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Abstract

Background: Oral health therapists (OHTs) are an emerging workforce whose training incorporates the skills of dental hygienists (DHs) and dental therapists (DTs). There are concerns that OHTs are underutilised. This study compares the employment characteristics and applied practice scope of OHTs with those of DTs and DHs.

Methods: Members of two professional associations representing DHs, DTs and OHTs, were surveyed by mail. Data collected included demographic and employment characteristics and clinical activity on a typical practice day. Applied practice scope was described by calculating the proportion of practitioners that had provided ≥1 of a selected range of key services. Log binomial regression was used to compare OHTs to DTs and DHs.

Results: Response rate was 60.6% (n= 1,083) and of these 90.9% were employed. Preventive services dominated service provision. The proportion of OHTs that provided fluoride applications (77%) was higher than the proportion of DTs (53%, $p<0.05$), and was not significantly different from the proportion of DHs (70%). The proportion of OHTs that provided (48%) fissure sealants was lower than the proportion of DTs (70%) and substantially higher than the proportion of DHs (10%, $p>0.05$).

Conclusion: Overall the applied practice scope of OHTs appeared to differ from DTs and DHs.

Introduction

In Australia, oral health therapists (OHTs), dental hygienists (DHs) and dental therapists (DTs) collectively comprise nearly one-fifth (18.5%) of the registered dental practitioner work force (2012) (dentists comprised 75.5% and the remaining 6% were dental prosthetists).[1,2] In 2012, the largest group among these three were DHs (1,425 employed) followed by DTs (1,117 employed), OHTs were a substantially smaller group (675 employed).[1] Establishment of OHT programs in Australia commenced in the late 1990s and therefore OHTs are a relatively new dental professional group compared with DHs and DTs, whose history in Australia spans 50 years. [3-5] Accordingly there are differences in the age distribution of these three groups with OHTs having the lowest mean age.[1] All three groups are predominantly female with only small percentages of males (<7%). However their employment across sectors and types of practices varies considerably between the groups.[1,2]

The size and the composition of these three groups have substantially changed since the early 2000's. While DT numbers have declined by approximately 5% between 2006 and 2012 and are likely to continue to decrease, the number of OHTs has approximately doubled during the same period.[1] While DHs have remained the largest group of the three, in 2015 there were only two dental hygiene training programs (both in the Vocational Education and Training (VET) sector). Consistent with other OHT entry to practice programs, the only baccalaureate degree level dental hygiene program in Australia transitioned to a Bachelor of Oral Health Therapy in 2015. Consequently it is highly likely that DH numbers will also decline over time. In contrast, the number of OHTs programs has increased (in 2015 there were eight programs). While OHTs are currently the smallest group, it is expected that OHTs will become the largest group among these three in the near future.[2]

In Australia OHTs, DHs and DTs are required to register with the Australian Health Practitioner Regulation Agency (AHPRA). Their scope of practice is defined by their education and qualifications and while recognised as autonomous practitioners, they must work "in a structured professional relationship with a dentist".[1-3] The DHs' scope of practice includes periodontal treatment (excluding surgical interventions), preventive services and other oral care for patients of all ages. While contested in some places, current Australian regulatory frameworks and evidence support the appropriateness and reliability of DHs in diagnosing and planning treatment.[6] The scope of DTs not only includes diagnostic and preventive services but also restorative treatment, tooth removal, additional oral care and oral health promotion for children and adolescents. OHTs are qualified to practise all aspects of both dental therapy and dental hygiene. They have primary oral health care skills including oral health assessment, examination, diagnosis and treatment planning, prevention, minimal intervention and health promotion as well as specific skills in non-surgical treatment of periodontal disease for people of all ages and dental caries (direct restorations and extraction of deciduous teeth) in children and young people up to the age of 26 years.[7] Some DTs and OHTs who have undertaken additional training can provide restorative treatment for adults of all ages.[8]

Throughout the emergence of the OHT workforce in Australia, there has been considerable debate about their utilisation and practice scope. Some sections of the dental workforce have argued that scope of OHTs should be more narrowly focused on delivering preventive services and oral health promotion.[4] However, more concerning in terms of the efficient use of the workforce, are concerns that OHTs are not always employed in their full capacity and that they are potentially underutilised. It has been suggested that underutilisation may relate to a lack of knowledge about the professions in the community and the wider dental profession.[9,10] Confusion among dentists about the tasks oral health practitioners are permitted to undertake and supervision requirements

may have a negative impact on the capacity of practitioners to utilise their full scope of practice.[9] For example, New Zealand research found that while dentists' attitudes towards employing practitioners qualified as both a therapist and hygienist were positive, dentists' awareness of their practice scope was poor leading to potential conflicts in utilisation of such practitioners.[10] Alternatively, opportunities to practice full scope of training may be limited by practice type, dental team composition and types of patients treated.

There have been several overseas studies examining elements of DTs and DHs practice [10-13], but little research on clinical activity. Apart from earlier research on DH activity[14] and a study on the practice scope of OHTs[5] (both samples limited to one State only) Australian research has been limited and there has been no studies comparing all three groups. While scope of practice is defined by training and qualifications, observational studies of clinical activity can describe the effective range of services typically provided by a workforce group (i.e. applied scope of practice). Given the considerable investment in establishing new OHT programs, it is important to assess how and where OHTs are employed and assess to what degree their applied scope of practice, across those clinical settings, reflects a mix of hygiene and therapy practice. Understanding applied scope of practice can inform oral health workforce planning and education. It can describe whether, on average, OHTs have opportunities to practice their full-scope, or it can reflect the polarisation of OHT's applied scope towards hygiene or therapy, potentially indicating under-utilisation. That is, it may reflect whether the population and/or dental industry mainly demand OHT's hygiene skills or whether they mainly use or demand therapy skills.

Accordingly, the objective of this study was to compare the self-reported employment characteristics and applied scope of OHTs with the characteristics and scope of DTs and DHs. Individual practitioners may practice a relatively narrow range of services due to the demands of their specific practice type and patient pool; hence applied scope was effectively assessed at the dental health system level by examining the proportion providing one or more of each service reported. In addition, a sizeable proportion of these groups typically work across multiple locations, however current national health labour force surveys gather data on the practitioner's main practice location only.[1] Hence a subsidiary aim was to report on employment characteristics across all locations worked.

Methods

Data collection

A self-report survey was developed through consultation with Bachelor of Oral Health educators and researchers. A small pilot survey was conducted via email; 12 responses accompanied by feedback resulted in improvements in activity log instructions and the final selection of prompted items on the log. All current members of the Dental Hygienists' Association of Australia (DHAA) and Australian Dental and Oral Health Therapists Association (ADOHTA) were mailed a survey between March and June 2013. There were up to four reminder mailings at approximately three to four week intervals. Members who were not contactable by mail were contacted by email and invited to participate in the study (i.e. asked to provide an alternate address).

The survey collected information on demographics, qualifications and employment status. Respondents were asked to indicate all their current AHPRA registration types. Those reporting that they were registered as both a DH and a DT were categorised as either a DT or a DH by applying the

criteria used in AIHW Oral health labour force reports.[2,3] The criteria are largely based on the practitioner's area of employment, but also take into consideration other registration types held by the practitioner and state of residence. Applying these criteria may lead to a small number of misclassified practitioners, such that their registration group may be inconsistent with their practice activity data collected. For example, a dual-registered practitioner, classified by the AIHW criteria as a DH (as they are principally employed as DH) may have reported on a day of practice where they treated a patient requiring use of their DT skills, thereby reporting the provision of some 'therapy' services typically not within the scope of practice of a DH. Despite the potential for misclassification, the AIHW criteria were applied as this allowed benchmarking of characteristics and the use of national workforce estimates for weighting of data.

Employment characteristics, collected on up to four practice locations, included practice type, sector (public versus private), hours usually worked, number of clinical practitioners employed, number of years and months worked at each location and practice postcode. Total usual hours was calculated by summing hours reported across all locations, totals were calculated only for respondents who provided hours worked for each location worked. Total hours were adjusted accordingly if an irregular working pattern was reported. Practice postcodes were categorised into remoteness areas using the Australian Statistical Geography Standard. Due to small numbers those classified as working in outer regional, remote or very remote areas were grouped as outer regional/remote.

Respondents were asked to report the clinical activity provided on a self-selected typical day of practice at the location where they usually worked the most hours. Respondents were instructed to keep a tally of their activity or to refer to their records and report on a day recently worked.

Activity included total hours worked, hours dedicated to direct patient care, total number of patient visits and services provided. Services were summarily collected, e.g. total number of scale and cleans provided, total number of patients aged 0 to 11 years, etc. Numbers of patients treated were categorised into six age groups, 0 to 11, 12 to 17, 18 to 24, 25 to 44 and 45 to 64, 65 years or older. There were 18 services prompted in the log, these services represented key services from each service area of the Australian Dental Association (ADA) schedule of dental services. [15] In addition the survey accommodated the capture of other service types in 'other/specify' fields. Only services reported in 'other' fields that corresponded to the ADA schedule were included in activity totals.[15] Permanent extractions were a prompted item on the log, but permanent and deciduous extractions were reported together due to small numbers (only a small number of practitioners have the training extending their scope of practice to provide permanent extractions).

Ethics approval was gained from the University of Adelaide Human Research Ethics Committee (HRECH-288-2011).

Analytical approach

Data were weighted to reflect the practitioner type, age and state distribution of registered practitioners as reported in AIHW 2012 oral health workforce estimates. [1]

Analysis of demographic and practice characteristics excluded practitioners who were not currently employed or were on an extended break from clinical practise (three months or longer). Analysis of applied scope of practice excluded practitioners who were not working in clinical practice or did not provide a complete activity log. To assess the potential bias associated with incompletion of the log, characteristics of practitioners who were included in analysis were compared with those who were excluded (differences were assessed by chi-square statistic, $p<0.05$).

Clinical services provided were broadly described by calculating the proportion of each service item of all services provided. Applied scope of practice was described by calculating the proportion of practitioners that had provided one or more of the selected key services and the proportion that had treated one or more patients in each age group.

Differences in employment characteristics and practice scope by registration group were assessed by a series of Log Binomial regression models (PROC GENMOD, $p<0.05$). Comparisons of each characteristic or service by registration group were assessed in separate models. The characteristic or service item was entered as a dichotomous dependent variable (e.g. providing one or more oral exam was coded as 1 and providing no exam was coded as 0) and registration group was entered as the independent variable (OHT registration was the reference group). Analysis was performed using SAS 9.3 (Research Triangle, Research Triangle Park, USA).

Results

Of the 1,861 ADOHTA and DHAA members surveyed the adjusted response rate, after making allowance for return to sender and other exclusions (e.g. student members, honorary members), was 60.6%. Response varied slightly by association membership: the adjusted response rate for DHAA members was 61.8%, 57.5% for ADOHTA members and 73.2% for those who were members of both associations. Overall 90.9% (n=984) were employed, a further 4.8% were on leave for 3 months or longer, and the remainder were overseas, not working or working in another industry.

OHTs had the highest percentage of male practitioners (6.3%); however the proportions were very small across all three groups. Consistent with being an emerging group within the dental workforce, approximately half of the employed OHTs were less than 30 years of age, their distribution across age groups indicated they were the youngest registration group (Table 1).

Employment characteristics

The sector, type, size and location of practices varied significantly by registration group; the percentage of OHTs, for each of these employment characteristics, was within the range of the percentages for DTs and DHs. OHTs as a group, had the highest proportion of practitioners who had been working at their main location for less than a year, the lowest proportion working at one location and usually working less than 20 hours per week (Table 2).

Of the employed oral health practitioners, 2.1% were not working in clinical practice (i.e. they were employed in oral health promotion or teaching) and 11.4% did not provide a completed practice activity log. Incomplete responses were subsequently excluded from the practice activity analysis. Key demographic and employment characteristics of practitioners which were included (n=850) and excluded (n=113) from analysis were compared: there were no significant differences between the two groups in terms of characteristics, however completion rates of the activity log varied significantly by region and by registration group (Appendix Table A1).

Services provided

Of all services (n= 31,308) reported, only 1.5% were specified in 'other' response fields, where appropriate these were recoded into relevant categories. Some of the most common 'other' items were intra/extra oral photographs (n=98), periodontal charting (n=141), writing referrals

(n=27). Consequently the scope of practice analysis was restricted to the key items prompted in the log, as these represented nearly all services reported (98.5%). Of these key items, preventive services comprised approximately half (53.7%) of all services reported. Preventive services (as categorised by the ADA schedule of items[15]) included oral health instruction (OHI) (20.1%) scale and clean (16.1%), fluoride application (11.2%) fissure sealants (5.8%) and teeth whitening (0.3%). A quarter of services reported were diagnostic services which included oral exams (12.3%), taking impressions (2.7%), intraoral (8.4%) and extraoral radiographs (1.0%). The remaining services comprised of orthodontic procedures (7.1%), periodontal services (6.4%), restorative services (5.5%), extractions (1.1%) and pulpotomy procedures (0.3%)(results not tabulated).

Applied scope of practice

For all service items the proportion of practitioners providing one or more services in their typical day of practice significantly varied by registration group. Among the diagnostic services, nearly three-quarters of all practitioners provided one or more oral exams, and just over three-quarters provided an intraoral radiograph, the proportions were similarly high for OHTs and DTs but, relative to OHTs, significantly lower for DHs. Less than one-fifth reported providing an extraoral radiograph, with DHs having the highest proportion and DTs the lowest (Table 3).

Among the preventive services OHTs had the highest proportion providing one or more OHI and scale and clean services. However, the proportions for DHs and DTs were similarly high, with more than 90% of practitioners providing these services. In contrast the provision of fissure sealants and fluoride applications varied substantially by registration group, with DTs having the highest proportion providing sealants and OHTs having the highest proportion providing fluoride

applications. Overall less than 10% of practitioners provided one or more teeth whitening services; the proportions were similar for OHTs and DHs (Table 3).

Pulpotomy, restorative and extraction services are not within the DH scope of practice, and hence comparisons between OHTs and DHs were not directly relevant. The very small percentages of DHs providing these services relates to potential misclassification, i.e. a practitioner reported on a day of practice at a location where their employment did not correspond with their registration grouping. Compared to OHTs the proportion providing extractions and permanent restorations was significantly higher for DTs, but the proportions of crowns, temporary restorations and pulpotomy procedures did not vary between the two groups (Table 3). DTs were the least likely to provide one or more periodontal or orthodontic services. DHs had the highest proportion providing these services, although their proportions were not substantially higher than the proportions for OHTs (Table 3).

The proportion treating one or more children (<18 years) in a typical day of practice was lowest for DHs and highest for DTs. Nearly all DTs and three-quarters of OHTs treated one or more child patients. DTs were the least likely to treat adults, for adult patient age categories DHs had the highest proportion treating one or more patients. The proportion for OHTs treating adults was significantly lower than that of DHs and substantially higher than that of DTs; however proportions were generally closer to those reported by DHs (Table 3).

Discussion

Our findings showed that the employment characteristics of OHTs varied from both DHs and DTs, the distribution of OHT practitioners by characteristics broadly reflected a hybrid of the more established practitioner groups. While the applied scope of practice of the three registration groups

was orientated toward the provision of preventive and diagnostic services, there were substantial differences between the three groups. The OHT group reported the highest proportion of practitioners providing one or more OHI, scale and clean and fluoride applications in a typical day, and DTs and OHTs reported similarly high proportions of oral exams and intraoral radiographs. For other services, the applied practice scope of OHTs varied considerably from both DHs and DTs, although there was no consistent pattern in comparisons. For some items, the proportion of OHTs providing one or more services was more similar to the proportion of DHs than DTs and for other items the proportions were more similar to the proportion of DTs. For example, OHTs were more similar to DHs with regards to proportions providing orthodontic procedures and root debridement, but OHTs were more similar to DTs with regards to providing fissure sealants and pulpotomy procedures.

Overall the findings showed that the applied practice scope of OHTs was not polarised and did not replicate the practice of one of the more established practitioner groups (i.e. DH or DT). These results broadly indicate that, at the dental health system level, OHTs have the opportunity to provide their full practice scope, potentially negating concerns that OHTs are underutilised. However it should be noted that these results were based on examining OHTs practice as an aggregate group. As an aggregate group OHTs may appear to be practicing the full extent of their training but this maybe a result of being employed across a range of clinical settings or by undertaking employment across several locations and/or sectors. When comparing the range of service items that are part of the training and scope of all three groups, there were indications that applied scope varied by practice type and sector. The differences observed in the services provided largely reflected the observed differences in their patterns of employment. For example DHs were more likely to be employed in orthodontic and periodontal specialist practice and accordingly DHs reported the highest proportions providing one or more orthodontic or periodontal services. Similarly, DTs were

more likely to be employed in the school dental service, treating children and adolescents, and hence reported the highest proportion providing one or more fissure sealants and the lowest proportion providing scale and cleans. Additionally sector of employment can influence applied scope due to differences in models of care, resource allocation and restrictions on service item provision. Therefore, while at a system level OHTs practice did not appear polarised, explicit testing of underutilisation within specific settings could be considered in future research.

Examining applied scope of practice by reporting the proportion of practitioners providing one or more services aimed to describe the range of services commonly provided. This description of practice does not necessarily correspond with the relative frequency of services provided. For example, extractions were a very low frequency service (1.1% of all services provided), but providing an extraction during a day of practice was not uncommon with nearly a third of OHTs and more than half of all DTs providing one or more extractions. These results indicated that applied scope measures can reflect the relevance of services that otherwise may be perceived as less important because they are low rate service items. Further studies could explore if rates of service provision, reflecting the frequency of key service items, vary by practitioner group and practice setting.

There has been limited research comparing practice activity of these three registration groups. Although not directly comparable, the findings of Turner and colleagues[16] showed that the demographic and employment characteristics of DHs, DTs and OHTs (referred to as 'hygienist-therapists') employed in the UK were similar to those reported in this study. For example, OHTs were the youngest group, all three groups were predominantly female and the proportions of DHs employed in private practice was the highest followed by OHTs and DTs. However, the focus of their

study was to assess confidence in autonomous treatment planning, therefore there was little comparative information on their scope of practice.

Study limitations

Strengths of the study include a relatively large sample size as well as an acceptable response rate and being able to report on employment characteristics of these three practitioner groups at their main location and across all locations worked. The generalisability of the study findings was limited by the representativeness of the sampling frame. It was estimated that Association membership was approximately half of all registered practitioners and comparisons to register numbers indicated that younger practitioners were underrepresented in membership. While data were weighted against recent national estimates, weighting may not necessarily completely overcome poor representativeness. However, in our study the distribution of OHPs with regard to demographic characteristics including age and sex, and employment characteristics such as practice sector, type and region were comparable to distributions reported from Australian dental practitioner workforce data collected at registration.[1]

There were some differences in the characteristics of respondents who provided completed practice activity logs compared to log non-respondents. The response rate varied across region and registration group, with OHTs and those living in regional areas more likely to provide a completed log. However, the variation in response by practitioner type would have only influenced estimates of total proportions. In addition, as nearly 90% of those employed in clinical practice provided a completed log and as the proportion of practitioners in regional areas were small, the bias associated with variation in response is likely to have been marginal.

Conclusion

The Australian National Oral Health Plan recommends the effective use of the whole dental team. Maximising the service provision capacity of the existing workforce is necessary to achieving a range of population oral health goals.[17] Understanding the applied scope of practice is useful for assessment of these goals, for oral health workforce planning and dental education. The findings of this study indicate that while the applied scope of practice for all three groups was oriented to the provision of preventive and diagnostic services, the employment characteristics and applied scope of practice of OHTs significantly varied from DHs and DTs. When assessing the applied scope of OHTs as an aggregate group, OHTs do not appear to have adopted the practice patterns of one of the more established practitioners groups (DHs or DTs) broadly indicating they practice the full extent of their training when employed across a range of clinical settings. However, these findings at an aggregate level may mask variations in practice across different settings, i.e. OHTs may adapt their skill sets to meet demands of a specific practice type. Further research into the rates of service provision by type of practice is required to understand if underutilisation is potentially occurring within certain settings.

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Appendix Table A.1

Characteristics	Complete log n=850	Incomplete log n=113
Registration type*		
OHT	30.2	20.4
DH	41.6	41.6
DT	28.1	38.1
Age group *ns*		
<30 years	29.5	19.3
30–<40 years	25.9	28.9
40–<50 years	24.2	24.6
50+ years	20.4	27.2
Highest qualification *ns*		
<Degree	54.6	63.9
Degree	39.8	30.6
Post graduate	5.6	5.6
Sector (main location) *ns*		
Public	29.8	36.3
Private	70.2	63.7
Length of service (main location) *ns*		
<1 year	21.4	17.1
1 to <4 years	32.9	33.3
4 to <10years	28.0	26.1
10+ years	17.7	23.4
Region (main location)*		
Major city	74.9	85.7
Inner regional	16.1	8.0
Outer regional/Remote	9.0	6.3

Notes: * Differences assessed by chi-square statistic, p<0.05

Table 1: Demographic characteristics of employed practitioners by registration type

	DH	OHT	DT	All
	n=404	n=286	n=294	n=983
Sex				
Male	3.2	6.3	2.4	3.9
Age group (years)				
<30 years	25.1	53.7	6.8	27.9
30–39 years	34.5	24.2	15.4	25.8
40–49 years	27.0	13.3	30.7	24.2
50+ years	13.4	8.8	47.1	22.1
Citizenship				
Australian	90.1	96.5	93.5	93.0
Permanent resident	7.9	3.2	6.1	6.0
Temporary resident	2.0	0.4	0.3	1.0
Highest qualification				
Diploma/Associate Diploma/Associate Degree	72.3	4.9	84.5	55.6
Degree	22.6	84.9	13.3	38.6
Post graduate qualification	5.1	10.2	2.2	5.8
Years post initial oral health practitioner qualification				
< 5 years	25.6	53.5	4.8	27.6
5 – <10 years	29.0	22.7	10.7	21.8
10 – <20 years	23.6	7.7	10.7	15.1
20+ years	21.8	16.1	73.8	35.5

Table 2: Employment characteristics by registration type

Characteristics	**DH**		**OHT**	**DT**		**All**
Main location worked	n=404		n=286	n=293		n=983
Sector						
Public	5.2	*	34.3	65.9	*	31.7
Private	94.8	*	65.7	34.1	*	68.3
Practice type						
General practice	**78.0**		**84.2**	**86.1**		**82.3**
General practice	76.3	*	59.4	34.8	*	59.1
School Dental Service	0.2	*	18.2	47.2	*	19.4
Dental Hospital	1.5	*	6.6	4.1	ns	3.8
Specialist practice	**19.5**		**10.5**	**7.2**		**13.3**
Orthodontic specialist practice	12.6	*	7.0	5.9	ns	9.0
Periodontal specialist practice	5.9	*	1.4	0.3	ns	3.0
Other specialist practice	1.0	ns	2.1	1.0	ns	1.3
Other	**2.4**		**5.2**	**6.6**		**4.5**
Other practice type	1.7	ns	4.2	4.5	ns	3.3
Teaching/University/Research	0.7	ns	1.0	2.1	ns	1.2
Number of clinicians						
1 - 2 practitioners	8.5	ns	11.0	32.9	*	16.4
3 - 4 practitioners	34.7	ns	31.9	22.3	*	30.2
5 - 7 practitioners	34.4	ns	32.3	20.8	*	29.8
8 practitioners	22.4	ns	24.8	24.0	ns	23.6
Length of service						
<1 year	12.5	*	35.8	8.8	*	18.2
1 to <4 years	38.1	ns	38.3	21.8	*	33.3
4 to <10years	29.8	*	19.5	33.7	*	28.0

10+ years	19.5	*	6.4	35.8	*	20.5
Region						
Major city	86.3	*	74.5	64.4	*	76.3
Inner regional	7.2	*	16.4	24.3	*	15.0
Outer regional/remote	6.5	ns	9.1	11.3	ns	8.7
Across all locations worked						
Number of locations						
One	65.3	ns	61.0	72.0	*	66.1
Two	28.7	ns	29.3	23.9	ns	27.4
Three or more	5.9	ns	9.8	4.1	*	6.5
Hours worked						
<20 hours	23.6	*	13.1	20.7	*	19.7
20 to 29 hours	20.6	ns	14.5	19.0	ns	18.3
30 to 39 hours	44.4	ns	48.8	46.2	ns	46.2
40 hours or more	11.4	*	23.7	14.1	*	15.8
Sector						
Work public only	4.5	*	27.3	61.3	*	28.0
work private only	91.1	*	60.8	29.8	*	64.1
work private and public	4.5	*	11.9	8.9	ns	7.9
Practice type						
General/other practice only	74.8	*	82.5	88.3	ns	81.0
Specialist practice only	15.1	*	7.0	6.6	ns	10.2
General/other and specialist practice	10.1	ns	10.5	5.2	*	8.8

Notes

1. Differences in the proportions by registration group were assessed in separate Log binomial regression models. Each characteristic (0,1) was entered as a dichotomous dependent variable and registration group was entered as the independent variable, asterik (*) indicates significantly different from reference category (OHT registration) ($p<0.05$).
2. Respondents were asked to report on all practices worked (up to four practices) in descending order of hours usually worked. The first practice reported was classified as the respondents' main practice of employment.
3. 'Other' practice types included aboriginal health centres, health fund clinics, general medical hospital, community health centres, Australian Defence Forces. 'Other' specialist practice types included paediatrics, prosthodontic, endodontic and special needs practices.
4. Nearly all practitioners who worked at more than one location, worked within one region, less than 1% of practitioners worked across two regions.

Table 3: Applied scope of practice: proportion of practitioners providing key services (self-selected day of typical practice)

Service type	Proportion practitioners providing one or more services				
	DH		OHT	DT		All
	n=354		n=257	n=239		n=850
Oral exams	56.2	*	78.2	85.8	*	71.2
Intraoral radiographs	66.4	*	80.9	84.9	*ns*	76.0
Extraoral radiographs	24.6	*	14.4	8.4	*	16.9
Taking impressions	33.5	ns	37.6	16.3	*	30.4
Oral health instruction	87.9	*	95.7	92.5	*ns*	91.5
Scale and clean	88.7	*ns*	93.4	83.3	*	88.6
Fissure sealants	9.9	*	47.9	69.5	*	38.1
Fluoride application	69.5	*ns*	77.0	52.7	*	67.1
Teeth whitening	13.3	*ns*	9.7	1.3	*	8.8
Permanent restorations	1.7	*	50.2	74.1	*	36.7
Temporary restorations	2.0	*	17.5	23.9	ns	12.8
Stainless steel crowns	0.3	*	5.8	5.4	*ns*	3.4
Root debridement	44.1	*ns*	37.0	8.8	*	32.0
Periodontal maintenance	55.9	*	45.5	15.1	*	41.3
Pulpotomy	0.3	*	15.6	18.1	*ns*	9.9
Extractions	1.6	*	32.5	52.3	*	24.8
Orthodontic procedure	15.5	*ns*	12.8	6.3	*	12.1
Patient age group	**Proportion practitioners treating one or more patients**					
	n=350		n=253	n=237		n=840
0–<12 years	31.2	*	75.1	92.4	*	61.8
12–<18 years	41.8	*	69.0	82.3	*	61.5
18–<25 years	56.9	*	46.2	16.9	*	42.4
25–<45 years	87.7	*	67.5	24.5	*	63.7
45–<65 years	85.7	*	61.7	22.7	*	60.6
65+ years	49.3	*	37.7	13.9	*	35.8

Notes:

1. Differences in the proportions by registration group were assessed by Log binomial regression. Each service was tested in a separate model, providing one or more services (0,1) was entered as a dichotomous dependent variable and registration group was entered as the independent variable, asterik (*) indicates significantly different from reference category (OHT registration) ($p<0.05$).
2. Some services reported were not within the typical scope of practise for the respective practitioner type. However, reporting of these services does not reflect a practitioner operating outside their scope of practise. The categorisation of practitioners using the AIHW registration criteria may lead to the assignment to a registration group that did not correspond with the practitioner's type of practice/employment on selected day of activity reporting. For example a practitioner registered as a DH and a DT, whose main employment is a DH would be classified as a DH. However they may have recorded their 'typical' day of practice at a practice where they are employed to provide both hygiene and therapy services or therapy only services (i.e. this type of misclassification potentially explains the small percentage of DHs who provided extractions and pulpotomy treatments).
3. In accordance with the ADA schedule of dental services, teeth whitening is grouped with preventive services in 'Preventive, prophylactic and bleaching services'.
4. Deciduous or permanent extractions were reported separately on the activity log. Due to small numbers of practitioners providing permanent extractions (<1%), both extractions types were summed. Providing permanent extractions is part of the scope of practice of practitioners who were trained to provide this service.