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## Data quality information — Public hospitals, chapter 10

### Data quality information

Data quality information (DQI) has been prepared for the first time for the 2011 Report on Government Services. DQI provides information against the seven ABS data quality framework dimensions, for a selection of performance indicators in the Public hospitals chapter. DQI for additional indicators will be progressively introduced in future reports.

Where RoGS indicators align with National Agreement indicators, DQI has been sourced from the Steering Committee's reports on National Agreements to the COAG Reform Council.

Technical DQI has been supplied or agreed by relevant data providers. Additional Steering Committee commentary does not necessarily reflect the views of data providers.

DQI are available for the following performance indicators:

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## Unplanned/unexpected readmissions within 28 days of selected surgical admissions

Data quality information for this indicator has been sourced from the Steering Committee's report to the COAG Reform Council on the National Healthcare Agreement (data supplied by the AIHW) with additional Steering Committee comments.

### **Indicator definition and description**

<b>Element</b>	Effectiveness — quality/safety
<b>Indicator</b>	Unplanned/unexpected readmissions within 28 days of selected surgical admissions
<b>Measure (computation)</b>	<p><i>Numerator:</i> the number of separations for public hospitals which meet all of the following criteria:</p> <ul style="list-style-type: none"><li>• The separation is a readmission to the same hospital following a separation in which one of the following procedures was performed: knee replacement; hip replacement; tonsillectomy and adenoidectomy; hysterectomy; prostatectomy; cataract surgery; appendectomy</li><li>• The readmission occurs within 28 days of the previous date of separation</li><li>• The principal diagnosis for the readmission is a post-operative complication.</li></ul> <p><i>Denominator:</i> the number of separations in which one of the following surgical procedures was undertaken: knee replacement; hip replacement; tonsillectomy and adenoidectomy; hysterectomy; prostatectomy; cataract surgery; appendectomy.</p>
<b>Data source/s</b>	<p>For all jurisdictions except WA, this indicator is calculated by AIHW using data from the NHMD, based on the National Minimum Data Set for Admitted Patient Care.</p> <p>For WA, the indicator was calculated and supplied by WA Health and was not independently verified by the AIHW.</p>

### **Data Quality Framework Dimensions**

<b>Institutional environment</b>	<p>The Australian Institute of Health and Welfare (AIHW) has calculated this indicator.</p> <p>The Institute is an independent statutory authority within the Health and Ageing portfolio, which is accountable to the Parliament of Australia through the Minister. For further information see the AIHW website.</p> <p>The data were supplied to the Institute by State and Territory health authorities. The State and Territory health authorities received these data from public and private hospitals. States and territories use these data for service planning, monitoring and internal and public reporting. Hospitals may be required to provide data to states and territories through a variety of administrative arrangements, contractual requirements or legislation.</p> <p>States and territories supplied these data under the terms of the National Health Information Agreement (see link).</p> <p><a href="http://www.aihw.gov.au/committees/simc/final_nhia_signed.doc">http://www.aihw.gov.au/committees/simc/final_nhia_signed.doc</a></p>
<b>Relevance</b>	<p>The purpose of the NMDS for Admitted patient care is to collect information about care provided to admitted patients in Australian hospitals. The scope of the NMDS is episodes of care for admitted patients in all public and private acute and psychiatric hospitals, free-standing day hospital facilities and alcohol and drug treatment centres in Australia. Hospitals operated by the Australian Defence Force,</p>

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**Timeliness**  
**Accuracy**

corrections authorities and in Australia's off-shore territories are not included. Hospitals specialising in dental, ophthalmic aids and other specialised acute medical or surgical care are included.

The hospital separations data do not include episodes of non-admitted patient care provided in outpatient clinics or emergency departments.

Remoteness and socioeconomic status are based on the reported area of usual residence of the patient. The SEIFA categories for socioeconomic status represent approximately the same proportion of the national population, but do not necessarily represent that proportion of the population in each state or territory (each SEIFA decile or quintile represents 10 per cent and 20 per cent respectively of the national population).

Separations are reported by jurisdiction of hospitalisation, regardless of the jurisdiction of usual residence.

The unplanned and/or unexpected readmissions counted in the computation for this indicator have been limited to those having a principal diagnosis of a post-operative adverse event for which a specified ICD-10-AM diagnosis code has been assigned. Unplanned and/or unexpected readmissions attributable to other causes have not been included.

The calculation of the indicator is limited to public hospitals and to readmissions to the same hospital.

The reference period for this data set is 2008-09.

For 2008-09, almost all public hospitals provided data for the NHMD, with the exception of a mothercraft hospital in the ACT. The great majority of private hospitals also provided data, the exceptions being the private day hospital facilities in the ACT, the single private free-standing day hospital facility in the NT, and two private hospitals in Tasmania.

States and territories are primarily responsible for the quality of the data they provide. However, the AIHW undertakes extensive validations on receipt of data. Data are checked for valid values, logical consistency and historical consistency. Where possible, data in individual data sets are checked with data from other data sets. Potential errors are queried with jurisdictions, and corrections and resubmissions may be made in response to these edit queries. The AIHW does not adjust data to account for possible data errors.

The Indigenous status data are of sufficient quality for statistical reporting purposes for the following jurisdictions: NSW, Vic, Qld, SA, WA, NT (NT public hospitals only). National totals include these six jurisdictions only. Indigenous status data are reported for Tasmania and ACT with caveats until further audits of the quality of data in these jurisdictions are completed.

For this indicator, the linkage of separations records is based on the patient identifiers which are reported for public hospitals. As a consequence, only readmissions to the same public hospital are in scope; and readmissions to different public hospitals and readmissions involving private hospitals are not included.

For WA, the indicator was calculated and supplied by WA Health.

To calculate this indicator, the readmissions needed to be reported in the 2008-09 financial year. This led to the specification of 19 May as the cut-off date for the initial separations. This cut-off date ensures that about 98 per cent of all eligible readmissions will be reported in 2008-09.

Data on procedures are recorded uniformly using the Australian Classification of Health Interventions. Data on diagnoses are recorded uniformly using the ICD-10-AM.

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	Cells have been suppressed to protect confidentiality (where the presentation could identify a patient or a single service provider) or where rates are likely to be highly volatile (for example, the denominator is very small).
<b>Coherence</b>	The information presented for this indicator is calculated using the same methodology as data published in <i>Australian hospital statistics 2008-09</i> and the <i>National healthcare agreement: baseline performance report 2008-09</i> .
<b>Accessibility</b>	<p>The data can be meaningfully compared across reference periods.</p> <p>The AIHW provides a variety of products that draw upon the National Hospital Morbidity Database. Published products available on the AIHW website are:</p> <ul style="list-style-type: none"> <li>• <i>Australian hospital statistics</i> with associated Excel tables.</li> <li>• Interactive data cubes for Admitted patient care (for Principal diagnoses, Procedures and Diagnosis Related Groups).</li> </ul> <p>Data are also included on the MyHospitals website.</p>
<b>Interpretability</b>	Supporting information on the quality and use of the National Hospital Morbidity Database are published annually in <i>Australian hospital statistics</i> (technical appendixes), available in hard copy or on the AIHW website. Readers are advised to read caveat information to ensure appropriate interpretation of the performance indicator. Supporting information includes discussion of coverage, completeness of coding, the quality of Indigenous data, and variation in service delivery that might affect interpretation of the published data. Metadata information for the NMDS for Admitted patient care are published in the AIHW's online metadata repository — METeOR, and the National health data dictionary.

### **Data Gaps/Issues Analysis**

#### **Key data gaps/issues**

The Steering Committee notes the following issues:

The indicator is an underestimate of all possible unplanned/unexpected readmissions because:

- it could only be calculated for public hospitals and for readmissions to the same hospital.
- episodes of non-admitted patient care provided in outpatient clinics or emergency departments which may have been related to a previous admission are not included.
- the unplanned and/or unexpected readmissions are limited to those having a principal diagnosis of a post-operative adverse event for which a specified ICD-10-AM diagnosis code has been assigned. This does not include all possible unplanned/unexpected readmissions.

Calculation of the indicator for WA was not possible using data from the NHMD. Data for WA were supplied by WA Health and Australian rates and numbers do not include WA.

Variations in admission practices and policies lead to variation among providers in the number of admissions for some conditions.

The interpretation of rates for jurisdictions should take into consideration cross border flows, particularly in the ACT.

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## Healthcare-associated *Staphylococcus aureus* (including MRSA) bacteraemia in acute care hospitals

Data quality information for this indicator has been sourced from the Steering Committee's report to the COAG Reform Council on the National Healthcare Agreement (data supplied by the AIHW) with additional Steering Committee comments.

### Indicator definition and description

<b>Element</b>	Effectiveness — quality/safety
<b>Indicator</b>	Healthcare-associated <i>Staphylococcus aureus</i> (including MRSA) bacteraemia in acute care hospitals
<b>Measure (computation)</b>	<p>SAB patient episodes (as defined below) associated with acute care public hospitals.</p> <p>Patient episodes associated with care provided by private hospitals and non-hospital healthcare are excluded.</p> <p>The definition of an acute public hospital is 'all public hospitals including those hospitals defined as public psychiatric hospitals in the Public Hospital Establishments NMDS'.</p> <p>A patient episode of SAB is defined as a positive blood culture for <i>Staphylococcus aureus</i>. For surveillance purposes, only the first isolate per patient is counted, unless at least 14 days has passed without a positive blood culture, after which an additional episode is recorded.</p> <p><u>For all jurisdictions except New South Wales:</u></p> <p>A <i>Staphylococcus aureus</i> bacteraemia will be considered to be healthcare-associated if: the first positive blood culture is collected more than 48 hours after hospital admission or less than 48 hours after discharge, OR, if the first positive blood culture is collected 48 hours or less after admission and one or more of the following key clinical criteria was met for the patient-episode of SAB:</p> <ol style="list-style-type: none"><li>1. SAB is a complication of the presence of an indwelling medical device (eg intravascular line, haemodialysis vascular access, CSF shunt, urinary catheter)</li><li>2. SAB occurs within 30 days of a surgical procedure where the SAB is related to the surgical site</li><li>3. An invasive instrumentation or incision related to the SAB was performed within 48 hours</li><li>4. SAB is associated with neutropenia (<math>&lt;1 \times 10^9</math>) contributed to by cytotoxic therapy</li></ol> <p>This definition of a patient episode of SAB was agreed by all states and territories in September 2009 and used by all states and territories except for New South Wales for reporting for the 2009-10 year.</p> <p><u>For New South Wales:</u></p> <p>Included are only those determined to be acquired during hospitalisation; that is an event detected more than 48 hours after hospital admission and/or within 48 hours of hospital discharge.</p> <p><u>For all jurisdictions:</u></p> <p>The <i>denominator</i> is number of patient days for public acute care hospitals (only for hospitals included in the surveillance arrangements).</p> <p><i>Calculation</i> is <math>10\,000 \times (\text{Numerator} \div \text{Denominator})</math>, presented as a number per 10 000 and number only.</p> <p><i>Coverage:</i> Denominator <math>\div</math> Number of patient days for all public hospitals in the State or Territory.</p>

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**Data source/s**      *Numerator:* State and Territory healthcare-associated infection surveillance data.  
*Denominator:* State and Territory admitted patient data.

### **Data Quality Framework Dimensions**

**Institutional environment**      The AIHW calculated the indicator from data provided by states and territories.  
The AIHW is an independent statutory authority within the Health and Ageing portfolio, which is accountable to the Parliament of Australia through the Minister. For further information see the AIHW website.  
The data supplied by the states and territories were collected from hospitals through the healthcare associated infection surveillance programs run by the states and territories. The arrangements for the collection of data by hospitals and the reporting to State and Territory health authorities vary among the jurisdictions.

**Relevance**      This indicator is for patient episodes of SAB acquired, diagnosed and treated in public acute care hospitals. The definition of a public acute care hospital is 'all public hospitals including those hospitals defined as public psychiatric hospitals in the Public Hospital Establishments NMDs'. The provision of 'acute' services varies among jurisdictions, so it is not possible to exclude 'non-acute' hospitals from the indicator in a way that would be uniform among the states and territories. Therefore all public hospitals have been included in the scope of the indicator so that the same approach is taken for each State and Territory.

The SAB patient episodes reported were associated with both admitted patient care and (apart from New South Wales) with non-admitted patient care (including emergency departments and outpatient clinics). No denominator is available to describe the total admitted and non-admitted patient activity of public hospitals. However, the number of patient days for admitted patient activity is used as the denominator to take into account the large differences between the sizes of the public hospital sectors among the jurisdictions. The accuracy and comparability of the SAB rates among jurisdictions and over time is limited because the count of patient days reflects the amount of admitted patient activity, but does not reflect the amount of non-admitted patient activity. The amount of hospital activity that patient days reflect varies among jurisdictions and over time because of variation in admission practices.

Only patient episodes associated with public acute care hospitals in each jurisdiction are counted. If a case is associated with care provided in another jurisdiction then it may be reported (where known) by the jurisdiction where the care associated with the SAB occurred.

Almost all patient episodes of SAB will be diagnosed when the patient is an admitted patient. However, the intention is that patient episodes are reported whether they were determined to be associated with admitted patient care or non-admitted patient care in public acute care hospitals.

The data presented have not been adjusted for any differences in case-mix between the states and territories.

Analysis by state/territory is based on the location of the hospital.

**Timeliness**      The reference period for this data is 2009-10.

**Accuracy**      For most states and territories there is less than 100 percent coverage of public hospitals. For those jurisdictions with incomplete coverage of public hospitals (in the numerator), only patient days for those hospitals (or parts of hospitals) that contribute data are included (in the denominator). Differences in the types of hospitals not included may impact on the accuracy and comparability of rates.

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	<p>Data for Victoria excludes rehabilitation beds. Data for some Victorian hospitals excludes some quarters. Data for Queensland includes only patients aged over 14 years.</p> <p>All principal referral hospitals (as defined using the 2008-09 peer grouping classification) were included in the SAB surveillance (however data were not available to determine whether this was the case in Western Australia).</p> <p>It is possible that there will be less risk of SAB in hospitals not included in the SAB surveillance arrangements, especially if such hospitals undertake fewer invasive procedures than those hospitals which are included.</p> <p>There may be imprecise exclusion of private hospital and non-hospital patient episodes due to the inherent difficulties in determining the origins of SAB episodes.</p> <p>The patient day data may be preliminary for some hospitals/jurisdictions.</p> <p>New South Wales data for Methicillin sensitive <i>Staphylococcus aureus</i> (MSSA) and Methicillin resistant <i>Staphylococcus aureus</i> (MRSA) refer to the period 1 January 2010 to 30 June 2010 as these data were collected and reported as a single number prior to these dates. Total data (MSSA plus MRSA) refer to the year 2009-10.</p>
<b>Coherence</b>	<p>National data for this indicator were first presented in the 2010 COAG Reform Council report. Since that report further work has been undertaken on data development for this indicator, including the definition of an episode of SAB and a suitable denominator, as well as the coverage of public hospitals. As 2010 data were provided prior to the development of agreed national definitions, by only five jurisdictions, and was limited to principal referral and large hospitals, these data are not comparable with those reported previously.</p> <p>Some jurisdictions have previously published related data (see Accessibility below).</p>
<b>Accessibility</b>	<p>The following states and territories publish data relating to healthcare-associated SAB in various report formats on their websites:</p> <p>NSW South Wales Your Health Service public website reports SAB by individual hospital:  <a href="http://www.health.nsw.gov.au/hospitals/search.asp">http://www.health.nsw.gov.au/hospitals/search.asp</a></p> <p>New South Wales: Healthcare associated infections reporting for 8 infection indicators by state.  <a href="http://www.health.nsw.gov.au/quality/hai/index.asp">http://www.health.nsw.gov.au/quality/hai/index.asp</a></p> <p>Tasmania: Acute public hospitals healthcare associated infection surveillance report.  <a href="http://www.dhhs.tas.gov.au/_data/assets/pdf_file/0007/56590/Surveillance_Report_No.5_ending_March_10.pdf">http://www.dhhs.tas.gov.au/_data/assets/pdf_file/0007/56590/Surveillance_Report_No.5_ending_March_10.pdf</a></p> <p>Western Australia: Healthcare Associated Infection Unit - Annual Report  <a href="http://www.public.health.wa.gov.au/3/455/3/reports_healthcare_associated_infection_unit.pm">http://www.public.health.wa.gov.au/3/455/3/reports_healthcare_associated_infection_unit.pm</a></p> <p>South Australia: Health Care Associated Bloodstream infection report  <a href="http://www.health.sa.gov.au/INFECTIONCONTROL/Default.aspx?PageContentID=18&amp;tabid=147">http://www.health.sa.gov.au/INFECTIONCONTROL/Default.aspx?PageContentID=18&amp;tabid=147</a></p>
<b>Interpretability</b>	<p>Jurisdictional manuals should be referred to for full details of the definitions used in healthcare-associated infection surveillance.</p> <p>Definitions for this indicator are published in the performance indicator specifications.</p>

### **Data Gaps/Issues Analysis**

**Key data** The Steering Committee notes the following issues:

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**gaps/issues**

There may be imprecise exclusion of private hospital and non-hospital patient episodes due to the inherent difficulties in determining the origins of SAB episodes.

For some states and territories there is less than 100 percent coverage of public hospitals. This may impact on the reported rate. For those jurisdictions with incomplete coverage of public hospitals (in the numerator), only patient days for those hospitals that contribute data are included (in the denominator).

The data presented have not been adjusted for any differences in casemix between the jurisdictions, affecting comparability between states and territories and over time. All jurisdictions except NSW use an agreed definition of a patient episode of SAB cases. As such, NSW data should not be compared to other jurisdictions, and there is no national total calculated.

The comparability of the rates of SAB between jurisdictions is limited because the count of patient days (denominator) reflects admitted patient activity, while the incidence of SAB (numerator) includes non-admitted and admitted patient activity.

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## Falls resulting in patient harm in hospitals

Data quality information for this indicator has been sourced from the Steering Committee's report to the COAG Reform Council on the National Healthcare Agreement (data supplied by the AIHW) with additional Steering Committee comments.

### Indicator definition and description

<b>Element</b>	Effectiveness — quality/safety
<b>Indicator</b>	Falls resulting in patient harm in hospitals
<b>Measure (computation)</b>	<p><i>Numerator:</i> Number of hospital separations with an external cause code for a fall and a place of occurrence of 'health service area'.</p> <p><i>Denominator:</i> Total number of hospital separations.</p> <p>A fall is identified by ICD-10-AM external cause codes W00, W01, W03–W11, W13, W14, W16–W19. Excluded from the numerator are those separations where the ICD-10-AM code for the principal diagnosis is in the range of S00 to T14 (inclusive). Also excluded from the numerator are those separations where the principal diagnosis has the ICD-10-AM code Z50.9 (Care involving use of rehabilitation procedure, unspecified) and the second diagnosis is in the range of S00 to T14 (inclusive).</p> <p>A separation is an episode of care for an admitted patient, which can be a total hospital stay (from admission to discharge, transfer or death), or a portion of a hospital stay beginning or ending in a change of type of care (for example, from acute care to rehabilitation).</p> <p>Computation: Numerator only; and <math>1000 \times (\text{Numerator} \div \text{Denominator})</math></p>
<b>Data source/s</b>	This indicator is calculated using data from the National Hospital Morbidity Database (NHMD), based on the National Minimum Data Set for Admitted Patient Care.

### Data Quality Framework Dimensions

<b>Institutional environment</b>	<p>The Australian Institute of Health and Welfare (AIHW) has calculated this indicator.</p> <p>The Institute is an independent statutory authority within the Health and Ageing portfolio, which is accountable to the Parliament of Australia through the Minister. For further information see the AIHW website.</p> <p>The data were supplied to the Institute by State and Territory health authorities. The State and Territory health authorities received these data from public and private hospitals. States and territories use these data for service planning, monitoring and internal and public reporting. Hospitals may be required to provide data to states and territories through a variety of administrative arrangements, contractual requirements or legislation.</p> <p>States and territories supplied these data under the terms of the National Health Information Agreement (see link).</p> <p><a href="http://www.aihw.gov.au/committees/simc/final_nhia_signed.doc">http://www.aihw.gov.au/committees/simc/final_nhia_signed.doc</a></p>
<b>Relevance</b>	<p>The purpose of the NMDS for Admitted patient care is to collect information about care provided to admitted patients in Australian hospitals. The scope of the NMDS is episodes of care for admitted patients in all public and private acute and psychiatric hospitals, free-standing day hospital facilities and alcohol and drug treatment centres in Australia. Hospitals operated by the Australian Defence Force, corrections authorities and in Australia's off-shore territories are not included. Hospitals specialising in dental, ophthalmic aids and other specialised acute medical or surgical care are included.</p> <p>The hospital separations data do not include episodes of non-admitted patient care provided in outpatient clinics or emergency departments.</p>

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**Timeliness**  
**Accuracy**

The analyses by remoteness and socioeconomic status are based on Statistical Local Area of usual residence of the patient. The SEIFA categories for socioeconomic status represent approximately the same proportion of the national population, but do not necessarily represent that proportion of the population in each state or territory (each SEIFA decile or quintile represents 10 per cent and 20 per cent respectively of the national population).

Separations are reported by jurisdiction of hospitalisation, regardless of the jurisdiction of usual residence.

The reference period for this data set is 2008-09.

For 2008-09, almost all public hospitals provided data for the NHMD, with the exception of a mothercraft hospital in the ACT. The great majority of private hospitals also provided data, the exceptions being the private day hospital facilities in the ACT, the single private free-standing day hospital facility in the NT, and two private hospitals in Tasmania.

States and territories are primarily responsible for the quality of the data they provide. However, AIHW undertakes extensive validations on receipt of data. Data are checked for valid values, logical consistency and historical consistency. Where possible, data in individual data sets are checked with data from other data sets. Potential errors are queried with jurisdictions, and corrections and resubmissions may be made in response to these edit queries. The AIHW does not adjust data to account for possible data errors.

The Indigenous status data are of sufficient quality for statistical reporting purposes for the following jurisdictions: NSW, Vic, Qld, SA, WA, NT (NT public hospitals only). National totals include these six jurisdictions only. Indigenous status data reported for Tasmania and ACT should be interpreted with caution until further assessment of Indigenous identification is completed.

The specifications for the indicator defines a fall in hospital as being one for which the place of occurrence is coded as 'health service area'. The 'health service area' as a place of occurrence is broader in scope than hospitals — it includes other health service settings such as day surgery centres and hospices. Hence the numbers presented could be an overestimate as they include falls in health care settings other than hospitals.

Around 20 percent of the records of separations involving falls did not have a code assigned for the place of occurrence. Consequently, the recorded number of falls occurring in hospitals may be an under-estimate.

For separations having multiple external causes, it is not possible to establish (from the NHMD) whether the nominated place of occurrence is associated with the fall or with some other external cause. As a consequence, the count of separations may also be over-estimated.

To minimise the chance of over-estimation, separations where a person was admitted to hospital with a principal diagnosis of an injury were excluded on the basis that if the injury was the principal diagnosis it was associated with an external cause relating to an event occurring prior to admission. However, these exclusions may result in an underestimation of the indicator as the indicator does not count separations where a person is injured and admitted to hospital and then subsequently experiences a fall in hospital.

Data on falls are recorded uniformly using the ICD-10-AM.

The indicator provides a count of separations involving one or more falls. It does not provide a count of falls.

The comparability of the data will be affected by the fact that it has not been adjusted for differences in casemix (eg patient age).

Cells have been suppressed to protect confidentiality (where the

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<b>Coherence</b>	<p>presentation could identify a patient or a single service provider) or where rates are likely to be highly volatile (eg the denominator is very small).</p> <p>The indicator specifications and analysis methodology used for this report are equivalent to the <i>National Healthcare Agreement: Baseline performance report 2008-09</i>. The data can be meaningfully compared across reference periods for all jurisdictions except Tasmania. 2008-09 data for Tasmania does not include two private hospitals that were included in 2007-08 data reported in the baseline report.</p> <p>The number of separations involving an ICD-10-AM external cause code for a fall has been reported in the AIHW publication <i>Australian hospital statistics 2008-09</i>. However, the methodology used in <i>Australian hospital statistics 2008-09</i> differs from the NHA indicator, in that there are no exclusion criteria applied for the principal diagnoses.</p>
<b>Accessibility</b>	<p>The AIHW provides a variety of products that draw upon the National Hospital Morbidity Database. Published products available on the AIHW website are:</p> <ul style="list-style-type: none"> <li>• <i>Australian hospital statistics</i> with associated Excel tables.</li> </ul> <p>Interactive data cubes for Admitted patient care (for Principal diagnoses, Procedures and Diagnosis Related Groups).</p>
<b>Interpretability</b>	<p>Supporting information on the quality and use of the National Hospital Morbidity Database are published annually in <i>Australian hospital statistics</i> (technical appendixes), available in hard copy or on the AIHW website. Supporting information includes discussion of coverage, completeness of coding, the quality of Indigenous data, and variation in service delivery that might affect interpretation of the published data. Metadata information for the NMDS for Admitted patient care is published in the AIHW's online metadata repository METeOR, and the National health data dictionary.</p>

### **Data Gaps/Issues Analysis**

<b>Key data gaps/issues</b>	<p>The Steering Committee notes the following issues:</p> <p>The recorded number of falls occurring in hospitals may be an underestimate (as around 20 percent of the records of separations involving falls did not have a code assigned for the place of occurrence). Under-estimation and over-estimation may also have occurred due to other limitations of the data.</p> <p>The indicator provides a count of separations involving one or more falls. It does not provide a count of falls.</p> <p>The comparability of the data will be affected by the fact that it has not been adjusted for differences in casemix (for example, patient age).</p> <p>Data on Indigenous status reported for Tasmania and the ACT should be interpreted with caution until an assessment of Indigenous identification is completed.</p>
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## Intentional self-harm in hospitals

Data quality information for this indicator has been sourced from the Steering Committee's report to the COAG Reform Council on the National Healthcare Agreement (data supplied by the AIHW) with additional Steering Committee comments.

### Indicator definition and description

<b>Element</b>	Effectiveness — quality/safety
<b>Indicator</b>	Intentional self-harm in hospitals
<b>Measure (computation)</b>	<p><i>Numerator:</i> Number of separations where an admitted patient self-harmed.</p> <p>Intentional self-harm is identified by ICD-10-AM external cause codes X60–X84. Self-harm is defined in ICD-10-AM as 'Intentional self-harm: includes purposefully-inflicted poisoning or injury, suicide and attempted suicide.'</p> <p>A separation is an episode of care for an admitted patient, which can be a total hospital stay (from admission to discharge, transfer or death), or a portion of a hospital stay beginning or ending in a change of type of care (for example, from acute to rehabilitation).</p> <p>Excludes separations with an ICD-10-AM principal diagnosis code of an injury or poisoning.</p> <p><i>Denominator:</i> Total number of separations.</p> <p>Computation: Numerator only; and <math>1000 \times (\text{Numerator} \div \text{Denominator})</math>.</p>
<b>Data source/s</b>	This indicator is calculated using data from the National Hospital Morbidity Database (NHMD), based on the National Minimum Data Set for Admitted Patient Care.

### Data Quality Framework Dimensions

<b>Institutional environment</b>	<p>The Australian Institute of Health and Welfare (AIHW) has calculated this indicator.</p> <p>The Institute is an independent statutory authority within the Health and Ageing portfolio, which is accountable to the Parliament of Australia through the Minister. For further information see the AIHW website.</p> <p>The data were supplied to the Institute by State and Territory health authorities. The State and Territory health authorities received these data from public and private hospitals. States and territories use these data for service planning, monitoring and internal and public reporting. Hospitals may be required to provide data to states and territories through a variety of administrative arrangements, contractual requirements or legislation.</p> <p>States and territories supplied these data under the terms of the National Health Information Agreement (see link).</p> <p><a href="http://www.aihw.gov.au/committees/simc/final_nhia_signed.doc">http://www.aihw.gov.au/committees/simc/final_nhia_signed.doc</a></p>
<b>Relevance</b>	<p>The purpose of the NMDS for Admitted patient care is to collect information about care provided to admitted patients in Australian hospitals. The scope of the NMDS is episodes of care for admitted patients in all public and private acute and psychiatric hospitals, free-standing day hospital facilities and alcohol and drug treatment centres in Australia. Hospitals operated by the Australian Defence Force, corrections authorities and in Australia's off-shore territories are not included. Hospitals specialising in dental, ophthalmic aids and other specialised acute medical or surgical care are included.</p> <p>The hospital separations data do not include episodes of non-admitted patient care provided in outpatient clinics or emergency departments.</p>

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**Timeliness**  
**Accuracy**

The analyses by remoteness and socioeconomic status are based on Statistical Local Area of usual residence of the patient. The SEIFA categories for socioeconomic status represent approximately the same proportion of the national population, but do not necessarily represent that proportion of the population in each state or territory (each SEIFA decile or quintile represents 10 per cent and 20 per cent respectively of the national population).

Separations are reported by jurisdiction of hospitalisation, regardless of the jurisdiction of usual residence.

The reference period for this data set is 2008-09.

For 2008-09, almost all public hospitals provided data for the NHMD, with the exception of a mothercraft hospital in the ACT. The great majority of private hospitals also provided data, the exceptions being the private day hospital facilities in the ACT, the single private free-standing day hospital facility in the NT, and two private hospitals in Tasmania.

States and territories are primarily responsible for the quality of the data they provide. However, AIHW undertakes extensive validations on receipt of data. Data are checked for valid values, logical consistency and historical consistency. Where possible, data in individual data sets are checked with data from other data sets. Potential errors are queried with jurisdictions, and corrections and resubmissions may be made in response to these edit queries. The AIHW does not adjust data to account for possible data errors.

The specification for the indicator defines a separation involving self-harm as being one for which the place of occurrence is a 'health service area'. The 'health service area' as a place of occurrence is broader in scope than hospitals – it includes other health care settings such as day surgery centres or hospices. Hence, the numbers presented could be an overestimate as they may include separations involving intentional self-harm occurring in health service areas other than 'hospitals'.

Around 34 percent of all separations involving intentional self harm did not have a code assigned for the place of occurrence. Consequently, the recorded number of separations involving intentional self-harm in hospital may be an under-estimate.

If there is more than one external cause reported, there is uncertainty about whether the place of occurrence 'health service area' relates to the self-harm or to the other external cause. As a consequence there may be some over-counting in the calculation of the indicator.

In the calculation of the indicator, separations with a principal diagnosis of an injury or poisoning have been excluded on the assumption that the self-harm occurred prior to admission to hospital. However, it is possible that some of these separations would have additionally involved self-harm that occurred in hospital.

The issue of whether a patient self-harms while on leave from hospital has not been addressed in the specification of the indicator. Data on self-harm are recorded uniformly using the ICD-10-AM. The comparability of the data will be affected by the fact that it has not been adjusted for differences in casemix (eg patient age).

The Indigenous status data are of sufficient quality for statistical reporting purposes for the following jurisdictions: NSW, Vic, Qld, SA, WA, NT (NT public hospitals only). National totals include these six jurisdictions only. Indigenous status data reported for Tasmania and ACT should be interpreted with caution until further assessment of Indigenous identification is completed.

Cells have been suppressed to protect confidentiality where the presentation could identify a patient or a single service provider), where

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	rates are likely to be highly volatile (for example, the denominator is very small).
<b>Coherence</b>	<p>The indicator specifications and analysis methodology used for this report are equivalent to the National Agreement performance information: Baseline performance report for 2008-09.</p> <p>The data can be meaningfully compared across reference periods for all jurisdictions except Tasmania. 2008-09 data for Tasmania does not include two private hospitals that were included in 2007-08 data reported in the baseline report.</p>
<b>Accessibility</b>	<p>The AIHW provides a variety of products that draw upon the National Hospital Morbidity Database. Published products available on the AIHW website are:</p> <ul style="list-style-type: none"> <li>• <i>Australian hospital statistics</i> with associated Excel tables.</li> </ul> <p>Interactive data cubes for Admitted patient care (for Principal diagnoses, Procedures and Diagnosis Related Groups).</p>
<b>Interpretability</b>	<p>Supporting information on the quality and use of the National Hospital Morbidity Database are published annually in <i>Australian hospital statistics</i> (technical appendixes), available in hard copy or on the AIHW website. Supporting information includes discussion of coverage, completeness of coding, the quality of Indigenous data, and variation in service delivery that might affect interpretation of the published data. Metadata information for the NMDS for Admitted patient care are published in the AIHW's online metadata repository — METeOR, and the National health data dictionary.</p>

### **Data Gaps/Issues Analysis**

<b>Key data gaps/issues</b>	<p>The Steering Committee notes the following issues:</p> <p>The recorded number of separations involving intentional self-harm may be an under-estimate (as around 34 percent of separations involving intentional self-harm did not have a code assigned for the place of occurrence). Under-estimation and over-estimation may also have occurred due to other limitations of the data.</p> <p>The comparability of the data will be affected by the fact that it has not been adjusted for differences in casemix (for example, patient age).</p> <p>Data on Indigenous status reported for Tasmania and the ACT should be interpreted with caution until an assessment of Indigenous identification is completed.</p>
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## Workforce sustainability

Data quality information for this indicator has been sourced from the AIHW with additional Steering Committee comments.

### Indicator definition and description

<b>Element</b>	Efficiency — sustainability
<b>Indicator</b>	Workforce sustainability
<b>Measure (computation)</b>	Workforce sustainability reports age profiles for nurse, midwife and medical practitioner workforces. It shows the proportions of registered and enrolled nurses, midwives and medical practitioners in ten year age brackets, both by jurisdiction and by region.
<b>Data source/s</b>	AIHW health labour force surveys, state and territory registration board data

### Data Quality Framework Dimensions

<b>Institutional environment</b>	<p>The Australian Institute of Health and Welfare (AIHW) has calculated this indicator. The data are estimates from the AIHW National Health Labour Force Survey series, which are annual surveys managed by each state and territory health authority, with the questionnaire administered by the relevant registration board in each jurisdiction as part of the registration renewal process. Under agreement with AHMAC's Health Workforce Principal Committee, the AIHW cleans, collates, manipulates and weights the state and territory survey results to obtain national estimates of the total medical labour force and reports the findings. These data are used for workforce planning, monitoring and reporting.</p> <p>The Institute is an independent statutory authority within the Health and Ageing portfolio, which is accountable to the Parliament of Australia through the Minister. For further information see the AIHW website (<a href="http://www.aihw.gov.au">www.aihw.gov.au</a>).</p>
<b>Relevance</b>	<p>This indicator is an interim measure, pending data becoming available from the National Registration and Accreditation Scheme (NRAS) implementation in mid-2010. Long term indicators using NRAS data are expected to be available in 2012 and will include a much larger group of health professions. To date, there have been difficulties collecting consistent, quality data on the health workforce and many of these difficulties are expected to be resolved by the shift to NRAS data, particularly that of national consistency.</p> <p>The estimates for this indicator are based on the weighted responses from the Medical Labour Force Survey and the Nursing and Midwifery Labour Force Survey. The two surveys have been conducted using very similar methods and measures similar concepts. The survey populations have been drawn from the medical register and the nursing and midwifery register maintained in each state and territory. The registers contain demographic information on all professionals allowed to practise in that state or territory and have been the most suitable framework for surveying the professions.</p> <p>Reference periods differed across jurisdictions but were within a single calendar year. In both surveys, the questionnaire was sent out with registration renewal papers by the respective registration boards for the professions and the timing depended on the registration practices for each profession within each jurisdiction.</p> <p>The indicators are disaggregated by state/territory information primarily sourced from the registration boards. It should be noted that, in both surveys, response varied considerably across jurisdictions.</p> <p>Data are presented on medical practitioners, nurses and midwives only. These professions are only part of the public hospitals workforce and large</p>

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**Timeliness**

numbers of them work outside of the public hospital system.

The reference period for the data in the indicator is the 2004 to 2008 calendar years.

**Accuracy**

Data capture and initial processing of the survey data were undertaken by the individual state/territory health authorities and the procedures varied. AIHW conducts independent cleaning, editing and manipulation of the data received in order to produce more nationally consistent data. The cleaning and editing procedures included range and logic checks, clerical scrutiny at unit record level and validation of unit record and aggregate data.

The surveys were conducted in conjunction with the registration renewal process and as a result, people registering in a profession for the first time in the reference year were not sent a questionnaire. For the medical survey, practitioners with conditional registration have not always been included. Overseas trained medical practitioners doing postgraduate or supervised training were not surveyed and interns were surveyed in some jurisdictions, only.

There was no sampling undertaken for the data collection, the entire population of re-registrants was targeted. The overall response rate is an approximation because some practitioners were registered or enrolled in more than one state or territory and may have completed a questionnaire in just one state or territory. It is not known how often this occurred because it is not possible to match survey records across jurisdictions. The national response rate for the medical survey was 71.4 per cent, 71.3 per cent, 70.2 per cent, 69.9 per cent and 68.7 per cent in 2004, 2005, 2006, 2007 and 2008, respectively. The national response rate for the nursing and midwifery survey was 61.1 per cent, 55.0 per cent, 49.6 per cent and 46.6 per cent in 2004, 2005, 2007 and 2008, respectively. It must be noted however that the estimates for Victoria for 2005 are derived from responses to the 2006 AIHW Nursing and Midwifery Labour Force Survey, weighted to 2005 registration and enrolment benchmark figures and as a result the 2005 response rates are notional.

The data have undergone imputation for item non response and weighting to adjust for population non response. It should be noted that either of these kinds of non-response is likely to introduce some bias in the final survey data and any bias is likely to become more pronounced as response rates decline. Care should be taken when drawing conclusions about the size of the differences between estimates.

A small number of respondents to both surveys did not respond to the question relating to postcode of main job or responded with an invalid or illegible postcode. In addition those professionals who were not working did not have a main job (and hence no postcode thereof) and were also regarded as not stated. As a result a small number of records (around 6 per cent of records in 2008 for both surveys) are omitted from the Remoteness Area categories but included in the total for Australia.

Where possible, benchmark data were the number of registered medical practitioners or nurses/midwives in each state and territory, supplied to the AIHW by the state and territory registration boards for each profession. Also if possible, benchmarks were broken down by age group and sex and if the data were not available from the boards this way, benchmark figures were obtained from other sources, such as registration board annual reports. Where available, benchmark data relate to the time the survey was conducted. Details of the benchmarks supplied by the states and territories for each survey can be found in the published survey reports on the AIHW website.

It should be noted that in the Medical Labour Force Survey and the Nursing and Midwifery Labour Force Survey, comparability between jurisdictions is

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limited by differences between the surveyed population and the available benchmark data. Currently there is no information available about the effect of these differences on the indicator data.

As a result, the following should be noted when comparing state and territory indicator data from the Medical and Nursing and Midwifery Labour Force Surveys.

#### The Medical Labour Force Survey

- NSW data are based on responses to the Medical Labour Force Survey weighted to financial registrants holding general, conditional specialist, limited prescribing and referring or non-practising registration
- In 2007 and 2008, Victoria surveyed only general, specific and provisional registered medical practitioners in the Medical Labour Force Survey but responses are weighted to all registered medical practitioners.
- In 2007 and 2008, Queensland data are based on responses to the 2007 and 2008 Medical Labour Force Survey weighted to all registrants excluding some conditional registration types. From 2004 to 2006, responses to annual Medical Labour Force Surveys were weighted to general registrants and conditionally registered specialists only.
- For WA, in 2006, 2007 and 2008, the scope was consistent, that is, the survey population and the benchmark figures are based on general and conditional registrants. For 2004 and 2005, survey was administered to both general and conditional registrants but benchmark figures were for general registrants only. For 2008 the benchmark used was the total number of registered practitioners in 2008 using 2007 age by sex proportions. For WA in 2007 and 2008, the benchmark data was inflated by an unknown number of registered medical practitioners who were no longer active in the workforce. It is also unknown to what extent past years were affected by this.
- Tasmania data are based on responses to the annual Medical Labour Force Survey weighted to general registrants, conditionally registered specialists and non-practising practitioners only.
- NT data for 2007 are based on responses to the 2007 Medical Labour Force Survey weighted to 2007 number of registered practitioners using 2008 age by sex proportions. NT data for 2006 are based on responses to the 2007 Medical Labour Force Survey weighted to 2006 number of registered practitioners by age and sex. NT data for 2005 are based on responses to the 2004 Medical Labour Force Survey weighted to 2005 number of registered practitioners by age and sex. Estimates for the NT should be treated with caution due to the low response rates (31.8 per cent in 2005, 28.6 per cent in 2006 and 27.1 per cent in 2007). Care should be taken when interpreting these figures.

#### The Nursing and Midwifery Labour Force Survey

- State and territory estimates should be treated with caution due to low response rates in some jurisdictions in some years, particularly:
  - For 2004, the NT (35.1 per cent).
  - For 2005, WA (26.9 per cent). Estimates for the NT for 2005 are not separately published due to the very low response rate to the survey in that jurisdiction (13.7 per cent).
  - For 2007, Victoria (39.9 per cent). Queensland (33.9 per cent), WA (36.7 per cent) and the NT (28.7 per cent).
  - For 2008, Victoria (33.3 per cent). Queensland (32.9 per cent), WA (34.4 per cent) and the NT (24.9 per cent). Victorian data was affected by large numbers of online survey records not being able to be used for technical reasons.
- Data for the NT is affected by the transient nature of the nursing labour

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force in that jurisdiction. According to a 2008 Charles Darwin University report on mobility among Nurses and Midwives in the NT, approximately one-third of all nurses do not re-register each year, primarily because they no longer practise in the jurisdiction. There has been some variation across years in the degree to which nurses who have left the NT have been removed from the renewal process and hence the survey.

As a result of the estimation process used for non-response, numbers of medical practitioners or nurses/midwives may be in fractions, but were rounded to whole numbers for publication.

## Coherence

The data presented for this indicator include estimates of the number of employed professionals plus those on extended leave and those not working in the profession but looking for work in the profession. Data presented in AIHW publications are usually restricted to employed professionals only.

Comparability of estimates for the medical workforce between years is limited by differences in coverage of the available benchmark across years (see Accuracy above). Care should be taken when drawing conclusions about the size of the differences between estimates across these years.

Currently there is no information available about the effect of these differences on the indicator data.

Estimates from the 2006 Medical Labour Force Survey have been compared with the ABS 2006 Census of Population and Housing estimates and the AIHW figures were noticeably higher than those from the Census. There are complex reasons for the difference.

A range of significant differences in collection methods exists between the two data sources and, to varying degrees, these contribute to the differences in the figures between the two sources. Please refer to the Data Quality Statements for PI 64 in National Agreement Performance information 2008–09

([http://www.pc.gov.au/\\_\\_data/assets/pdf\\_file/0009/98757/healthcare-agreement.pdf](http://www.pc.gov.au/__data/assets/pdf_file/0009/98757/healthcare-agreement.pdf)) for information on the main factors which need to be taken into account when comparing results from the Census and the AIHW Health Labour Force Surveys.

Some broad level comparisons of workforce percentage growth have been made between the Medical Labour Force Surveys, the ABS Census of Population and Housing and the Medicare administrative data. All sources showed upward trends although, comparisons have been greatly limited by the significant differences in collection method, scope, coverage and definitions between the data sources.

Caution should be taken when comparing Medicare Full-Time Workload Equivalent (FWE), AIHW Full Time Equivalent (FTE) figures and AIHW person counts due to differences in calculation methods.

Medicare FWE is calculated by dividing each medical practitioner's Medicare billing by the average billing of full-time medical practitioners for the year. There is no cap on a medical practitioner's FWE. That is, a medical practitioner with 50 per cent of the average billing for full-time medical practitioners is counted as 0.5, a medical practitioner billing at the average is counted as 1 and a medical practitioner billing at 150 per cent of the average is counted as 1.5.

The AIHW estimate of FTE is calculated by multiplying the number of medical practitioners or nurses respectively by the average total weekly hours and dividing by 40 or 38 hours respectively (40 hours and 38 hours representing a notional full-time work week for medical practitioners and nurses respectively).

The data for the person counts are simply an estimate of the number of professionals and not dependant on the number of hours worked.

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<b>Accessibility</b>	<p>Published products available on the AIHW website are:</p> <ul style="list-style-type: none"> <li>• Medical Labour Force Survey reports with associated Excel tables.</li> <li>• Nursing and Midwifery Labour Force Survey reports with associated Excel tables.</li> </ul> <p>Ad hoc data are available on request (cost recovery charges apply).</p>
<b>Interpretability</b>	<p>Extensive explanatory information for the medical and nursing and midwifery surveys is contained in the published reports and supplementary Excel tables for each, including collection method, scope and coverage, survey response, imputation and weighting procedures, and limitations on utility of estimates for Indigenous Australians. These are available via the AIHW web site and readers are advised to read caveat information to ensure appropriate interpretation of the performance indicator.</p>

### **Data Gaps/Issues Analysis**

<b>Key data gaps/issues</b>	<p>The Steering Committee notes the following issues:</p> <p>These measures are not a substitute for a full workforce analysis that allows for migration, trends in full-time work and expected demand increases. The indicator does not provide information on those currently in training and the intentions of those in the medical workforce to leave the workforce in the near future.</p> <p>Results of the surveys are estimates because the raw data have undergone imputation and weighting to adjust for non-response. It should be noted that any of these adjustments may have introduced some bias in the final survey data and any bias is likely to become more pronounced as response rates decline.</p> <p>Care should be taken when drawing conclusions about the size of the differences between estimates.</p> <p>Care is also advised with state and territory comparisons because of low response rates in some jurisdictions.</p>
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