

# **National Health Workforce Data Set: medical practitioners 2012: National Health Workforce Data Set, 2012; Data Quality Statement**

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

## Identifying and definitional attributes

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<b>METEOR identifier:</b>	558851
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## Data quality

<b>Data quality statement summary:</b>	Summary of key issues
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The National Health Workforce Data Set (NHWDS): medical practitioners 2012 contains information on the demographics, employment characteristics, primary work location and work activity of all medical practitioners in Australia who renewed their medical registration with the Medical Board of Australia via the National Registration and Accreditation Scheme (NRAS) introduced on 1 July 2010.

This is the third publication on medical practitioners from the new national registration scheme. The data set comprises registration (including demographic) information provided by the Australian Health Practitioner Regulation Agency (AHPRA) and workforce details obtained by the Medical Workforce Survey. The survey instrument varies significantly in some aspects from previous years, but is now nationally consistent. The NHWDS: medical practitioners 2012 is also more complete than the NHWDS: medical practitioners 2010.

The major issues with data quality for the NHWDS: medical practitioners 2012 include:

- The data are not directly comparable to those collected in the previous (2009 and earlier) AIHW Medical Labour Force Surveys due to changes in methods and scope, including the change in the method of determining the state of practitioners' main job in medicine.
- The registration data previously published in Medical workforce 2010, were found to be under-enumerated, so comparisons should be made with caution. The NHWDS: medical practitioners 2010 data have been revised and included in this publication.
- The classification of specialist providers used for data previously published in Medical workforce 2011, have been updated for this publication, so comparisons should be made with caution. The NHWDS: medical practitioners 2011 data have been revised and included in this publication.
- Methodological changes, and in particular the inclusion of registration type and an updated specialty classification, mean that some estimates may be affected by changes to the methodology between the NHWDS: medical practitioners 2011 derivation and the NHWDS: medical practitioners 2012 derivation.
- The NHWDS: medical practitioners 2010 did not include Queensland and Western Australia for tables related to employed practitioners, so comparisons involving 2010 data should be made with caution. Queensland and Western Australian employed practitioners were excluded from the data due to non-alignment of renewal cycles in the transition to the National Scheme, and for Western Australia, the later date of commencement of the National Scheme.

### Description

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

Medical practitioners are required to renew their registration with the Medical Board of Australia through the NRAS, either online via the AHPRA website or using

a paper form provided by AHPRA. For initial registration, medical practitioners must use a paper form and provide supplementary supporting documentation. Limited and provisional registration renewals are done using paper forms. This information is referred to as 'registration data'. The majority of medical practitioners are due to renew their registrations on 30 September each year. Limited and provisional registration renewals occur on an anniversary basis. This is the anniversary of when the individual practitioner last registered/renewed. Apart from limited and provisional registrations, medical practitioners can renew their registration either online via the AHPRA website or by using a paper form provided by the AHPRA. Data collected at renewal include demographic information such as age, sex and country of birth; and details of health qualification(s) and registration status (see <http://www.medicalboard.gov.au/Registration/Types.aspx>) and select link to Registration type and then Registration form).

#### Online surveys

When medical practitioners renew their registration online they are also asked to complete an online version of the Medical Workforce Survey questionnaire. The questionnaire collects information on the employment characteristics, work locations and work activity of medical practitioners (see <http://www.aihw.gov.au/workforce-publications/>) and select link to Medical workforce 2012). Limited and provisional registrants—excluding 'limited (public interest - occasional practice)—receive only paper surveys. AHPRA stores both the online registration data and the survey information in separate databases. They then send these two data sets to AIHW, where they are merged into a de-identified national data set.

#### Paper-form surveys

When medical practitioners renew their registration on a paper form they are also asked to complete a paper version of the Medical Workforce Survey questionnaire. The paper registration and survey forms are sent back to AHPRA, where the paper registration forms are scanned and merged with the data obtained from the online process. AHPRA sends the paper survey forms to Health Workforce Australia (HWA) to be scanned into a data set. HWA then 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: medical practitioners, containing information sourced from registration data and workforce survey data.

**Institutional environment:** The Australian Institute of Health and Welfare (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 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 datasets based on data from each jurisdiction, to analyse these data sets and to disseminate information and statistics.

The Australian Institute of Health and Welfare Act 1987, in conjunction with compliance to the Privacy Act 1988 (Cth), 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 AIHW receives registration (including demographic) information on medical practitioners via the mandatory national registration process administered by AHPRA and the voluntary Medical Workforce Survey data collected at the time of registration renewal. The registration and workforce survey data are combined, cleansed and adjusted for non-response to form a national data set known as NHWDS: medical practitioners 2012. AIHW is the data custodian of the NHWDS: medical practitioners 2012.

**Timeliness:** The NHWDS: medical practitioners is produced annually from the national registration renewal process, conducted from early August to 30 September each year.

The Medical Workforce Survey will also be collected between 1 July and 30 September, 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 registrants are renewed on the anniversary of their commencement. These responses are included with the regular survey respondents.

Due to significant delays with finalisation of data extraction from the new national registration system, complete and final data were provided to AIHW much later than originally scheduled. Initial data provided needed joint reviews by AHPRA, AIHW and HWA to manage the range of considerations and data quality issues described in this publication. This review process improved data quality, data definitions, metadata and data cleansing and led to improvements in AHPRA's extracting scripts to provide consistency in data exchange specifications. While it delayed the supply of data, it improved the overall quality. AIHW expected to receive both the registration and workforce survey data simultaneously at the end of December 2012. Due to the factors above, the AIHW received complete useable registration and workforce survey data from AHPRA in July 2013. AHPRA have indicated that future data provision is anticipated to be timely and provided six weeks from the close of registration on 30 September. A last-minute delay by HWA in reprocessing paper form data after problems were found also contributed to delaying this publication.

Delays in processing and reporting on the earlier NHWDS: medical practitioners 2010 and 2011, NHWDS: allied health 2011 and 2012 and NHWDS: nurses and midwives 2011, also contributed to AIHW delays in reporting the 2012 data and releasing the Medical Practitioner Workforce 2012 report.

**Accessibility:** Results from the NHWDS: medical practitioners 2012 are published in the Medical workforce 2012 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 Medical workforce 2012).

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](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 file may be requested through the AIHW Ethics Committee.

**Interpretability:** Information to aid in the interpretation of the NHWDS: medical practitioners 2012 may be found in Appendix A of the Medical Workforce 2012 report. The report is based on this data set. See 'Accessibility' for details.

**Relevance:** Scope and coverage

The NHWDS: medical practitioners 2012 contains registration details of all registered medical practitioners in Australia at 30 September 2012.

Medical practitioners are required by law to be registered with the Medical Board of Australia and must complete the formal registration renewal form(s) to practise in Australia. This is the compulsory component of the renewal process.

The Medical 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: medical practitioners 2012 contains registration details of all registered medical practitioners in Australia at 30 September 2012.

The data set also contains workforce information for registered medical practitioners who completed the Medical Workforce Survey. The overall response rate to the 2012 survey was 90.1%. That is, the number of responses to the survey represented 90.1% of registered medical practitioners. Of these responses, 88.7% completed the 2012 version of the survey online, 0.04% completed the 2011 version of the survey online, 10.5% completed the 2012 version of the survey on paper and 0.8% completed the 2011 version of the survey on paper.

Registration data from the NRAS

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

There were a number of data items which had incomplete responses. This included small numbers of responses to questions on sex and state and territory of principal practice, which are items used in the survey estimation process. Missing values were imputed for the question about the practitioner's sex. Many medical practitioners who are overseas could not be identified by the registration process and they have been included with practitioners whose state or territory of principal practice could not be determined. Therefore, the missing values cannot be imputed, which affects the weighting method.

The NRAS allows a medical practitioner to record more than one specialty, with up to seven specialties recorded in 2012. However, the National Law does not require or enable practitioners to identify their primary specialty. In 2012 this was addressed by the addition of a survey question that allowed practitioners to identify a main sub-specialty of practice. However there were a number of issues with respondents making apparent errors in reporting their specialties on the survey form, multiple responses being allowed to the question and the allocation of primary specialties for non-respondents. To address these issues AIHW have allocated a primary specialty based on the survey responses and the recorded set of

specialties held by each medical practitioner.

Some data items such as citizenship and residency status contain only migrated data and, because they are not required for registration purposes, may not be updated.

For a large number of practitioners, country of birth and country of initial qualification data could not be mapped to the Standard Australian Classification of Countries (SACC). These records were coded to 'not stated' or inadequately described. Work continues in the significant task of re-processing qualifications data to provide more structured information. For example, current records may have 'MBBS USyd.' as the practitioner's qualification, with fields for qualifying institution and qualifying country left blank. Similarly, qualifications are not currently categorised as to which are relevant to the profession, so, for example, practitioners registered as both 'physiotherapists' and 'medical practitioners' will have both sets of qualifications on the database, with no structured way to extract date of first qualification or country of first qualification for the registration in question. In 2012 this was addressed by the addition of a survey question that allowed practitioners to identify a country of first medical qualification and a country of first specialist qualification. This report includes data from the responses to these survey questions.

A small number of invalid values and formats for date of birth and year of initial qualification appeared in the registration data collected by the NRAS (for example, system-generated dates such as 1 January 1900).

#### Workforce Survey 2012 sample

All registered medical 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 2012 design

In 2012, 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 workforce status or not assigned a status, due to incomplete data.

The order of the response categories for the 'reason not working in medicine in Australia' question appears to be an issue. The question offers the response option '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 response option 'retired from regular work' should appear before 'not working in paid employment at all'. The issue with the order in the 2012 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, 'state of main job' included the category 'other territories' on the paper form while the same response category in the online form was simply 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 do not include the categories 'other territories' or 'other'.

#### 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.

In the survey, a number of medical practitioners self-reported the principal area in their main job as 'specialist' but had no accredited specialty in their registration details or were accredited as general practitioners only. A number of these practitioners were found upon closer inspection to have overseas specialist qualifications with limited registration status and also to have answered 'specialist-in-training' questions. Under the National Law, specialist registration is available

only to medical practitioners who have been assessed by an Australian Medical Council accredited specialist college as being eligible for fellowship. Fellowship is not a pre-requisite for specialist registration. The Ministerial Council has approved a list of specialties, fields of specialty practice and specialist titles.

The 'location of principal practice' recorded in the registration data was often different from the corresponding details of practitioners' main job as self-reported in the survey. Given that 14.4% more medical practitioners have the Northern Territory as their state of main job in the week before the survey than have it as their principal practice location on the AHPRA database, this probably reflects temporary movement.

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/territory of main job is used in all tables except where otherwise stated. As a consequence of this methodology, medical practitioners who were working overseas but maintained an Australian contact address have been allocated in state tables to the state where that contact address was, though the majority of them remained classified as 'overseas'.

For generating weights, the principal state was derived using principal practice location, residential address and main job location, in that order.

#### Structure and format of data items

Due to unstructured data entry formats, a number of items in the NHWDS: medical practitioners 2012 which 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, such as text strings and overseas postal identifiers. Conversely, 'suburb of main job' information often contained invalid suburb names, 4-digit codes resembling postcodes and even complete street addresses. These issues are complicated where people reported inconsistent combinations of working in particular Australian states, postcodes similar to Australian postcodes, and suburbs that were clearly not in Australia—for example, in Auckland, New Zealand. Where state and postcode information did not agree, the suburb was used to look up a postcode and this was used to decide which of the two were more likely to be correct. Overseas locations had their postcode manually set to 9998 for statistical purposes.

#### Coherence:

Workforce Survey 2012—coherence with previous data

AIHW published Medical workforce 2010 on 28 March 2012, which was the first release of data derived from the new NRAS. Medical workforce 2011 was published on 23 January 2013.

Previously published data for 2011 and 2010 included provisional registrants in the benchmarks as they were not separately weighted or identified in analysis. As a result, growth between 2011 and 2012 is understated by the order of 3.6%. There were very few other changes between the Medical Workforce Survey data for 2011 and 2012 so data are considered comparable.

There were many issues with the 2010 survey data, especially multiple supplies and revisions to the scope of data as well as the lack of data from Queensland and Western Australia. Queensland and Western Australia were consequently removed from the workforce tables in the 2010 publication.

Due to the above issues, this publication makes only minimal comparisons between the 2010 and later data.

Medical labour force data published by the AIHW before the establishment of the NRAS was the result of collated jurisdiction-level occupation-specific surveys. The Medical Workforce Survey from 2010 to 2012, collect similar data items to the 2009 and earlier surveys; 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 Medical Workforce Surveys from 2010 to 2012 are

also different to that of the previous surveys because in some jurisdictions not all types of registered medical practitioners were sent a survey form.

Date of birth, country of initial qualification, specialty of practice and sex are some data items previously collected by the AIHW Medical 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, from 2010 to 2012, was extracted at the time of registration renewal by the NRAS from their database of legally recognised specialties. Before 2010, main specialty of practice information was self-reported from a set of statistical categories by registered medical practitioners in the AIHW Medical Labour Force Survey.

However, the NRAS does not identify main specialty. There have also been significant changes in the classification of categories of specialty of practice used in the NHWDS: medical practitioners from 2010 to 2012 compared with that used in the previous AIHW Medical Labour Force Survey reports. There are 84 valid legally-defined specialties and subspecialties in the NHWDS: medical practitioners, (for example: 'cardiologist (physician)' and 'general practice'), while there were over 50 specialties published in the previous AIHW Medical Labour Force Survey reports.

A new question was included in the 2012 survey to allow a primary specialty to be derived at the detailed level. Primary specialties in the 2010 and 2011 were derived using their recorded specialties and information from the AIHW Medical Labour Force Survey 2009.

Thus, comparison of 2012 specialty data with results from earlier surveys should be treated with caution.

Some jurisdictions collected temporary resident status but temporary resident status was not collected on a national basis before 2010 in the AIHW Medical Labour Force Survey. Visa category number was not collected in prior years.

The three employment-related questions in the Medical Workforce Survey 2010 to 2012 questionnaire are nationally consistent. This is an improvement on the previous AIHW Medical Labour Force Survey where the questionnaire varied across jurisdictions, including the questions and definitions of data items collected. However, the redesigned question on working status no longer includes in its explanation of 'working in medicine' a description of work activity/hours; that is 'worked for a total of one hour or more last week in a job or business (including own business) for pay, commission, payment in kind or profit; or hours usually worked but away from work on leave, or rostered off last week'. Inclusion of this additional explanation may have avoided confusion for medical practitioners who worked in medicine during the survey reference week but in a voluntary capacity.

A change in the response options for the question about 'principal area of main job in medicine', from 'GP/primary care practitioner' before 2010 to 'general practitioner' may have impacts on the comparability of these responses over time, and time-series data should be used with caution. This may have led to the observed increase in responses in the 'other clinician' category.

In 2011 the online question about 'principal area of main job in medicine' included the term 'hospital non-specialist (salaried)' as a response category while the paper form included the term 'hospital non-specialist'. In 2012 only the term 'hospital non-specialist' was used on both forms. This may also have led to the observed increase in responses in the 'other clinician' category in 2011.

Work setting response categories in the current survey are similar to those before 2010. The current categories are more detailed and directed towards service provision; for example, there are three categories of private practice ('solo', 'group' and 'locum') compared with only one available before 2010. While in 2010 and 2011 the survey form provided a distinction between 'outpatient' and 'other hospital' settings, the 2012 question includes only 'hospital' as a response category. In 2012, further information on hospital work settings was collected as part of the sector question where a more detailed split was included.

Response options for the 'hours worked by sector' question were restricted in 2012 to clinical hours only, whereas the equivalent question in 2011 was a split by total



hours. The 2012 version of the question was also expanded to include categories for clinical hours worked in 'private rooms', 'private hospital', 'private other', 'public hospital (inpatients)', 'public hospital (outpatients)' and 'public other'.

'Number of years worked in medicine in Australia' was not collected by the AIHW Medical Labour Force Survey on a national basis before 2010. A small number of jurisdictions collected this information previously as part of their survey questionnaires, but it is now included for all respondents.

Due to the differences in data collection methods, including survey design and questionnaire, it is recommended that comparisons between workforce data in the NHWDS: medical practitioners 2012 and AIHW Labour Force Survey data before 2010 be made with caution.

## Source and reference attributes

**Submitting organisation:** Australian Institute of Health and Welfare

**Steward:** [Australian Institute of Health and Welfare](#)