

# National Health Workforce Data Set: allied health practitioners 2012: National Health Workforce Data Set, 2012; Data Quality Statement

## Identifying and definitional attributes

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## Data quality

### Quality statement summary:

### Summary of key issues

The NHWDS: allied health practitioners 2012 contains information on the demographics, employment characteristics, primary work location and work activity of all allied health practitioners in Australia who renewed their registration with their respective health profession board via the National Registration and Accreditation Scheme (NRAS) introduced on 1 July 2010.

This is the first data published for allied health practitioners from the new national registration scheme. The data set is comprised of registration information provided by the Australian Health Practitioner Regulation Agency (AHPRA) and workforce details obtained by surveys.

This data quality statement should be read in conjunction with the footnotes and commentary accompanying tables and graphs throughout the *Allied health workforce 2012* report.

### Description

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

### Registration data

Almost all allied health practitioners must be registered with the AHPRA to practise in Australia. The exception is those Aboriginal health workers who are not required by their employer to use a defined list of job titles. Allied health practitioners, with the exception of Aboriginal health workers who are not required by their employer to use the title 'Aboriginal and Torres Strait Islander health practitioner', are required by law to renew their registration through the NRAS, either online via the AHPRA website or using a paper form provided by the AHPRA. For initial registration, practitioners must use a paper form and provide supplementary supporting documentation.

Whether for renewal or initial registration, this information is referred to as 'registration data'. Data collected includes demographic information such as age, sex and country of birth; and details of health qualification(s) and registration status. This is the compulsory component of the registration process.

Registration details on NHWDS: allied health practitioners 2012 were collected either from the compulsory registration renewal form, new registrations or registration details migrated from the respective state and territory health boards before their dissolution.

Copies of registration forms for new registrants are available on the relevant board websites, which can be accessed from the AHPRA website <http://www.ahpra.gov.au/>.

### Survey data

When practitioners renew their registration online they are asked to complete an

online survey customised for each profession. When practitioners renew their registration using a paper form they are also asked to complete a paper version of the relevant survey.

Copies of the survey forms are available from the AIHW website <http://www.aihw.gov.au/workforce-publications/> (select link to Allied health workforce 2012).

### **Database creation**

The AHPRA stores both the online registration data and the survey information in separate databases. They send these two de-identified data sets to the Australian Institute of Health and Welfare (AIHW), where they are merged into a national data set.

When practitioners renew their registration using a paper form they are also asked to complete a paper version of the relevant survey. The paper registration and survey forms are sent 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. HWA sends this data set to AIHW for merging with the online survey forms and registration data, cleansing and adjustment for non-response to form a nationally consistent data set. The final data set is then known as the National Health Workforce Data Set: allied health practitioners.

**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 <http://www.aihw.gov.au>.

The AHPRA is the organisation responsible for the implementation of the NRAS across Australia. The AHPRA works with the National Health Practitioner Boards to regulate health practitioners in the public interest and to ensure a competent and flexible health workforce that meets the current and future needs of the Australian community.

HWA are responsible for the development of the workforce surveys.

The AIHW receives registration information on allied health practitioners via the mandatory national registration process administered by the AHPRA and voluntary survey data collected at the time of registration renewal. The registration and survey data are combined, cleansed and adjusted for non-response to form a national data set known as NHWDS: allied health practitioners 2012.

The AIHW is the data custodian of the NHWDS: allied health practitioners 2012.

**Timeliness:**

The NHWDS: allied health practitioners, is produced annually from the national registration renewal process, and conducted between 1 October and 30 November (the renewal date) each year. Although the reference time is notionally the renewal date, legislation allows for a 1 month period of grace. Thus, the final 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. Consequently the extraction of data occurs (the extraction date) a month and a half after the renewal date.

The survey data are also 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. 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.

Data provided needed joint reviews by the AHPRA, AIHW and HWA to manage the range of considerations and data quality issues. 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. HWA has provided funding and assistance to AHPRA to improve their survey tool infrastructure to improve timeliness and quality of data provision in future.

The AIHW did not receive complete data for both 2011 and 2012 until May 2013. 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: allied health practitioners 2012 are published in the *Allied health workforce 2012* report. The report also includes results for 2011. The report and workforce survey questionnaires are available from the AIHW website <http://www.aihw.gov.au/workforce-publications/> (select link to Allied health workforce 2012).

Users can request data not available online or in reports via the Media and Strategic Engagement Unit on (02) 6244 1032 or via email to [info@aihw.gov.au](mailto: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 files may be requested through the AIHW Ethics Committee.

HWA provide a data tabulation tool, including data from the National health workforce dataset, on their website <http://www.hwa.gov.au/work-programs/information-analysis-and-planning/health-workforce-data>.

**Interpretability:**

Descriptions of data items in the National Health Workforce Data Set: allied health practitioners 2012 are available on request from the Expenditure and Workforce Unit at the AIHW.

The surveys used by each allied health profession are available from the AIHW website <http://www.aihw.gov.au/workforce-publications/> (select link to Allied health workforce 2012).

**Relevance:**

The NHWDS: allied health practitioners 2012 is highly relevant for understanding the size and characteristics of the allied health workforce in Australia.

The NHWDS: allied health practitioners 2012 is highly relevant for health agencies involved in workforce planning as well health policy planning and implementation in general.

The location and distribution of the workforce, as well as demographic details such as age and sex of practitioners are highly useful for workforce planning within states and territories and nationally. Information on qualifications is relevant for the relevant professional associations and educational planning.

The primary purpose of the National Health Workforce Data Set: allied health practitioners 2012 is to provide information on the number and demographic and employment characteristics of the each of the following allied health practitioners:

- psychologists
- pharmacists
- physiotherapists
- occupational therapists
- medical radiation practitioners
- optometrists
- chiropractors
- Chinese medicine practitioners
- podiatrists
- osteopaths
- Aboriginal and Torres Strait Islander health practitioners.

The NHWDS: allied health practitioners 2012 contains registration details of all the registered allied health practitioners in Australia at the extraction date, a month and a half after the nominal renewal date of 30 November 2012.

The NHWDS: allied health practitioners 2012 also contain details from the surveys. The surveys collect information on the employment characteristics, work locations and work activity of practitioners. Completion of the surveys 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.

Due to transition arrangements between pre-existing state/territory-based registration systems and the NRAS, people previously registered as medical radiation practitioners in Queensland, Western Australia and Tasmania or occupational therapists previously registered in Queensland, Western Australia and South Australia may not have been required to renew their registration in 2012 and hence did not receive a survey. Registration data for these people was migrated from pre-existing state-based systems. As a result, the survey data for these professions excludes these jurisdictions as there were very few surveys received.

**Accuracy:****Estimation procedures**

The AIHW uses registration data together with survey data to derive estimates of the total allied health practitioner workforce. Not all practitioners who receive a survey respond, because it is not mandatory to do so. In deriving the estimates, two sources of non-response to the survey are accounted for:

- item non-response—occurs as some respondents return partially completed surveys. Some survey records were so incomplete that it was decided to omit them from the reported survey data.
- survey non-response—occurs because not all registered practitioners who receive a questionnaire respond.

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

**Imputation: estimation for item non-response**

The imputation process involves an initial examination of all information provided by a respondent. If possible, a reasonable assumption is made about any missing

information based on responses to other survey questions. For example, if a respondent provides information on hours worked and the area in which they work, but leaves the workforce question blank, it is reasonable to assume that they were employed.

Missing values remaining after this process are considered for their suitability for further imputation. Suitability is based on the level of non-response to that item. Imputation is usually applied only in cases where the proportion of missing values is less than 5% of the total.

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

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

### **Weighting: estimation for population non-response**

Each survey record (or respondent) is assigned a weight that is calibrated to align with independent data on the population of interest, referred to as 'benchmarks'. In principle, this weight is based on the population number (the benchmark) divided by the number in the responding sample. The resulting fraction becomes the expansion factor applied to the record, referred to as the 'weight', providing an estimate of the population when aggregate output is generated. Therefore, the weight for each record is based on particular characteristics that are known for the whole population.

The total number of registered practitioners in each profession is used to benchmark the survey.

The calculation of weights is usually part of the data processing for a sample survey in which the sample is selected before the survey is done. In the 2012 surveys of allied health practitioners, all renewing registrants were sent a workforce survey questionnaire when registration renewal was due. Therefore, technically, it was a census of practitioners. However, because not all renewing registrants in scope respond to the survey, there is a very large non-response bias in the data. Because the group of respondents in the data set is not random, standard errors are not a suitable means of gauging variability.

The benchmark data, used for weighting are the number of registered practitioners in each state and territory (based on the location of principal practice), by broad registration type ('specialist' (including people with both a general and a specialist registration), 'provisional', 'non-practising' and 'other' (including general and limited registrations)), by age group and by sex within the registration data. For psychologists weighting included an identification of persons with an endorsement of 'clinical psychology', 'clinical neuropsychology' and 'other' (all other psychologists). Because of the low numbers of Aboriginal and Torres Strait Islander health practitioners and the low survey response rate, the state and territory of principal practice was used for weighting was Northern Territory and the remainder. Producing estimates for the profession by weighting the data from respondents adjusts for bias in the responding group of practitioners, but only for known population characteristics (such as age and sex, where provided). If information for a variable is not known for the whole population, the variable cannot be used in the calculation of weights and cannot be used in the adjustment process.

For variables not used in the calculation of weights (for the NHWDS: allied health practitioners 2012, that is all variables other than state and territory of principal practice, broad registration category, age and sex), it is assumed, for estimation purposes, that respondents and non-respondents have the same characteristics. If the assumption is incorrect, and non-respondents are different from respondents, then the estimates will have some bias.

The extent of this cannot be measured without obtaining more detailed information about non-respondents. Therefore, there will be some unquantifiable level of bias in the estimates.

## Survey responses

The response rates for each of the profession surveys are listed in Table 1.

**Table 1: Survey response rates, states and territories, 2011 and 2012**

Practitioner type/Year		NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Psychologist	2011	86.2	82.6	83.8	85.7	85.3	85.5	87.3	81.8	84.7
	2012	88.0	82.0	84.1	83.2	85.1	83.7	83.2	84.9	84.8
Pharmacist	2011	76.6	76.8	79.6	71.9	74.8	80.3	84.2	81.0	77.1
	2012	87.7	87.6	84.5	87.1	85.5	86.3	87.9	79.4	86.8
Physiotherapist	2011	91.5	88.8	90.6	90.7	90.9	95.1	90.0	92.5	90.7
	2012	95.2	90.9	91.2	88.6	90.4	92.6	93.4	95.3	92.0
Occupational therapist <sup>(a)</sup>	2012	83.7	81.9	..	..	..	77.2	81.9	91.9	82.8
Medical radiation practitioner <sup>(a)</sup>	2012	87.5	90.7	..	..	85.0	..	86.9	92.8	88.5
Optometrist	2011	93.2	89.9	93.3	93.3	92.4	95.2	88.6	96.2	92.4
	2012	94.9	94.1	95.9	94.1	95.4	95.2	94.6	93.3	94.9
Chiropractor	2011	90.1	86.4	90.3	87.1	90.7	90.9	92.9	82.6	89.0
	2012	92.1	89.5	91.4	89.4	92.1	89.4	94.9	87.0	90.9
Chinese medicine practitioner <sup>(a)</sup>	2012	80.6	87.0	81.3	76.1	87.1	87.1	67.2	92.3	82.5
Podiatrist	2011	93.8	85.2	88.1	85.0	89.9	85.6	95.7	87.5	88.5
	2012	94.3	91.3	91.7	89.0	90.0	94.5	95.7	100.0	91.9
Osteopath	2011	86.3	83.0	86.9	92.2	89.7	97.3	81.3	66.7	85.1
	2012	91.7	88.7	90.6	86.5	90.9	85.4	87.1	100.0	89.7
Aboriginal and Torres Strait Islander health practitioner <sup>(a)</sup>	2012	37.6	58.3	43.8	39.0	58.3	44.4	25.0	44.7	44.2

(a) There are no 2011 survey response rates as these professions joined the National Registration and Accreditation Scheme in 2012.

Sources: NHMDS: allied health practitioners, 2011 and 2012.

Data are reported on the basis of the most current address at the time the survey was undertaken, unless stated otherwise. The data include employed allied health practitioners who did not state or adequately describe their location as well as employed allied health practitioners who were overseas. Therefore, the national estimates include these groups.

### Coherence:

This is the first time data on medical radiation practitioners, chiropractors, Chinese medicine practitioners, osteopaths and Aboriginal and Torres Strait Islander health practitioners has been produced.

For psychologists, pharmacists, physiotherapists, occupational therapists, optometrists and podiatrists, data has previously been published by the AIHW based on jurisdictional based board registration and survey data. Data in this report collected through the NRAS is not directly comparable with data collected through the jurisdiction-based data collection.

## Data products

Implementation start date: 29/08/2013