygienists are assessed for two purposes:

1. For visa grant purposes. This assessment is conducted by VETASSESS, with skills and qualifications assessed for equivalency to Australian standards.
2. For registration purposes. To be able to register with the DBA and practise in Australia, the ADC conduct a process which includes an assessment of documents, an English language test (dependent on country of origin), and written and clinical examinations. Only dental hygienists who hold qualifications obtained after at least two years' full-time study and who held registration or licensure in their country of training or country of residence are able to apply for the ADC assessment. The exception to this is those dental hygienists who are registered to practise in New Zealand – they are eligible to

apply for general registration without having completed the ADC assessment (under trans-Tasman mutual recognition).

What issues have stakeholders identified for the dental hygienist workforce?

Stakeholders raised the following issues in relation to the dental hygiene workforce:

- Most hygienists work in the private sector only
- There is a lack of knowledge about dental hygiene as a profession at a high school level, potentially affecting the number of people attracted to dental hygiene as an occupation.

Existing workforce position

The existing workforce position was determined from expert opinion from jurisdictions and the profession. A traffic light approach was used (as described in Appendix D). The dental hygienist existing workforce position was assessed as **orange** – some level of expressed demand exceeding available workforce.

Workforce characteristics

In 2012, there were 1,362 practicing dental hygienists who reported their primary role as being a clinician (Table 37). In 2012, clinician dental hygienists were:

- Almost exclusively female (only five per cent were male)
- Worked less than 30 hours per week
- Had an average age of 37.1 years, with very few aged 55 years or over.

Caution should be taken when comparing the 2011 and 2012 survey results for dental hygienists due to a change in survey methodology. In 2011, dual qualified dental hygienists and dental therapists were classified as oral health therapists. In the 2012 survey, practitioners holding dual qualifications were prompted to identify whether their main area of practice was as a dental hygienist, dental therapist, or oral health therapist, and have been classified accordingly. Future surveys will follow the 2012 methodology, allowing comparisons between 2012 and future years' results to be made.

Table 39: Employed clinician dental hygienists, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	1,004	1,362
% female	96.3	94.6
Average age	37.2	37.1
% over 55	5.2	5.1
Average working hours	28.6	29.4
Full-time equivalent	755	1,053

Source: NHWDS: dental practitioners 2011 and 2012

Workforce inflows

Graduates

As highlighted in the 'Oral health therapists – Graduates' section, there is considerable overlap in courses accredited in oral health practice, where most currently accredited courses can lead to registration under more than one profession. Because of this overlap, and because there is no information available to show which profession graduates of each course elect to register as, information on the number of dental hygienist graduates is not presented.

Migration

Table 38 and Table 39 present the number of permanent visa grants (where a person held no previous working visa) and 457 temporary work (skilled) visa grants to dental hygienists from 2007 to 2012. Few visas were granted under either category across the period.

As noted earlier, this potentially includes people who are trained as oral health therapists, who are assessed as either a dental hygienist or dental therapist for visa purposes (refer Oral health therapist – migration).

Table 40: Number of permanent visa grants to dental hygienists with no previous working visa, 2007 to 2012

2007	2008	2009	2010	2011	2012
12	10	8	5	14	19

Source: Department of Immigration and Border Protection

Table 41: Number of temporary visa grants to dental hygienists, 2007 to 2012

2007	2008	2009	2010	2011	2012
10	8	4	2	3	2

Source: Department of Immigration and Border Protection

Dental therapists

What is a dental therapist?

Dental therapists provide oral health assessment, diagnosis, treatment, management and preventative services for children, adolescents and young adults and, if educated and trained in a programme of study approved by the DBA, for adults of all ages. Their scope may include restorative/fillings treatment, tooth removal, additional oral care and oral health promotion. Dental therapists may only work within a structured professional relationship with a dentist.⁴⁹

How are dental therapists trained?

Completion of an approved programme of study is required in order to register and practise as a dental therapist in Australia. There is currently one approved one-year Graduate Diploma in Dental Therapy, offered by the University of Newcastle, which leads to registration as a dental therapist. There are also eight approved three-year bachelor degrees which can lead to registration as a dental therapist, however practitioners who complete these degrees are also eligible to register as oral health therapists and undertake work in the dental hygienist scope of practice, as well as the dental therapist scope of practice.⁵⁰ All approved programmes of study incorporate a period of clinical practice, usually in public dental hospitals and university facilities.

What is the assessment process for overseas-trained dental therapists?

Dental therapists are included on the skilled occupation list and the consolidated sponsored occupation list. This means overseas-trained practitioners with qualifications in dental therapy can migrate to Australia independently or through sponsored programmes including state and territory, regional and employer sponsored schemes. They are also eligible for temporary migration through the 457 Temporary Work (skilled) visa

Skills and qualifications of overseas-trained dental therapists are assessed for two purposes:

1. For visa grant purposes. This assessment is conducted by VETASSESS, with skills and qualifications assessed for equivalency to Australian standards.
2. For registration purposes. To be able to register with the DBA and practise in Australia, the ADC conduct a process which includes an assessment of documents, an English language test (dependent on country of origin), and written and clinical examinations. Only dental therapists who hold qualifications obtained after at least two years' full-time study and who held registration or licensure in their country of training or country of residence are able to apply for the ADC assessment. The exception to this is those dental therapists who are registered to practise in New Zealand – they are eligible to

apply for general registration without having completed the ADC assessment (under trans-Tasman mutual recognition).

What issues have stakeholders identified for the dental therapist workforce?

Issues raised in relation to dental therapist workforce were:

- Most work in the public sector, reflecting their scope of practice (which is primarily providing oral health care for young people, and the provision of publicly funded oral health care services and dedicated school dental programmes provided by states and territories).
- Some that start as a dental therapist switch over to dental hygiene over time.

Existing workforce position

The existing workforce position was determined from expert opinion from jurisdictions and the profession. A traffic light approach was used (as described in Appendix D). The dental therapist existing workforce position was assessed as **orange** – some level of expressed demand exceeding available workforce.

Workforce characteristics

In 2012, there were 1,006 practicing dental therapists who reported their primary role as being a clinician (Table 40). In 2012, clinician dental therapists were:

- almost exclusively female (only 3 per cent were male)
- worked part-time (on average working 29 hours per week)
- had an average age of 46.2 years.

This average age is substantially higher than the average age of dental hygienists and oral health therapists in 2012, which were 37.1 years and 30.7 years respectively.

Caution should be taken when comparing the 2011 and 2012 survey results for dental therapists due to a change in survey methodology. In 2011, dual qualified dental hygienists and dental therapists were classified as oral health therapists. In the 2012 survey, practitioners holding dual qualifications were prompted to identify whether their main area of practice was as a dental hygienist, dental therapist, or oral health therapist, and have been classified accordingly. Future surveys will follow the 2012 methodology, allowing comparisons between 2012 and future years' results to be made.

Table 42: Employed clinician dental therapists, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	924	1,006
% female	97.5	97.0
Average age	46.2	46.2
% over 55	14.0	19.3
Average working hours	28.7	29.0
Full-time equivalent	698	767

Source: NHWDS: dental practitioners 2011 and 2012

Workforce inflows

Graduates

As highlighted in the 'Oral health therapists – Graduates' section, there is considerable overlap in approved oral health practice programmes of study, where most currently approved courses can lead to registration under more than one profession. Because of this overlap, and because there is no information available to show which profession graduates of each course elect to register as, information on the number of dental therapist graduates is not presented.

Migration

Table 41 and Table 42 present the number of permanent visa grants (where a person held no previous working visa) and 457 temporary work (skilled) visa grants to dental therapists from 2007 to 2012. Few visas were granted under either category across the period.

As noted earlier, this also potentially includes people who are trained as oral health therapists, who are assessed as either a dental hygienist or dental therapist for visa purposes (refer Oral health therapist – migration).

Table 43: Number of permanent visa grants to dental therapists with no previous working visa, 2007 to 2012

2007	2008	2009	2010	2011	2012
7	5	4	2	5	0

Source: Department of Immigration and Border Protection

Table 44: Number of temporary visa grants to dental therapists, 2007 to 2012

2007	2008	2009	2010	2011	2012
3	0	0	0	3	0

Source: Department of Immigration and Border Protection

Dental prosthetists

What is a dental prosthetist?

Dental prosthetists work as independent practitioners in the assessment, treatment, management and provision of removable dentures and flexible, removable mouthguards used for sporting activities. Dental prosthetists who are educated and trained in a programme of study approved by the National Board may provide various types of splints, sleep apnoea and anti-snoring devices, immediate dentures and immediate additions to existing dentures. These procedures require written referrals to and from dentists and any appliance or device manufactured under such arrangement must be planned, issued and managed by the treating dentist.

How are dental prosthetists trained?

To be eligible to gain registration with the DBA and practise as a dental prosthetist, a person must complete an approved programme of study degree. Currently, there are four approved two-year Advanced Diploma of Dental Prosthetics programmes, offered by vocational education and training providers, which lead to registration as a dental prosthetist. Griffith University also offers a one-year Masters of Dental Technology in Prosthetics, designed to allow dental technicians (who hold a bachelor degree in dental technology) to upskill and register as a dental prosthetist.

What is the assessment process for overseas-trained dental prosthetists?

Dental prosthetists are included on the skilled occupation list and the consolidated sponsored occupation list. This means overseas-trained dental prosthetists can migrate to Australia independently or through sponsored programmes including state and territory, regional and employer sponsored schemes. They are also eligible for temporary migration through the 457 Temporary Work (skilled) visa.

Skills and qualifications of overseas-trained dental prosthetists are assessed for two purposes:

1. For visa grant purposes. This assessment is conducted by Trades Recognition Australia, with skills and qualifications assessed for equivalency to Australian standards.
2. For registration purposes. The process for this is currently under review. The exception is those dental prosthetists who are registered to practise in New Zealand – they are eligible to apply for general registration without having completed the ADC assessment (under trans-Tasman mutual recognition).

What issues have stakeholders identified for the dental prosthetist workforce?

Stakeholders highlighted that workforce maldistribution was an issue for the dental prosthetist workforce, with shortages in regional areas. Additionally, scope of practice was highlighted as an issue – overlap exists across dental professions, and

dental professionals undertake prosthetics work, which reduces demand for qualified prosthetists.

Existing workforce position

The existing workforce position was determined from expert opinion from jurisdictions and the profession. A traffic light approach was used (as described in Appendix D). The dental prosthetist existing workforce position was assessed as **orange** – some level of expressed demand exceeding available workforce, either through maldistribution or insufficient workforce numbers.

Workforce characteristics

In 2012, there were 997 practicing dental prosthetists who reported their primary role as being a clinician, an increase of approximately five per cent (or 50 prosthetists) from 2011. There was almost no change in the characteristics of the practicing clinical dental prosthetist workforce between 2011 and 2012 (Table 43).

Table 45: Employed clinician dental prosthetists, workforce characteristics, 2011 and 2012

Workforce characteristic	2011	2012
Number	947	997
% female	13.2	14.2
Average age	49.4	49.1
% over 55	30.7	31.6
Average working hours	43.0	43.2
Full-time equivalent	1,071	1,135

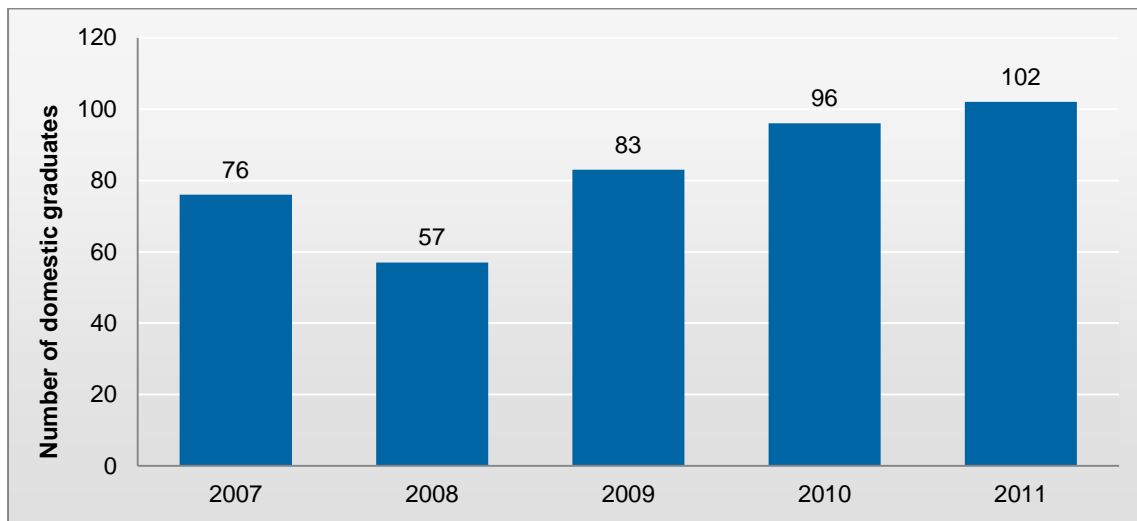
Source: NHWDS: dental practitioners 2011 and 2012

Workforce inflows

Graduates

Figure 4 shows the number of domestic students graduating courses in dental prosthetics has grown by approximately one-third (34.2 per cent) from 2007 to 2011.

Figure 4: Number of domestic dental prosthetist graduates, 2007 to 2011



Source: National Centre for Vocational Education Research and Department of Education

Migration

There were no temporary or permanent visas granted to dental prosthetists between 2007 and 2012.

Dental assistants

What is a dental assistant?

Dental assistants prepare patients for dental examination and assist dental practitioners in providing care and treatment.⁵¹ Dental assistants may also carry out reception and administration duties.⁵²

How are dental assistants trained?

Training for dental assistants is delivered in the vocational education and training sector. The Health Training Package includes Certificate III and Certificate IV courses in Dental Assisting, which are delivered by training providers in every state. The Certificate IV in Dental Assisting consists of three core units and four elective units, with the electives able to be packaged to provide specialty training in dental radiography, oral health promotion, general anaesthesia and conscious sedation, extended duties, dental practice administration, or culturally aware and respectful practice. These qualifications may be completed as part of a work-based traineeship.⁵³

What is the assessment process for overseas-trained dental assistants?

The occupation 'dental assistant' is not currently included on the skilled occupation list or the consolidated sponsored occupation list. Therefore people cannot apply for migration under this occupation.

There is no formal assessment process for overseas-trained dental assistants who may enter Australia on other visas (for example, as the spouse of a person who is granted a visa under the general skilled migration programme). In such instances, individual employers may take into account an overseas-trained dental assistant's experience and skills when recruiting.

Existing workforce position

The existing workforce position was determined from expert opinion from jurisdictions and the profession. A traffic light approach was used (as described in Appendix D). The dental assistant existing workforce position was assessed as **red** – a perceived current shortage in the workforce, with service demand in excess of existing workforce supply.

Workforce characteristics

The dental assistant workforce is substantial in size, with approximately 19,000 people self-reporting as a dental assistant in 2011. This was an increase of almost one-quarter (22 per cent or 3,439 people) from 2006. Almost all dental assistants are female (Table 44). The characteristics of the dental assistant workforce remained similar from 2006 to 2011, with the largest percentage point change in the

percentage of the workforce aged 55 years and over (which increased from 3.5 per cent to 5.8 per cent).

Table 46: Employed dental assistant workforce, selected characteristics, 2006 and 2011

Workforce characteristic	2006	2011
Number	15,382	18,821
% female	98.6	98.2
Average age	32.3	33.2
% over 55	3.5	5.8
Average working hours	30.1	29.6
Full-time equivalent	12,184	14,661

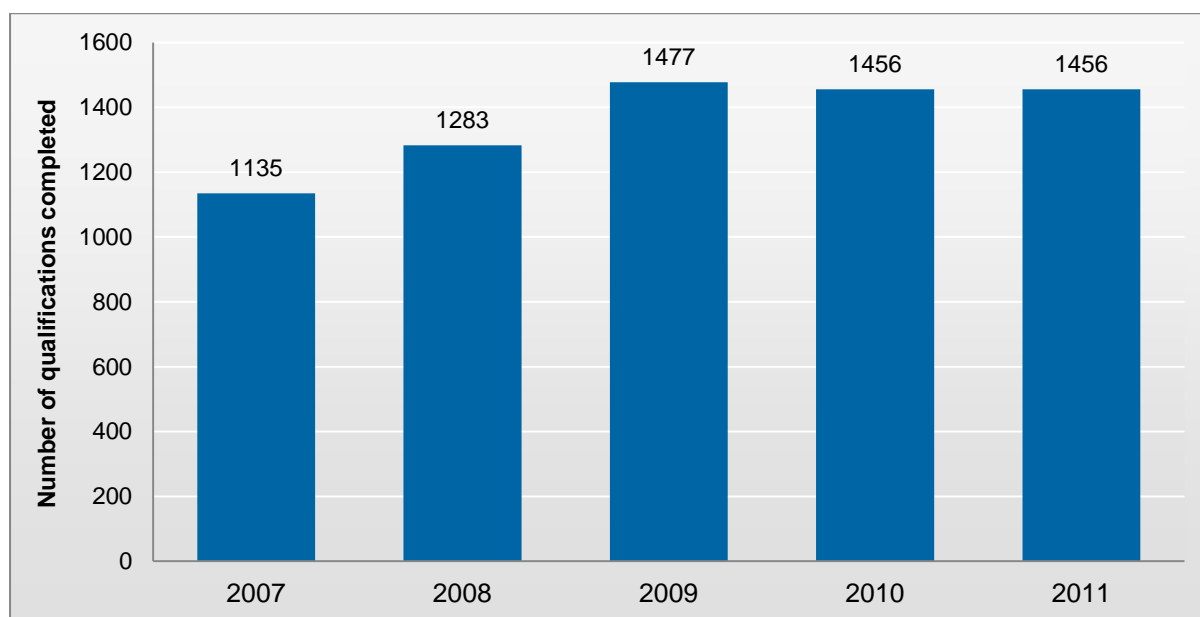
Source: ABS Census of Population and Housing 2006 and 2011

Workforce Inflows

Graduates

The number of dental assistant qualifications completed generally increased from 2007 to 2011. Overall, qualification completed numbers increased 28 per cent between 2007 and 2011 (Figure 5).

Figure 5: Dental assistant qualifications completed, 2007 to 2011



Note: Course occupation ANZSCO code 4232 dental assistant.

Source: National Centre for Vocational Education Research

Migration

There were no temporary or permanent visa grants to dental assistants as they are not on the skilled occupation list or the consolidated sponsored occupation list.

Dental technician

What is a dental technician?

Dental technicians construct and repair dentures and other dental appliances.⁵⁴ Dental technicians work closely with dentists and dental prosthetists and usually have no direct contact with patients.⁵⁵

How are dental technicians trained?

Training for dental technicians is delivered in the vocational education and training sector. The Health Training Package includes a two-year Diploma of Dental Technology, which can be delivered as part of a work-based traineeship or apprenticeship. Griffith University also currently offers a three-year Bachelor of Oral Health in Dental Technology degree.

What is the assessment process for overseas-trained dental technicians?

Dental technicians are currently included on the skilled occupation list and the consolidated sponsored occupation list. This means overseas-trained dental technicians are eligible for permanent migration through the skilled independent pathway or through sponsored pathways including state and territory, regional and employer sponsored schemes. They are also eligible for temporary migration through the 457 Temporary Work (skilled) visa.

Before migrating to Australia, the skills and qualifications of overseas-trained dental technicians are assessed for equivalency to Australian standards. This assessment is completed by Trades Recognition Australia.

Existing workforce position

The existing workforce position was determined from expert opinion from jurisdictions and the profession. A traffic light approach was used (as described in Appendix D). The dental technician existing workforce position was assessed as **green** – no current perceived shortage.

Workforce characteristics

In 2011 there were almost 3,000 dental technicians in Australia. This was an increase of approximately 14 per cent (or 361) from 2006. While the proportion of female dental technicians increased from 2006 to 2011, females comprised less than one-third of the workforce in 2011 (Table 45).

Table 47: Employed dental technician workforce, selected characteristics, 2006 and 2011

Workforce characteristic	2006	2011
Number	2,559	2,920
% female	27.0	30.7
Average age	n.a.	n.a.
% over 55	14.2	15.5
Average working hours	39.8	38.5
Full-time equivalent	2,680	2,958

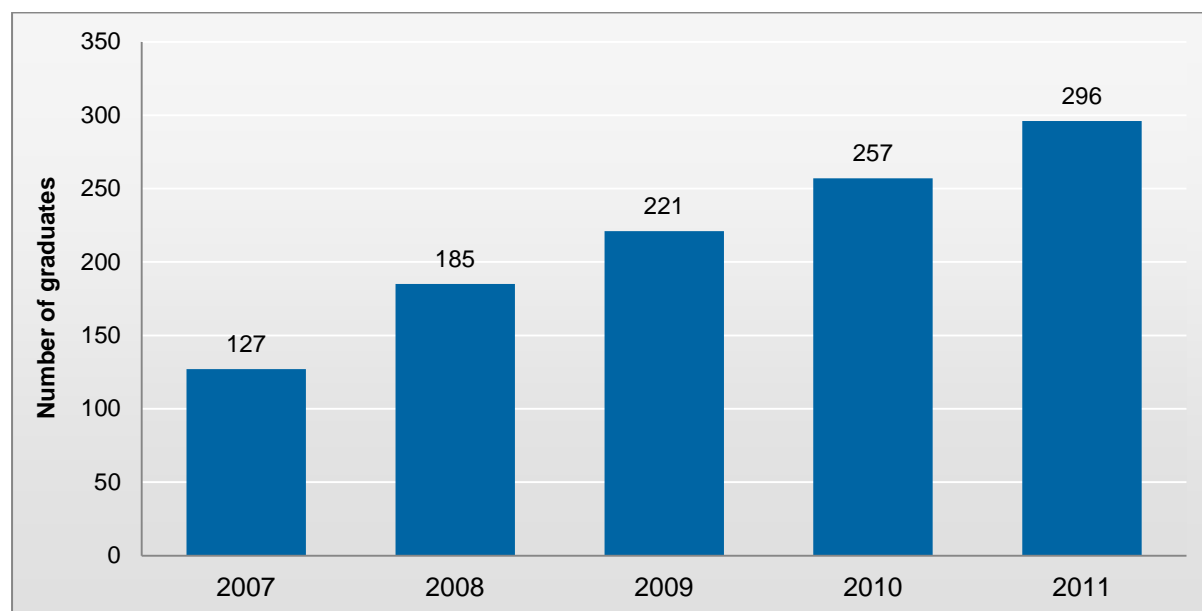
Source: ABS Census of Population and Housing 2006 and 2011

Workforce inflows

Graduates

The number of domestic graduates in dental technology has grown consistently from 2007 to 2011 (Figure 6). In 2011, there were 296 dental technician graduates – more than twice the number of graduates in 2007 (127).

Figure 6: Number of dental technician graduates, 2007 -2011



Source: National Centre for Vocational Education Research and Department of Education

Migration

The number of permanent visas granted to dental technicians (who had previously not held a working visa) has varied year on year from in 2007 and 2012, with a high of 54 visas granted in 2011 (Table 46).

Table 48: Number of permanent visa grants to dental technicians with no previous working visa, 2007 to 2012

2007	2008	2009	2010	2011	2012
47	35	12	23	54	47

Source: Department of Immigration and Border Protection

The same as permanent visas, the number of temporary visas granted to dental technicians has varied over the last six years – with a low of 27 in 2009 and a high of 85 in 2011 (Table 47).

Table 49: Number of 457 Temporary Work (skilled) visa grants to dental technicians, 2007 to 2012

2007	2008	2009	2010	2011	2012
38	54	27	52	85	68

Source: Department of Immigration and Border Protection

Appendix A – Methodology

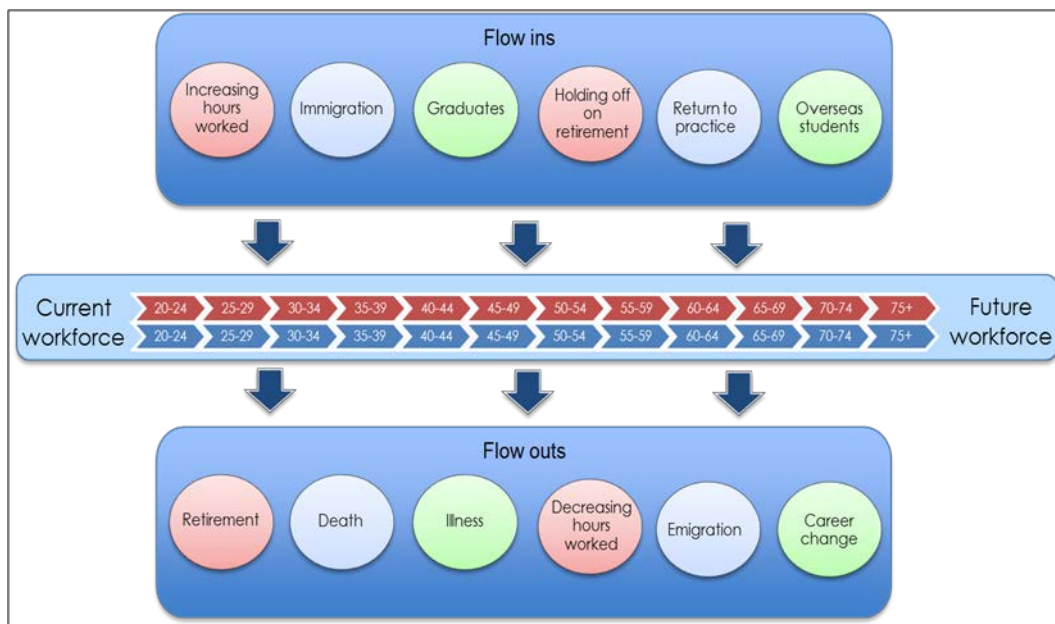
Supply methodology

The principal method used to develop the oral health workforce projections is mathematical simulation modelling, using the National Health Workforce Tool. The simulation model employed to generate the workforce supply projections is a dynamic stock and flow model.

A stock and flow model involves identifying the size and activity of the current workforce (stock) and sources of inflows and outflows from the stock (people entering and exiting the workforce), as well as looking at trends or influences on the stock and flows. To project future supply, the initial stock is moved forward based on expected inflows and outflows, allowing for the impact of trends and influences in the stock. The workforce is broken down into age and gender cohorts, and different flow rates are calculated by cohort and year for each of the input and output factors.

The oral health workforce projections used a dynamic version of the stock and flow approach. This means the stock of the workforce is affected by inflows and outflows to adjacent age cohorts within the stock, as well as external inflows and outflows. That is, each age and gender cohort receives inflows not just from graduates and migration (external flows), but also from people ageing within the model that move from one age cohort into the next. For example, someone moves from the 30 to 34 cohort into the 35 to 39 cohort. Similarly, each age and gender cohort has exits applied – exits as people leave the workforce altogether, and exits as a person moves into the next age cohort. This is an iterative calculation in each year over the projection period, and provides for a more realistic representation of labour dynamics. This provides for a more realistic representation of labour force dynamics. This process is represented in Figure 7.

Figure 7: Stock and flow process



Key inputs in the stock and flow model

There are four key inputs in the dynamic stock and flow model:

- Workforce stock
- New graduates
- Migration (permanent and temporary)
- Exits, which includes all permanent and temporary flows out of the workforce.

Workforce stock

Calculation of the workforce 'stock' in the base year (2012) used the National Health Workforce Dataset (NHWDS): Dental practitioners data. The NHWDS combines data from the annual registration process for registered oral health practitioners, together with data from a workforce survey that is voluntarily completed at the time of registration.

The workforce stock is categorised into five-year age and gender cohorts.

New graduates

Data from the Australasian College of Dental Schools (ACODS), the Department of Education, and the National Centre for Vocational Education Research (NCVER) was used to estimate the anticipated number of new and completing graduates, based on recent trends in the number of graduating students, the number of trainees currently in the system and their expected years of completion.

Table 48 shows the number of domestic and international graduates (current and projected) for each practitioner group to 2017. From 2017, graduate numbers are held constant in the model.

Table 50: Projected Graduates 2012 - 2017

Year	Dentist – Domestic	Dentist – International	Oral health Practitioner – Domestic	Oral health Practitioner – International	Dental Prosthetist – Domestic	Dental Prosthetist – International
2012	441	111	259	10	104	2
2013	627	138	287	17	104	2
2014	653	94	324	12	104	2
2015	737	89	388	13	104	2
2016	656	74	388	13	104	2
2017	749	87	388	13	104	2

Migration

Table 49 shows data from the Department of Immigration and Border Protection used to estimate migratory inflows. Both temporary and permanent migration numbers in 2012 are held constant to 2025. To avoid double counting, the number of permanent migrants who had not previously held a working visa was used as the input into the workforce projections.

Table 51: Temporary and Permanent migrants, 2012

Oral health practitioner	Temporary Migration	No previous working visa
Dental Specialist - Dentist	177	118
Oral Health Practitioners	2	19
Dental Prosthetist	0	0
Total	179	137

Source: Department of Immigration and Border Protection

Exits

Estimates of exits are based on the number of permanent departures (retirements, resignations, deaths and migration) and temporary departures (absences from the workforce on a medium to long term basis, including leave without pay and maternity leave) from national registrations.

Demand methodology

Demand projections employed the utilisation method – which measures expressed demand, and are based on service utilisation patterns as they currently exist for five-year age and gender cohorts. The utilisation approach makes no assumptions about potential (or unmet) demand.

Utilisation patterns were calculated based on ARCPOH NDTIS data on visits and services provided between 1994 and 2010. This was matched against age and gender cohorts, and once mapped was projected against future demographic structures.

Table 50 shows the demand rates based on visits, services and services per visit used in the modelling.

Table 52: Utilisation patterns for oral health

Item	1994-1996	1996-1999	1999-2002	1994 - 2002	2002-2008	2002-2010	2008-2010	1994-2010
Total visits	-1.99%	7.44%	-0.63%	1.97%	3.24%	3.13%	2.80%	2.55%
Total services	0.65%	5.47%	12.56%	6.82%	5.07%	4.89%	4.36%	5.85%
Services per visit	2.70%	-1.84%	13.27%	4.75%	1.77%	1.70%	1.51%	3.22%

Source: HWA analysis of ARCPOH data

Scenarios

Scenario modelling is used to demonstrate the impact of potential policy options on future workforce supply and demand. These 'alternative futures' are modelled and measured by varying input parameters. The general method used is to present a comparison scenario, where current trends are assumed to continue into the future, and use this to compare with a range of alternative scenarios. The alternative scenarios are generated by altering parameters in the model, with the flow through effect to the future workforce measured through the impact relative to the comparison scenario.

The impact of these scenarios is measured by comparing their workforce projection results with the comparison scenario – a technical construct where current trends are assumed to continue into the future. The comparison scenario is not a prediction of the future; it should be interpreted as a 'do nothing' scenario, which assumes known policy settings are held constant as their future levels cannot be predicted. This allows an assessment of the effects of other changes which may impact the workforce. In the comparison scenario, the total growth in visits between 1994 and 2010 (2.55 per cent, see Table 50) was used to calculate baseline projections for demand for oral health services.

Seven alternative scenarios were developed for AFHW – Oral Health. It is important to note the scenarios are not predictions of what will happen over the period to 2025 – each provides an estimate of a likely outcome given the set of conditions upon which it is based. The scenarios were developed based on consultation with stakeholders, and follow the similar vein as those in *Health Workforce 2025 – Doctors, Nurses and Midwives Volumes 1 to 3*.^{56,57,58}

These scenarios reflect potential policy options for the government, industry and education sectors to influence health workforce outcomes, as well as possible external shocks to the oral health workforce.

Medium self-sufficiency

This scenario presents the results of moving towards a 50 per cent reduction in net international migration (both temporary and permanent), and a 50 per cent reduction in the number of international students graduating Australian dental programmes, by 2025 (starting from the number of migrants and international graduates in the base year, 2012).

Productivity

This scenario presents the impact on workforce supply and demand projections of an arbitrary five per cent productivity gain over the projection period. In this scenario, the productivity gain is not attributed to any particular measure, but could include gains achieved through workforce reforms such as changing models of care, adjustments to skill mix, health professionals working to their full scope of practice and technology changes. In the modelling, an increase in productivity is represented by reducing demand, because the ability to produce more with less requires fewer people to deliver a given quantum of services. Given the nature of oral health service delivery in Australia, a five per cent productivity gain may sound low to some stakeholders, but this needs to take into account improvements in both the public and private sectors.

Low demand

This scenario models the impact of a reduction in demand that may stem from the effects of health reform measures and other systemic changes that would lower the use of oral health services by the general population, or a reduction in the demand for particular categories of oral health practitioners. For the purposes of modelling, the absolute minimum growth possible in the current modelling tool, one per cent, was used.

High demand

This scenario models the impact of increase in demand for oral health services or an increase in demand for particular categories of oral health practitioners by the general population. The level of growth in oral health services provided between

1994 and 2010, 5.85 per cent (Table 50), has been used as the growth rate to model this scenario.

Undersupply

An assumption in the workforce projections is that supply and demand are in balance in the first year. There is no quantitative measure of the pre-existing workforce position (whether it is in shortage, balance or supply exceeds demand), however the consensus among stakeholders is that the oral health workforce is in undersupply in some areas, such as the public sector and in rural and remote areas.

Therefore, this scenario was developed to illustrate the impact on the workforce where a five per cent undersupply is assumed in the initial year of modelling.

Oversupply

Similar to the undersupply scenario, as there is no quantitative measure of the pre-existing workforce position (whether it is in shortage, balance or supply exceeds demand) of the oral health workforce, this scenario models the assumption that there is an existing workforce imbalance in the base year of the projections, with workforce supply higher than demand. There was consensus among stakeholders that, despite any geographic and sectoral maldistribution in the oral health workforce, some areas of oral health practitioners' supply exceeds demand..

The scenario demonstrates the impact on the workforce where a five per cent oversupply is assumed in the initial year of modelling.

Graduate reduction

This scenario models the effects of a ten per cent reduction in the number of graduates (both domestic and international) of Australian dental programmes. In the comparison scenario, the number of graduates was projected to 2017, based on recent trends in the number of graduates, the number of students currently enrolled in dental programmes, and their expected years of completion. This number was then held constant from 2017 to 2025. In the graduate reduction scenario, a ten per cent reduction in the projected number of graduates to 2017 was calculated, and the reduced number of expected graduates in 2017 was held constant to 2025.

In this scenario, the reduction in graduate numbers is not attributed to any particular measure, but could include a reduction due to a cap in student numbers or a reduction in the number of students electing to enter or complete dental programmes.

Assumptions

The simulation modelling techniques used to produce the projections rely on two key inputs:

- The set of assumptions about future conditions; and
- The data from which the model's parameters inputs and starting position are derived.

The assumptions are important as they affect the interpretation of workforce projection results. The projections provide likely outcomes given the assumptions on which they are based, so if any of the assumptions are not applicable or cease to reflect real world situations, the projections will not provide an accurate indication of future outcomes. For the input data, any inaccuracies that may exist will directly impact on the accuracy of the modelled results.

Major assumptions and data treatments underlying the scenarios are outlined in the following sections. These are critical to understand as the interpretation of the modelled outputs needs to be done in the context of the underpinning assumptions.

Supply assumptions

- The base oral health workforce is set at 2012 levels.
- Workforce entrants enter the model as graduates or as internationally-trained oral health professionals through either temporary or permanent migration streams.
- Dental graduates entering the workforce are grown through to 2017 based on ACODS data and held constant thereafter. For the other workforces, graduates are grown through to 2015, and held constant thereafter.
- The inflow of oral health professionals via migration is obtained from the Department of Immigration and Border Protection. The model holds constant 2012 levels of international migration.
- The proportion of graduating international students entering the workforce is calculated at 70 percent for dentists.
- Hours worked are calculated and applied separately for each age/sex cohort within each oral health workforce (dentists, dental prosthetists, oral health therapists, dental hygienists, dental therapists). The data from which hours worked is calculated is taken from the National Health Workforce Dataset for 2012.
- Exit rates are calculated separately for dentists, dental prosthetists and for oral health practitioners (comprised of oral health therapists, dental hygienists, dental therapists). They are calculated for each five year age/sex cohort.
- Exit rates are a composite measure including all forms of removal from the workforce, permanent or temporary.
- All graduating oral health professionals are assumed to remain in the workforce, even in situations of workforce supply exceeding demand. That is, exit rates are not adjusted to take account of possible movements away from a profession in an oversupply situation

Demand assumptions

- For the total population, the expressed demand rate for the comparison scenario was calculated based on the growth in the number of visits provided between 1994 and 2010, using data from the ARCPOH NDTIS. This was calculated to be 2.55 per cent. A constant, linear growth rate is then applied to the various age/sex cohorts. This provides for variation in demand as a result of different sizes of age/sex cohorts over time, but not due to different demand patterns within an age/sex cohort.
- Demand and supply start from an 'in balance' position. This is for the purposes of modelling only and should not be taken to imply that the workforces are (or are not) currently in balance.

Accuracy of workforce projections

It should be noted that projections become less accurate as the period of time over which they are applied increases. This is due to the inherent error in any projection methodology, and/or changes in technology (or other factors) which over an extended period are likely to change the relationship between type and number of services provided per practitioner. Another factor that influences the projection period is the changes and reliability in data sets used. For example, over a long period of time the population projections applied to the modelling may change. However, it is the graduate numbers over the projection period that could change most dramatically. Both will alter the workforce projections. In summary, the relevance of long term projections generated will in part depend on the quality of the data inputs for those projections, while less robust data will limit the projection period.

Appendix B – Data sources

Data sources available to HWA vary significantly in terms of their frequency, source and length of time series available. Many sources are only newly available, are only partially complete (due to the need to collect data over an extended period) or are collected infrequently. The extent to which HWA can accurately model the future oral health workforce is entirely dependent on the quality and availability of relevant data.

In preparing this report, potential data sources were assessed to determine the availability, coverage and quality of those data items which are essential for estimating the current workforce and projecting the future workforce. Appropriate data sources which have been used in the modelling in this report are listed in the tables below.

Where the process of selecting input data identified data gaps, options for addressing the gaps were considered and assessed on the basis of the:

- type of data required
- collection methods used
- tool and infrastructure required
- resource cost and time requirements
- potential analysis in the future, such as developing a survey to conduct annually or longer intervals to provide ongoing information.

HWA will continue to augment and refine the capabilities of the model over time to reflect the accumulation of additional datasets, changes in underlying demand and supply factors, and finer levels of detail (for example, modelling regional versus metropolitan service levels).

Workforce supply data sources and data items

Data Source	Data items	Modelling purpose	Limitation
Australian Health Practitioner Regulation Agency	2012: Registration data, Labour force survey data <ul style="list-style-type: none"> • Profession • Age • Gender • Hours worked 	<ul style="list-style-type: none"> • Workforce supply • Workforce profiles • Exit rates 	Reporting of distinct categories due to multiple registration

Data Source	Data items	Modelling purpose	Limitation
Australian Institute of Health and Welfare / Australian Research Centre for Population Oral Health	2006 and 2012: Registration data, Labour force survey data <ul style="list-style-type: none"> • Profession • Age • Gender • Hours worked 	Exit rates	<ul style="list-style-type: none"> • Reporting of distinct categories due to multiple registrations. • This is at 5 year age groups.
Australian Bureau of Statistics	Census data: <ul style="list-style-type: none"> • Profession • Total Employed Persons • Average hours worked 	Workforce profiles	Self-reported census data.
Department of Education	2006 to 2012 Commencements and completions for course names <ul style="list-style-type: none"> • Age • Gender 	<ul style="list-style-type: none"> • Inflows • Exit rates • Profile 	–
Australasian Council of Dental Schools	2006 to 2012 Commencements and completions for course names <ul style="list-style-type: none"> • Age • Gender 	<ul style="list-style-type: none"> • Inflows • Exit rates • Profile 	The retention rate of International students is often based on an assumption in modelling previously done.
National Centre for Vocational Education Research	2006 to 2012 (annual) Commencements and completions for course names <ul style="list-style-type: none"> • Age • Gender 	<ul style="list-style-type: none"> • Inflows • Profile 	–
Department of Immigration and Border Protection	2006 to 2012 (annual) <ul style="list-style-type: none"> • Permanent and temporary visa subclasses • Age • Gender 	<ul style="list-style-type: none"> • Inflows • Exit rates 	–
Australian Dental Council	2006, 2009, 2012 Permanent and temporary migrants <ul style="list-style-type: none"> • Age • Gender 	<ul style="list-style-type: none"> • Inflows • Exit rates 	–

Data Source	Data items	Modelling purpose	Limitation
Public dental sector workforce scheme	Number of dentists that enter Australia through this stream instead of through ADC based on an eligibility listing in each jurisdiction.	Inflows	–

Workforce demand data sources and data items

Data Source	Data items	Limitation
Australian Bureau of Statistics	<ul style="list-style-type: none"> Population projections 2006 – 2025: 5 year age cohorts Gender 	–
Australian Bureau of Statistics	<ul style="list-style-type: none"> Patient Health Survey 2011-12: Visit to dental professionals Sought a dental professional by age/gender (15 and over) Use of dental services for own health in the last 12 months (15 and over) 	Based on overall population rather than dentate population only
Australian Research Centre for Population Oral Health	<ul style="list-style-type: none"> Longitudinal Survey of Dentists' Practice Activity Supply of visits Hours and services 	It is a logbook of dentists' practice activity
Australian Dental Association	<ul style="list-style-type: none"> 2006 – 2012 services items numbers Costs Services 	–
Australian Dental Association	<p>Practice survey data:</p> <ul style="list-style-type: none"> Question 8: usual working hours Question 9: patient appointments Question 10: practice 'busyness' Question 12: dental practice Question 2.1: details of private practice Unit record data is currently being requested 	This will give an indication of private practice activity. This data is intended to be utilized as an implied private practice at a national level.

Data Source	Data items	Limitation
Australian Institute of Health and Welfare	Hospital morbidity data (dental care is one of the most common reasons for hospital admission for children under the age of 10 years).	–
Medicare	Chronic Disease Dental Scheme (CDDS) and teen dental Medicare data 2007 – 2012: <ul style="list-style-type: none"> • Services by category and item numbers • Benefits paid by Medicare 	Medicare data focuses primarily on the public sector, and records the number of services and the benefits paid by Medicare (with an upper limit that is paid). The types of treatment services provided are similar to those that are identified in table 4. The benefits paid per service grew at 1.44 per cent between 2007 and 2011.
Medicare	Category 4 – oral and maxillofacial services	–
Medicare	Medicare services for dentists, dental prosthetists, dentistry-oral surgery/ other dental specialist, dentistry-registered and orthodontistry	–
Department of Veteran's Affairs	2006 – 2012 services by Medicare category and service item numbers	–
Public Dental Directors/ Jurisdictions	<ul style="list-style-type: none"> • Public sector utilization patterns and typical service usage. • Child dental health data 	–

Data Source	Data items	Limitation
National Dental Telephone Interview Survey (ARCPOH)	<p>Total population, 65+ population, geographical distribution by remoteness area, index of relative socio-economic advantage and disadvantage, gender and age cohorts for:</p> <ul style="list-style-type: none"> • Exams • X-rays • Scale and cleans • Extractions • Fillings • Crowns • Bridges • Gum treatments • Orthodontic services. 	<ul style="list-style-type: none"> • Self-report survey with a relatively small sample size (~7,000) collected every three years. • NDTIS captures data on dental visiting by asking respondents about the number of visits made in the previous 12 months. Data on services received at those visits were collected by asking respondents to recall the number of exams, x-rays, scale and cleans, extractions, fillings, crowns, bridges, gum treatments and orthodontic services received in the last 12 months. The NDTIS services received questions were primarily designed to gain an understanding of the orientation of dental care within the community. While these service types represent the large majority of services received, the data does not necessarily reflect all dental services received. As such there is a high likelihood that the total count of services is conservative, and that services per visit applied in the dental demand projection is likely to be highly conservative.

Data Source	Data items	Limitation
Private Health Insurance Administration Council (PHIAC)	Private insurance quarterly report on the number of services and their cost from 2006 to present	Data from PHIAC provides the number of services, benefits paid and fees charged per quarter. The number of services from 2006 to 2011 has grown at 4.54 per cent over this five- year period. The type of services provided under the Dental category under general treatment include: comprehensive examination or consultation, dental x-ray, clean, polish, fluoride treatments, scale and clean, custom-made mouth guards, tooth fillings, crowns and bridges, full upper or lower denture, major dental work, periodontics, endodontics, dentures and surgical extraction of teeth. However there is no breakdown of the general treatments for dental.
HARDS data	Hospital inpatient data for public and private, by jurisdiction, Remoteness Area, age and gender.	This data is only for inpatient activity.

Appendix C – Detailed workforce planning results

The results below show the supply and demand for dentists, oral health practitioners and dental prosthetists for selected years to 2025, as well as the input parameters on inflows and exits that were used to generate the supply projections. All results are presented in terms of headcount. This allows for an estimation of the required number of students or practitioners at each stage of the pipeline to be generated. However it should be noted that underlying the headcount results is a full-time equivalent measure that represents the current and projected reported hours of work of each age cohort in the relevant workforce. Because of the process to generate these results, the headcount demand figures can vary from those presented in the comparison scenario (although not by a material amount).

Dentists

Tables 51 to 58 show the supply and demand for the dentist (including dentist specialists) workforce for selected years to 2025, as well as the input parameters on inflows and exits that were used to generate the supply projections.

Table 53: Dentists, comparison scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	12,770	14,659	16,789	19,624
Domestic Graduates	441	656	749	749
International Graduates	111	74	87	87
Skilled Migration	118	118	118	118
Temporary Migration	177	177	177	177
Exits (%)	4.47%	2.76%	2.25%	2.09%
Demand	12,770	13,815	14,919	16,312
Excess/Shortfall	SP	844	1,870	3,312

SP: starting point

Table 54: Dentists, medium self-sufficiency scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	12,770	14,564	16,344	18,383
Domestic Graduates	441	656	749	749
International Graduates	111	65	62	44
Skilled Migration	118	103	84	59
Temporary Migration	177	155	125	89
Exits (%)	4.47%	2.78%	2.31%	2.23%
Demand	12,770	13,815	14,919	16,312
Excess/Shortfall	SP	750	1,425	2,072

SP: starting point

Table 55: Dentists, productivity scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	12,770	14,659	16,789	19,624
Domestic Graduates	441	656	749	749
International Graduates	111	74	87	87
Skilled Migration	118	118	118	118
Temporary Migration	177	177	177	177
Exits (%)	4.47%	2.76%	2.25%	2.09%
Demand	12,770	13,568	14,439	15,496
Excess/Shortfall	SP	1,091	2,350	4,128

SP: starting point

Table 56: Dentists, low demand scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	12,770	14,659	16,789	19,624
Domestic Graduates	441	656	749	749
International Graduates	111	74	87	87
Skilled Migration	118	118	118	118
Temporary Migration	177	177	177	177
Exits (%)	4.47%	2.76%	2.25%	2.09%
Demand	12,770	13,356	13,999	14,812
Excess/Shortfall	SP	1,303	2,790	4,812

SP: starting point

Table 57: Dentists, high demand scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	12,770	14,659	16,789	19,624
Domestic Graduates	441	656	749	749
International Graduates	111	74	87	87
Skilled Migration	118	118	118	118
Temporary Migration	177	177	177	177
Exits (%)	4.47%	2.76%	2.25%	2.09%
Demand	12,770	14,987	17,269	20,143
Excess/Shortfall	SP	-328	-480	-519

SP: starting point

Table 58: Dentists, undersupply scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	12,770	14,659	16,789	19,624
Domestic Graduates	441	656	749	749
International Graduates	111	74	87	87
Skilled Migration	118	118	118	118
Temporary Migration	177	177	177	177
Exits (%)	4.47%	2.76%	2.25%	2.09%
Demand	13,422	14,465	15,571	16,966
Excess/Shortfall	-652	194	1,218	2,658

SP: starting point

Table 59: Dentists, oversupply scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	13,408	15,195	17,313	20,044
Domestic Graduates	441	656	749	749
International Graduates	111	74	87	87
Skilled Migration	118	118	118	118
Temporary Migration	177	177	177	177
Exits (%)	4.46%	2.68%	2.20%	2.14%
Demand	12,770	13,815	14,919	16,312
Excess/Shortfall	638	1,380	2,394	3,732

SP: starting point

Table 60: Dentists, graduate reduction scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	12,770	14,576	16,383	18,809
Domestic Graduates	441	590	674	674
International Graduates	111	67	78	78
Skilled Migration	118	118	118	118
Temporary Migration	177	177	177	177
Exits (%)	4.47%	2.77%	2.30%	2.16%
Demand	12,770	13,816	14,931	16,333
Excess/Shortfall	SP	760	1,452	2,476

SP: starting point

Oral health practitioners

Tables 59 to 66 show the supply and demand for the oral health practitioner workforce (comprised of oral health therapists, dental hygienists and dental therapists) for selected years to 2025, as well as the input parameters on inflows and exits that were used to generate the supply projections.

Table 61: Oral health practitioners, comparison scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	3,004	3,628	4,538	5,545
Domestic Graduates	259	388	388	388
International Graduates	10	13	13	13
Skilled Migration	19	19	19	19
Temporary Migration	2	2	2	2
Exits (%)	7.04%	5.30%	4.63%	4.34%
Demand	3,004	3,034	3,060	3,135
Excess/Shortfall	SP	594	1,478	2,410

SP: starting point

Table 62: Oral health practitioners, medium self-sufficiency scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	3,004	3,619	4,498	5,435
Domestic Graduates	259	388	388	388
International Graduates	10	11	9	6
Skilled Migration	19	17	13	9
Temporary Migration	2	2	1	1
Exits (%)	7.04%	5.31%	4.67%	4.43%
Demand	3,004	3,034	3,060	3,135
Excess/Shortfall	SP	585	1,438	2,300

SP: starting point

Table 63: Oral health practitioners, productivity scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	3,004	3,628	4,538	5,545
Domestic Graduates	259	388	388	388
International Graduates	10	13	13	13
Skilled Migration	19	19	19	19
Temporary Migration	2	2	2	2
Exits (%)	7.04%	5.30%	4.63%	4.34%
Demand	3,004	2,980	2,961	2,978
Excess/Shortfall	SP	648	1,577	2,567

SP: starting point

Table 64: Oral health practitioners, low demand scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	3,004	3,628	4,538	5,545
Domestic Graduates	259	388	388	388
International Graduates	10	13	13	13
Skilled Migration	19	19	19	19
Temporary Migration	2	2	2	2
Exits (%)	7.04%	5.30%	4.63%	4.34%
Demand	3,004	3,010	3,012	3,058
Excess/Shortfall	SP	618	1,526	2,487

SP: starting point

Table 65: Oral health practitioners, high demand scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	3,004	3,628	4,538	5,545
Domestic Graduates	259	388	388	388
International Graduates	10	13	13	13
Skilled Migration	19	19	19	19
Temporary Migration	2	2	2	2
Exits (%)	7.04%	5.30%	4.63%	4.34%
Demand	3,004	3,070	3,131	3,251
Excess/Shortfall	SP	558	1,407	2,294

SP: starting point

Table 66: Oral health practitioners, undersupply scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	3,004	3,628	4,538	5,545
Domestic Graduates	259	388	388	388
International Graduates	10	13	13	13
Skilled Migration	19	19	19	19
Temporary Migration	2	2	2	2
Exits (%)	7.04%	5.30%	4.63%	4.34%
Demand	3,154	3,184	3,208	3,284
Excess/Shortfall	-150	444	1,330	2,261

SP: starting point

Table 67: Oral health practitioners, oversupply scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	3,154	3,734	4,616	5,613
Domestic Graduates	259	388	388	388
International Graduates	10	13	13	13
Skilled Migration	19	19	19	19
Temporary Migration	2	2	2	2
Exits (%)	6.86%	5.43%	4.63%	4.29%
Demand	3,004	3,034	3,060	3,135
Excess/Shortfall	150	700	1,556	2,478

SP: starting point

Table 68: Oral health practitioners, graduate reduction scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	3,004	3,588	4,343	5,182
Domestic Graduates	259	349	349	349
International Graduates	10	12	12	12
Skilled Migration	19	19	19	19
Temporary Migration	2	2	2	2
Exits (%)	7.04%	5.35%	4.75%	4.43%
Demand	3,004	3,035	3,067	3,146
Excess/Shortfall	SP	553	1,276	2,036

SP: starting point

Dental prosthetists

Tables 67 to 74 show the supply and demand for the dental prosthetist workforce for selected years to 2025, as well as the input parameters on inflows and exits that were used to generate the supply projections.

Table 69: Dental prosthetists, comparison scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	1,002	994	987	970
Domestic Graduates	104	104	104	104
International Graduates	2	2	2	2
Skilled Migration	0	0	0	0
Temporary Migration	0	0	0	0
Exits (%)	13.14%	10.77%	10.92%	11.40%
Demand	1,002	1,020	1,043	1,049
Excess/Shortfall	SP	-26	-56	-79

SP: starting point

Table 70: Dental prosthetists, medium self-sufficiency scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	1,002	993	985	964
Domestic Graduates	104	104	104	104
International Graduates	2	2	1	1
Skilled Migration	0	0	0	0
Temporary Migration	0	0	0	0
Exits (%)	13.14%	10.77%	10.95%	11.48%
Demand	1,002	1,020	1,043	1,049
Excess/Shortfall	SP	-27	-58	-85

SP: starting point

Table 71: Dental prosthetists, productivity scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	1,002	994	987	970
Domestic Graduates	104	104	104	104
International Graduates	2	2	2	2
Skilled Migration	0	0	0	0
Temporary Migration	0	0	0	0
Exits (%)	13.14%	10.77%	10.92%	11.40%
Demand	1,002	1,002	1,009	997
Excess/Shortfall	SP	-8	-22	-27

SP: starting point

Table 72: Dental prosthetists, low demand scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	1,002	994	987	970
Domestic Graduates	104	104	104	104
International Graduates	2	2	2	2
Skilled Migration	0	0	0	0
Temporary Migration	0	0	0	0
Exits (%)	13.14%	10.77%	10.92%	11.40%
Demand	1,002	1,020	1,043	1,049
Excess/Shortfall	SP	-26	-56	-79

SP: starting point

Table 73: Dental prosthetists, high demand scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	1,002	994	987	970
Domestic Graduates	104	104	104	104
International Graduates	2	2	2	2
Skilled Migration	0	0	0	0
Temporary Migration	0	0	0	0
Exits (%)	13.14%	10.77%	10.92%	11.40%
Demand	1,002	1,020	1,043	1,049
Excess/Shortfall	SP	-26	-56	-79

SP: starting point

Table 74: Dental prosthetists, undersupply scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	1,002	994	987	970
Domestic Graduates	104	104	104	104
International Graduates	2	2	2	2
Skilled Migration	0	0	0	0
Temporary Migration	0	0	0	0
Exits (%)	13.14%	10.77%	10.92%	11.40%
Demand	1,053	1,071	1,095	1,102
Excess/Shortfall	-51	-77	-108	-132

SP: starting point

Table 75: Dental prosthetists, oversupply scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	1,052	1,038	1,017	981
Domestic Graduates	104	104	104	104
International Graduates	2	2	2	2
Skilled Migration	0	0	0	0
Temporary Migration	0	0	0	0
Exits (%)	12.75%	10.31%	10.97%	11.50%
Demand	1,002	1,020	1,042	1,049
Excess/Shortfall	50	18	-25	-68

SP: starting point

Table 76: Dental prosthetists, graduate reduction scenario, 2012 to 2025, headcount

Category	2012	2016	2020	2025
Supply	1,002	985	951	913
Domestic Graduates	104	95	95	95
International Graduates	2	2	2	2
Skilled Migration	0	0	0	0
Temporary Migration	0	0	0	0
Exits (%)	13.14%	10.75%	10.94%	11.47%
Demand	1,002	1,020	1,043	1,050
Excess/Shortfall	SP	-35	-92	-137

SP: starting point

Appendix D – Existing workforce position

Understanding the existing workforce position, that is, if the workforce is currently in balance (with workforce supply matching demand for services) or not, is important, as understanding this position greatly affects the interpretation of the workforce projection results. Projections are based on observed historical trends, and interpretation of the projection results requires consideration to the factors that may impact future workforce supply or demand. Ideally, quantitative evidence should be used to determine whether a workforce is in balance or not at a particular point in time. In the absence of suitable data, an assessment by key stakeholders of their view of the existing workforce position of the oral health workforces was used. This was developed during the consultation process for this project, where HWA spoke with the profession and jurisdictions.

Existing workforce position assessment scale

Stakeholders used the following scale to assess the existing workforce position of each oral health profession. In most cases, these assessments were made at the macro (whole workforce) level, not at a sector or regional level. Factors such as budget will have a major impact on whether a specialty assessed as green (no current perceived shortage) at the macro level actually translates into ready access to that specialty in the public sector.

Colour code	Description
White	Current perceived excess supply – that is, current aggregate workforce exceeds existing expressed service demand, including across geographic areas
Green	No current perceived shortage / workforce in balance – that is, sufficient workforce for existing expressed service demand, no distributional issues, minimal number of vacancies, no difficulty filling positions, and short waiting times.
Orange	Some level of expressed demand exceeding available workforce – either through maldistribution or insufficient workforce numbers, some vacancies exist, with difficulty in filling positions
Red	Perceived current shortage – that is, expressed service demand in excess of existing workforce, ongoing vacancies exist (across geographic areas), difficult/unable to fill positions, and extended waiting times

Other measures available to examine existing workforce position

Other partial measures that can be used to provide an indication of the existing workforce position of a particular workforce are waiting times and vacancy rates.

Waiting times

Waiting times for services are a commonly reported healthcare performance indicator, however this is a measure of access to oral health services, not specifically

a measure of workforce imbalance. For this reason, waiting times could only be used as a partial measure to demonstrate existing workforce position. Factors aside from workforce availability that influence waiting times include:

- There is no agreed definition on what is a reasonable waiting time
- The length of time someone has to wait for treatment influences the likelihood they join a waiting list
- The demand for emergency treatment.

Overarching all of the above factors is the influence of budget. Budget constraints influence supply by limiting the availability of staff and impacting on the scheduling and allocation of treatment facilities, which impacts waiting times.

In addition, waiting times often relate to services provided in the public sector only, and does not account for demand or waiting times for services provided by private sector practitioners. Information on waiting time for appointments can be partial indicator for private practitioners, with a longer waiting time for an appointment possibly indicating a workforce imbalance, however similar cautions apply in directly equating a waiting time for appointments to a workforce shortage.

For oral health services, waiting time data is reported by some jurisdictions. However this is not nationally consistent. The AIHW has developed a public dental waiting time national minimum dataset, with formal reporting due to begin in July 2014 for the 2013-14 year, which will provide nationally consistent information on public dental waiting times. Even so, this covers the public sector only, which represents only a small proportion of oral health service provision. Therefore waiting times are not currently a good indicator for measuring the overall oral health workforce position.

Vacancy rates

Vacancy rates and duration of vacancies are often used to assess potential workforce imbalances. Vacancies can imply there is an insufficient sized workforce as there are not enough people to fill positions available. However, there are a range of cautions to note with using vacancy rates as a measure of workforce shortage:

- Vacancies occur as a part of normal operations due to turnover and lags in filling positions
- There is no single level of vacancy rate considered to reflect a workforce shortage
- Vacancies can occur for reasons other than shortage. For example, the vacancy could be in an unattractive location, an employer may choose not to fill a vacancy for reasons such as budget constraints, or applicants for a position may not have sufficient experience or skills the employer is looking for.

- Vacancy rates may also understate workforce shortage, for example positions may not be advertised if they are not expected to be filled.

The sector in which this measure is being applied to also determines its usefulness. In the public health sector, positions are salaried so vacancy rates can be an appropriate indicator. However, in the private sector, services are often delivered by private practitioners, so there may be minimal identified vacancies.

For oral health, private practitioners in Australia provide most dental services, so vacancy rates are also not currently a good indicator for measuring the overall oral health workforce position.

Glossary

Clinician – A person who spends the majority of their time working in the area of clinical practice, that is, the diagnosis, care and treatment (including recommended preventative action) of patients or clients. Clinical practice may involve direct client contact or may be practiced indirectly through individual case material (for example, a dental technician).

Comparison scenario – A scenario where current trends are assumed to continue into the future. This is compared with a range of alternative scenarios.

Employed – a practitioner who reported working in their profession in the week before the survey. In this report, data on employed practitioners include those who:

- Worked for a total of one hour or more in the week before the survey in a job or business (including own business) for pay, commission, payment in kind or profit.
- Usually worked, but were on leave for less than three months, on strike or locked out, or rostered off.

Full-time equivalent (FTE) – The model calculates FTE on a per role basis based on the initial headcount in these workforces, multiplied by their reported hours worked. This is then divided by a standardized assumption about what constitutes a single FTE across the workforces modelled (38 hours per week) to generate the FTE quantity.

International dental graduate (IDG) – Dentists whose basic dental qualifications were acquired in a country other than Australia

International students – Private or sponsored students in an Australian university who are not Australian citizens or permanent residents.

Registered workforce – Those dental professions which are regulated under the National Registration and Accreditation Scheme – dentists, dental specialists, oral health therapists, dental hygienists, and dental therapists.

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