National Health Workforce Data Set: medical practitioners 2011: National Health Workforce Data Set, 2011; Data Quality Statement

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Identifying and definitional attributes

Metadata item type: Data Quality Statement

METEOR identifier: 510913

Registration status: AIHW Data Quality Statements, Standard 24/01/2013

Data quality

Data quality statement summary:

Summary of key issues

The National Health Workforce Data Set (NHWDS): medical practitioners 2011 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 second 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 areas from previous years, but is now nationally consistent. The NHWDS: medical practitioner 2011 is also more complete than the NHWDS: medical practitioner 2010.

The major issues with data quality for the NHWDS: medical practitioner 2011 include:

- The data are not directly comparable to those collected in the previous 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 the *Medical workforce 2010* publication, were found to be under-enumerated, so comparisons should be made with caution. The NHWDS: medical practitioner 2010 data have been revised and included in this publication.
- The NHWDS: medical practitioner 2010 did not include Queensland and Western Australia for tables related to employed practitioners, so comparisons between years should be made with caution. These groups were excluded from the data due to non-alignment of renewal cycle in the transition to the National Scheme, and for Western Australia, the later date of commencement of the National Scheme.

Description

The NHWDS: medical practitioner 2011 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.

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 an individual practitioner anniversary of when the 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. 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'. Data collected include demographic information such as age, sex, country of birth; and details of health qualification(s) and registration status (see http://www.medicalboard.gov.au/Registration/Types.aspx, select link to *Registration type* then *Registration form*).

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/ (select link to Medical *workforce 2011*)). 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.

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 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 datasets 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 (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. AIHW is the data custodian of the NHWDS: medical practitioners.

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 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 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 the *Medical 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. AIHW expected to receive both the registration and workforce survey data simultaneously at the end of December 2011. 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 September.

Delays in processing and reporting on the earlier NHWDS: medical practitioners 2010 and NHWDS: nurses and midwives 2011 also contributed to AIHW delays in reporting the 2011 data and releasing the *Medical workforce 2011* report.

Accessibility:

Results from the NHWDS: medical practitioners 2011 are published in the *Medical 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 *Medical 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: medical practitioners 2011 may be found in Appendix A of the Medical Workforce 2011 report. The report is based on this data set. See 'Accessibility' for details.

Relevance:

Scope and coverage

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

edical 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 2011 contains registration details of all registered medical practitioners in Australia at 30 September 2011.

The data set also contains workforce information for registered medical practitioners who completed the Medical Workforce Survey. The overall response rate to the 2011 survey was 85.3%. That is, the number of responses to the survey represented 85.3% of registered medical practitioners. Of these responses, 84.7% completed the survey online and 15.3% used the paper form.

Response rates for 2011 are not directly comparable with prior years because the previous jurisdiction-based data collection used to collect information on the workforce characteristics of medical 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 as part of the previous AIHW Medical 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 are incomplete due to the data being migrated from previous jurisdictional registration systems.
There were a number of data items which had higher rates of incomplete responses. This included 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. Many medical practitioners who reside 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 had unexpected categories, for example registration type of ‘General (Teaching and Assessing)’.

The NRAS allows a medical practitioner to record more than one specialty, with up to seven specialties recorded in 2011. However, the National Law does not require or enable practitioners to identify their primary speciality. The non-identification of a specialist's main sub-specialty of practice also means headcounts are not possible. To address this issue, AIHW, in cooperation with HWA, have allocated a primary specialty based on the recorded set of primary 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 had responses that could not be mapped to the Standard Australian Classification of Countries (SACC). These records were coded to not stated or inadequately described.
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 dates such as 1 January 1900.

Workforce Survey 2011 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 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 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 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 do not include the category 'Other territories' or 'Other'.

In 2011, the online Medical Workforce Survey did not ask practitioners to answer whether or not they are a temporary resident, but only to enter their visa category number if they self-identify as a temporary resident. However, the paper form asks practitioners to check 'Yes' or 'No' to the temporary resident question and, depending on the response, either answer or skip the visa category question. The temporary resident status data item is incomplete.

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.

There were many records where the response to the survey question regarding temporary residency visa was inconsistent with migrated registration data from state and territory medical boards/councils for citizenship and residency status (which themselves were occasionally inconsistent).

In the survey, a number of medical practitioners self-reported the principal area in their main job to be specialist but had no accredited specialty in their registration details or were accredited as general practitioners only. Under the National Law, specialist registration is available 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.

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. Given that 16.9% 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 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: medical practitioners 2011 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, overseas postal identifiers. Conversely, suburb of main job information 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 2011 – 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.

At this time, it was known and reported that there were issues with the 2010 survey data, especially the lack of data from Queensland and Western Australia. Queensland and Western Australia were subsequently removed from the workforce tables in the 2010 publication, thus comparisons with the 2011 data should be undertaken with caution.

Once the 2011 medical data were supplied, it became apparent that there were large differences between the 2010 and 2011 numbers of registered medical practitioners. When further investigated, this was found to be caused by differences in the way these data were stored and extracted from the AHPRA databases. As a result, the medical data were re-extracted and supplied in October 2012 for both 2010 and 2011 using the same methods.

This revealed an undercount in the originally published 2010 registration data, which was difficult to detect because the 2010 data appeared coherent with previously reported figures, particularly 2009 figures, from the AIHW Labour Force Surveys.

Due to the above issues, this publication makes only minimal comparisons between the 2010 and 2011 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 current survey, Medical Workforce Survey 2010 and 2011 collect 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 Medical Workforce Survey 2011 is 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, in 2011, 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.

owever, 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 2011 compared with that used in the previous AIHW Medical Labour Force Survey reports. There are 23 valid legally defined specialties in the NHWDS: medical practitioners 2011 (for example, physician, surgery), while there were over 50 detailed specialties published in the previous AIHW Medical Labour Force Survey reports. Thus, comparison of 2011 specialty data with results from AIHW Medical Labour Force Survey should be treated with caution.

Each medical practitioner may have more than one specialty. The data collected by

the NRAS do not identify the primary specialty and therefore a headcount of specialists by specialty of practice is not possible. To overcome this problem, the primary specialty of specialists has been derived using their recorded specialties and information from the AIHW Medical Labour Force Survey 2009.
Temporary resident status was not collected on a national basis before 2010 in the AIHW Medical Labour Force Survey. Some jurisdictions collected temporary resident status. Visa category number was not collected in prior years.

The three employment-related questions in the Medical Workforce Survey 2011 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 the 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 in the question about principal area of main job in medicine from 'GP/primary care practitioner' before 2010 to 'General practitioner (GP)' 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.
Work setting response categories in 2011 are similar to those before 2010. The 2011 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.
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 questionnaire, 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 2011 and AIHW Labour Force Survey data before 2010 be made with caution.

Workforce Survey 2011—coherence with other data sources

The ABS Census of Population and Housing, conducted every 5 years, is the other main source of data on medical practitioner numbers in Australia. The Census is self-enumerated by respondents and therefore the numbers of people who report their occupation as medical practitioners is not easily comparable with numbers from the NRAS or estimates from the Medical Workforce Survey. The results of the 2011 Census include data on occupations classified using the Australian and New Zealand Standard Classification of Occupations revision 1 (ANZSCO) (ABS 2009). Occupation data are collected for the main job held during the week before Census night.
The ANZSCO definition of Medical practitioners effectively excludes non-clinicians. In 2011 there were 70,229 medical practitioners who self-identified in the 2011 Census of Population and Housing (ABS 2012b). There were 73,980 employed clinicians in the NHWDS: medical practitioners 2011. This is consistent with the differences found the between 2006 census and the earlier AIHW survey.

According to Medicare claims systems 27,639 medical practitioners provided General practice services claimed for on Medicare during to 2010–11 financial year, equivalent to 20,226 full time working equivalents (DoHA 2012a). In the NHWDS: medical practitioners 2011 there were 25,056 general practitioners working on average 39.1 hours in the week before the survey (Table 3.2). There are a number of possible reasons for this difference. Not all activities being undertaken by general practitioners are Medicare billable. In addition, some salaried specialists may be responsible for a small number of general practitioner-type claims on Medicare and no specialist items resulting in them being classed as general practitioners under that system. Thus comparisons between Medicare and NHWDS: medical practitioners data should be made with caution.

Source and reference attributes

Submitting organisation: Australian Institute of Health and Welfare

Steward: Australian Institute of Health and Welfare