

National Health Workforce Data Set: dental workforce 2011: National Health Workforce Data Set, 2011; Data Quality Statement

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Identifying and definitional attributes

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Data quality

Summary of key issues

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

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

This data quality statement should be read in conjunction with the detailed commentary on specific data issues in Appendix A.2 to A.5 of the *Dental workforce 2011* publication and in footnotes and commentary accompanying tables throughout the publication.

Description

The NHWDS: dental practitioners 2011 is a combination of data collected through the dental practitioner registration renewal process. Dental practitioners are required to renew their registration with the Dental Board of Australia through the NRAS, either online via the AHPRA website or using a paper form provided by the AHPRA. For initial registration, dental practitioners must use a paper form and provide supplementary supporting documentation. This information is referred to as 'registration data'. Data collected include demographic information such as age, sex, country of birth; and details of health qualification(s) and registration status (see <http://www.dentalboard.gov.au/Registration/Types.aspx>, select link to *Registration type* then *Registration form*).

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

When dental practitioners renew their registration on a paper form they are also asked to complete a paper version of the Dental Workforce Survey questionnaire. The paper registration and survey forms are sent back to the AHPRA, where the paper registration forms are scanned and merged with the data obtained from the online process. The AHPRA sends the paper survey forms to Health Workforce Australia (HWA) to be scanned into a data set. The HWA then sends this data set to the AIHW for merging with the online survey forms and registration data, cleansing and adjustment for non-response to form a nationally consistent data set. The final data set is then known as the National Health Workforce Data Set: dental practitioners, containing information sourced from registration data and workforce survey data.

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

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

The Institute also plays a role in developing and maintaining national metadata standards. This work contributes to improving the quality and consistency of national health and welfare statistics. The Institute works closely with governments and non-government organisations to achieve greater adherence to these standards in administrative data collections to promote national consistency and comparability of data and reporting. One of the main functions of the AIHW is to work with the states and territories to improve the quality of administrative data and, where possible, to compile national data sets based on data from each jurisdiction, to analyse these data sets and disseminate information and statistics. The *Australian Institute of Health and Welfare Act 1987*, in conjunction with compliance to the Privacy Act 1988 (Cwth), ensures that the data collections managed by the AIHW are kept securely and under the strictest conditions with respect to privacy and confidentiality. For further information, see the AIHW website at <http://www.aihw.gov.au>.

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

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

The Dental Workforce Survey will also be collected between 1 October and 30 November, as it is administered as part of the registration renewal process. The exceptions to this timetable are in relation to limited and provisional registrations, where the registrant is renewed on the anniversary of their commencement. Limited and provisional registrations renewals are given paper forms only. These responses are included with the regular survey respondents.

Due to significant delays with release of data from the new national registration system, complete and final data were provided to the AIHW much later than originally scheduled. Initial data provided needed joint reviews by the AHPRA, AIHW and HWA to manage the range of considerations and data quality issues described in the *Dental workforce 2011* publication. This review process improved data quality, data definitions, metadata and data cleansing. The process also led to improvements in AHPRA's extracting scripts to provide consistency in data exchange specifications. This process delayed the supply of data but improved the overall quality. The AIHW expected to receive both the registration and workforce survey data simultaneously in February 2012. Due to the factors above, the AIHW received complete useable registration and workforce survey data from AHPRA in October 2012. AHPRA have indicated that future data provision is anticipated to be timely and provided six weeks from the close of registration on 30 November.

Accessibility: Results from the NHWDS: dental practitioners 2011 are published in the *Dental workforce 2011* report. The report, workforce survey questionnaire, user guide to the data set and additional detailed tables are available on the AIHW website at <http://www.aihw.gov.au/workforce-publications/> (select link to *Dental workforce 2011*).

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

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

Relevance: **Scope and coverage**

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

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

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

Accuracy: **Response rates and mode**

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

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

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

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

Registration data from the NRAS

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

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

almost a third of records were missing sex.

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

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

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

The NRAS allows a dental practitioner to record more than one specialty, with up to three specialties recorded for dental practitioners in 2011. However the National Law does not require or enable practitioners to identify their primary specialty. The non-identification of a main specialty of practice also means headcounts are not possible. While the primary specialty of practice is not identified, for the small number of practitioners with more than one specialty the survey data item, Area of practice was used to decide which specialty to allocate them to. Almost all of these dental specialists were allocated to the oral and maxillofacial surgeon category. In addition, there were 185 dental practitioners who were also on the 2011 medical practitioner registration file—16 of these were oral and maxillofacial surgeons only on the dental register, 7 were oral and maxillofacial surgeons only on the medical register and 72 were oral and maxillofacial surgeons on both registers. Given the registration files are as at different points in time, this comparison is only indicative.

Workforce Survey 2011 sample

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

Workforce Survey 2011 design

In 2011, the online survey questionnaire did not include electronic sequencing of questions to automatically guide the respondent to the next appropriate question based on previous responses. This resulted in a number of inconsistent responses. For instance, respondents not correctly following the sequencing instructions for the employment questions may be assigned to an incorrect labour force status or not assigned a status due to incomplete data.

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

Variation between the online and paper surveys has provided additional data quality issues for a number of questions. For example, the state of main job included the category 'Other territories' on the paper form while the same response category in the online form was labelled 'Other'. The data showed a large number in the 'Other' category captured in the online method, which was not similarly found in the paper responses. In addition, state/territory of principal practice and residence data items does not include the category 'Other territories' or 'Other'.

In 2011, the online Dental Workforce Survey did not ask practitioners to answer whether or not they were a temporary resident, but only to enter their visa category number if they self-identified as a temporary resident. However, the paper form asked practitioners to check 'Yes' or 'No' to the temporary resident question and,

depending on the response, either answer or skip the visa category question. In both cases a number of respondents entered a permanent visa code.

Inconsistencies between workforce survey and registration data

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

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

The decision was therefore taken to use a derived location based firstly on main job information, then on principal practice location if the main job location was missing, and subsequently on residential address if the principal practice location was also missing. This derived state is used in all tables except where otherwise stated.

Structure and format of data items

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

Workforce Survey 2011

Dental labour force data for 2009 and earlier years published by the AIHW was the result of collated jurisdiction-level occupation-specific surveys. The current survey, Dental Workforce Survey 2011, collects similar data items; however, the survey methodology has changed, as has the method of obtaining benchmark data on which the numbers of total registrations are based. With the establishment of AHPRA, there is one source of benchmark data instead of eight and there is less chance of inconsistency between jurisdictions and years in the scope of benchmark data.

The scope and coverage of the Dental Workforce Survey 2011 is also different to that of the previous surveys because in some jurisdictions not all types of registered dental practitioners were sent a survey form.

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

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

Speciality of practice, in 2011, is recorded as part of the registration data by the NRAS. A small number of dental practitioners (54) have more than one speciality. The data collected by the NRAS does not identify the primary speciality. However, the AIHW allocated a primary speciality on the basis of the responses to question 10, Principal area of main job.

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

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

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

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

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

Due to the differences in data collection methods, including survey design and questionnaire, it is recommended that comparisons between workforce data in the NHWDS: dental practitioners 2011 and Dental Labour Force Survey data up to and including 2009 be made with caution.

Submitting organisation: Australian Institute of Health and Welfare