

# National Health Workforce Data Set: nurses and midwives 2014: National Health Workforce Data Set, 2014; Data Quality Statement

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# National Health Workforce Data Set: nurses and midwives 2014: National Health Workforce Data Set, 2014; Data Quality Statement

## Identifying and definitional attributes

**Metadata item type:** Data Quality Statement  
**METEOR identifier:** 614419  
**Registration status:** [AIHW Data Quality Statements](#), Standard 04/08/2015

## Data quality

## Data quality statement summary:

### Summary of key issues

The Australian Institute of Health and Welfare (AIHW) National Health Workforce Data Set (NHWDS) 2014: nurses and midwives contains information on the demographics, employment characteristics, primary work location and work activity of nurses and midwives in Australia who renewed their registration via the National Registration and Accreditation Scheme (NRAS) in 2014.

This is the fourth data set published for nurses and midwives from the NRAS. The data set comprises 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 in the web pages <http://www.aihw.gov.au/workforce/nursing-and-midwifery/>.

### Description

The NHWDS 2014: nurses and midwives is a combination of registration and survey data collected through the nurse and midwife registration renewal process.

### Registration data

All nurses and midwives must be registered with AHPRA to practise in Australia. Nurses and midwives are required by law to renew their registration through the NRAS, either online via the AHPRA website or using a paper form provided by 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 2014: nurses and midwives were collected either from the compulsory registration renewal form, from new registrations or from 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/>.

Between 2012 and 2014, there was a drop in midwife registrations, from 35,632 to 33,114. This was due to a drop in dual midwife/nurse registrations. In regards to this trend, the 2013/14 Annual Report: AHPRA and National Boards states 'Many registrants who held dual registration when the National Scheme began have, over time, chosen to renew their registration in one of the professions. This is likely to be related to the requirement in the National Scheme for registrants to meet the registration standards for recency of practice and continuing professional development relevant to each profession when they renew their registration.' (AHPRA 2014, p 84).

### Survey data

When nurses and midwives renew their registration online they are asked to complete an online survey customised for each profession. When nurses and midwives 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/nursing-and-midwifery/additional-material/>.

### Database creation

AHPRA stores both the online registration data and the online survey information in separate databases. They send these two de-identified data sets to the AIHW, where they are merged to form part of the national data set.

The paper registration data and paper survey forms were also received by AHPRA. AHPRA then sent these paper forms to the Commonwealth Department of Health (Health) to be scanned into a data set. Health sent this data set to AIHW for merging with online registration data and data from the online survey forms, and for 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 2014: nurses and midwives.

**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 portfolio.

The AIHW aims to improve the health and wellbeing of Australians through authoritative 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 with non-government organisations to achieve greater adherence to these standards in administrative data collection 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 to disseminate information and statistics.

Compliance with the Australian Institute of Health and Welfare Act 1987 and 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>.

AHPRA is the organisation responsible for the implementation of the NRAS across Australia. 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.

Until its closure in August 2014, Health Workforce Australia was responsible for the development of the workforce surveys. Its functions were transferred then to the Department of Health.

The AIHW receive registration information and voluntary survey data from AHPRA on allied health practitioners via the mandatory national registration process, 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 2014: nurses and midwives.

The AIHW is the data custodian of the NHWDS.

**Timeliness:**

The NHWDS 2014: nurses and midwives is created through the national registration renewal process, which was conducted between 1 April and 31 May 2014. Although the reference time is notionally the renewal date, 31 May 2014, legislation allows for a one month period of grace. Thus, the final registration closure date is one month after the renewal date. AHPRA allows a further two weeks to allow for mail and data entry delays for completeness. Consequently the extraction of data occurs a month and a half after the renewal date ('the extraction date').

The survey data were also collected between 1 April and 30 June 2014, as the survey is administered as part of the registration renewal process.

The data needed joint reviews by AHPRA, the AIHW and Health to manage the range of considerations and data quality issues. This review process improved data quality, data definitions, metadata and data cleansing.

**Accessibility:**

Results from the NHWDS 2014: nurses and midwives are released on the AIHW website as part of a series of workforce web pages. Workforce survey questionnaires and detailed tables are available on the AIHW website at <http://www.aihw.gov.au/workforce/nursing-and-midwifery/additional-material/>.

Users can request data not available online or in reports through the AIHW data request management system ([https://datarequest.aihw.gov.au/\\_layouts/AdHocDataRequest/LodgeRequest.aspx](https://datarequest.aihw.gov.au/_layouts/AdHocDataRequest/LodgeRequest.aspx)) or via the Digital and Media Communications 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.

<b>Interpretability:</b>	<p>Descriptions of data items in the National Health Workforce Data Set 2014: nurses and midwives are available on request from the Expenditure and Workforce Unit at the AIHW.</p> <p>The surveys used by nurses and midwives are available from the AIHW website <a href="http://www.aihw.gov.au/workforce/nursing-and-midwifery/additional-material/">http://www.aihw.gov.au/workforce/nursing-and-midwifery/additional-material/</a>.</p>
<b>Relevance:</b>	<p>The primary purpose of the National Health Workforce Data Set 2014: nurses and midwives is to provide information on the number and the demographic and employment characteristics of nurses and midwives in Australia.</p> <p>The NHWDS 2014: nurses and midwives describes the size and characteristics of the nursing and midwifery workforce in Australia. It is of interest to health agencies involved in workforce planning, and for health policy planning and implementation in general.</p> <p>The location and distribution of the workforce, as well as demographic details such as age and sex of nurses and midwives, are useful for workforce planning within states and territories and nationally. Information on qualifications is relevant for the relevant professional associations and for educational planning.</p>
<b>Accuracy:</b>	<p><b>Survey responses</b></p> <p>The response rate for the Nursing and midwifery survey in 2014 was 93.4%. The response rate for Non-Practicing registrants, of which there were only 4,394, was lower at 73.5%. The response rates remain significantly better than response rates under the pre-2011 system where response rates in 2009 (for example) were only 44.4%.</p> <p>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 nurses and midwives who did not state or adequately describe their location as well as employed nurses and midwives who were overseas. The national estimates include these groups.</p> <p><b>Survey design</b></p> <p>In 2011 the nursing survey was on a separate form to the midwife survey. Respondents that were registered both as midwives and as nurses filled in both survey forms.</p> <p>In 2012, the nursing and midwifery survey design changed. Midwives who were registered as nurses and who responded to the survey filled in a combined Nurses and Midwives version of the survey form for the first time. This form intended to split the hours worked in midwifery from the hours worked in nursing. Many of the respondents, however, appeared to have misinterpreted the intension of the split in hours. This appears to have resulted in an overstatement of total hours for these respondents.</p> <p>In 2014 the total employed nurses and midwives that filled in a survey was 300,979. Of those 25,527 (8.5%) filled in the combined nursing and midwives form. Thus the net impact on total hours for all respondents is minimal. However, care should be taken when comparing total hours worked by midwives.</p> <p><b>Principal role</b></p> <p>In the 2013 version of the survey form, the option to write in a text description for 'Other principal role' was added to the survey form. The AIHW now use this extra information to recode some 'Other' roles to a more appropriate classification. For example, an 'Other' response with an additional free text response of 'ward nurse' is recoded as 'Clinical'.</p> <p><b>Estimation procedures</b></p> <p>The AIHW uses registration data together with survey data to derive estimates of the total nursing and midwifery workforce. Not all nurses and midwives who receive a survey respond, as it is not mandatory. In deriving the estimates, two sources of non-response to the survey are accounted for:</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• survey non-response—occurs because not all registered nurses and midwives who receive a questionnaire respond.</li> </ul> <p>A separate estimation procedure is used for each. Imputation is used to account for both item non-response and survey non-response.</p> <p><b>Imputation: estimation for item non-response</b></p> <p>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.</p>

Missing values remaining after this process are considered for their suitability for further imputation, based on the level of non-response to the corresponding variable. Those deemed suitable include hours worked in the week before the survey and principal role of main job.

In imputation, the known probabilities of particular responses occurring form the basis of a random process that assigns a response category value to each record, so that 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.

#### **Imputation: estimation for survey non-response**

In 2014, the methodology used for survey non-response is a randomised sequential hot deck-based imputation.

The data are sorted into strata so that imputations will be made using survey data from records that have similar registration details. The strata used for imputation are profession (nursing division/midwifery registration), registration type, sex, age group, remoteness area and state, in that order.

Donor records are spaced evenly within strata to ensure that records are used within the strata an equal number of times (plus or minus one) and that most strata within the hot deck will be restricted to within-strata imputations. For example, if there are 5 respondents and 12 non respondents in a cell the expected number of uses would be 2.4, resulting in each donor being used either 2 or 3 times. This is almost equivalent to a weighting strategy except that instead of all the data being weighted, only the non-registration data are weighted.

For variables not used in the imputation (for the NHWDS 2014: nurses and midwives, that is all variables other than the registration type, division/midwifery category, remoteness area, state or territory of principal practice, 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.

#### **Coherence:**

Data collected for NHWDS 2014: nurses and midwives are similar to 2013 data for most variables as the survey structures were largely comparable. Material differences include the following:

The 2013 question asking for the number of clinical hours worked in a regional, rural or remote location in the last month has been replaced with a question asking for the average number of days instead. The respondent may choose to give this as the average per week, fortnight, month, quarter, or year.

In 2014, respondents not working in nursing and/or midwifery now have a free text field for the description of her or his occupation, if she or he has indicated employment outside of the registered profession.

There is also a new question which asks for the number of hours worked particularly in cancer nursing in the past week.

Due to the differences in data collection methods, including differences in the design of surveys and questionnaires, it is recommended that comparisons between workforce data in the NHWDS: nurses and midwives 2011 to 2014 and previous AIHW Nursing and Midwifery Labour Force Survey data be made with caution.

## **Data products**

**Implementation start date:** 04/08/2015

## **Relational attributes**

**Related metadata references:**

Supersedes [National Health Workforce Data Set: nurses and midwives 2013: National Health Workforce Data Set, 2013: Data Quality Statement](#)  
[AIHW Data Quality Statements](#), Standard 09/09/2014

Has been superseded by [National Health Workforce Data Set: Nurses and Midwives 2015: National Health Workforce Data Set, 2015: Quality Statement](#)  
[AIHW Data Quality Statements](#), Standard 08/07/2016