

Health system performance (Tier 3)

3.1 Effective dimension

3.1.1 Immunisation rates

Proposed definition:	Proportion of children who are fully immunised against vaccine-preventable diseases according to NHMRC recommendations at the ages of 12–15 and 24–27 months, as recorded in the Australian Childhood Immunisation Register (ACIR). See page 38.
Rationale:	Reflects the prevalence of full age-appropriate immunisation of children. Reflects access to and utilisation of immunisation services.
Desired outcome:	To achieve similar high and increasing proportion fully immunised in all areas.
Numerator:	Number of children aged 12–15 and 24–27 months in each area who have received all the immunisations at the designated milestone times as per the Australian Childhood Immunisation Schedule.
Denominator:	Total number of children aged 12–15 and 24–27 months on the ACIR in each area.
Calculation method:	For each of the age groups, divide the numerator by the appropriate denominator, expressed as a percentage.
Data source:	Australian Childhood Immunisation Register.
Presentation:	MC IR OR R VR Total Percentage fully immunised at: <ul style="list-style-type: none">• 12–15 months; and• 24–27 months.
Data coverage:	Annual, national.
Data issues:	The Indigenous indicator field is not compulsory for immunisers to complete and is likely to be unreliable. Consequently, reporting for Indigenous and non-Indigenous groups is not possible.
Related indicators:	Communicable diseases (pertussis (1.1.5)). Comparison with this indicator could be used to identify potential problems, for example with immunisation coverage, or with management of the cold chain.
Consultation with:	Health Information Section, HIC.

3.1.2 Breast cancer and cervical screening participation rate

Proposed definition:	The percentage of women screened for breast cancer and by Pap smear test in the previous 2 years for the target age groups 50–69 years (breast cancer screening) and 20–69 years (Pap smear test). See page 38.
Rationale:	Breast cancer and cervical screening has the potential to provide early detection of breast cancers and cervical cellular change, with better health outcomes for affected women. Identification of regional differences in screening rates could lead to enhanced service delivery.
Desired outcome:	To achieve high participation rates for women in these age groups in all areas, increasing over time.
Numerator:	The number of individual women aged 50–69 years and 20–69 years who were screened for breast cancer and who had a Pap smear test in the previous 2 years.
Denominator:	The number of women in the 50–69 and 20–69 year age groups in each area.
Calculation method:	<p>Indirect age-standardisation using Major Cities age-specific rates of breast cancer or cervical screening.</p> <p>Comparison between years within areas will require standardisation to age-specific rates in each individual area for either the earlier year, or the year in which the largest sample was taken (e.g. 2001). The reported statistic will be a ratio of observed to expected cases. Confidence intervals for weighted survey data would be calculated using Fieller’s Theorem or similar method.</p>
Data source:	<p>Data from BreastScreen Australia state and territory Screening Registers, compiled at a national level by the AIHW into the national BreastScreen Australia monitoring data.</p> <p>Similar data are held by the state and territory Pap Test registers and could potentially be provided at a national level for the National Cervical Screening Program. However, the currently available national cervical screening monitoring data are not disaggregated below the state or territory level.</p> <p>ABS National Health Survey and ABS population estimates.</p>
Presentation:	<p>MC IR OR Total</p> <p>Indirect age-standardised prevalence of females who have been screened in the previous 2 years (expressed as a ratio of observed to expected cases).</p> <p>Percentage of:</p> <ul style="list-style-type: none">• women aged 50–69 years screened for breast cancer; and• women aged 20–69 years having a Pap smear test. <p>For all females and for life-stage age groups.</p> <p>Total (Indigenous plus non-Indigenous) population.</p>

	<p>In all cases make comparison with rate estimates for the total Indigenous population.</p> <p>For each year (e.g. 1995 and 2001 using Major Cities age-specific rates in each year as the standard).</p> <p>Time series. Compare rate changes between years.</p> <p>Include 95% confidence intervals for all estimates.</p>
Data coverage:	<p>Breast and cervical screening monitoring data are released annually, but each release covers the preceding 2 years, so that adjacent years' data overlap. Data coverage is national.</p> <p>National Health Survey data are national and approximately 5 yearly (prior to 2001), 2-3 yearly (from 2001).</p>
Data issues:	<p>The National Health Survey data has poor coverage in remote areas, has difficulty reporting for Indigenous people at regional level, and may be biased in the more remote areas. See comments on page 62. Also, it is not clear whether self-reported testing is for screening or for diagnostic purposes.</p> <p>The proportion of women seeking screening through BreastScreen relative to other service providers may differ between Major Cities and other areas, possibly resulting in some bias when comparisons are made between areas.</p>
Related indicators:	<p>Leading causes of death and 'excess' death (1.4.4) (breast and cervical cancer mortality).</p>
Consultation with:	<p>Health Registers and Cancer Monitoring Unit, AIHW.</p>

3.2 Appropriate dimension

3.2.1 Female GPs

Proposed definition:	The number of full-time equivalent (FTE) female GPs per 100,000 expected unreferred GP consultations with females (or per 1,000 standardised whole female patient equivalents (SWPEs)), and the proportion of GPs who are female, in each area (see page 41).
Rationale:	Some women may prefer to visit a female rather than a male GP. Lack of access to a female GP can necessitate a long trip to a location where one is available or can require consultation with a male GP.
Desired outcome:	To achieve high and similar ratios of FTE female GPs to expected consultations with female patients in each area.
Numerator:	The number of FTE female GPs who practise in each area. The number of FTE female salaried primary care medical practitioners in each area.
Denominator:	Expected number of unreferred GP consultations with female patients who live in each area (or the number of standardised whole female patient equivalents who live in each area). The number of FTE GPs who practise in each area. The number of salaried primary care medical practitioners who practise in each area.
Calculation method:	The expected number of consultations is calculated by applying the Major Cities age-specific Medicare/DVA rates of consultation to the population of females in each age group, in each area. (The total number of SWPEs in each area is calculated as the number of females in each age group in each area multiplied by the SWPE weighting factor for females in each age group.) The reported statistics are otherwise simple ratios.
Data source:	AIHW health labour force databases. Medicare/DVA data, AIHW population data.
Presentation:	MC IR OR R VR Total Number of: <ul style="list-style-type: none"> • female GPs and FTE female GPs; • female salaried primary care medical practitioners and their FTE; • GPs and FTE GPs; and • salaried primary care medical practitioners and their FTE. Percentage of: <ul style="list-style-type: none"> • GPs and FTE GPs who are female; and • of salaried primary care medical practitioners and their FTE, who are female.

	<p>The</p> <ul style="list-style-type: none"> • expected number of consultations for female patients resident in each area; and/or • number of female SWPEs resident in each area. <p>The ratio of</p> <ul style="list-style-type: none"> • FTE female GPs to expected female consultations (or to SWPEs resident in each area); and • FTE female GP and salaried primary care medical practitioners to expected female consultations (or to SWPEs resident in each area).
Data coverage:	National, annual.
Data issues:	Interpretation of this indicator should allow for the fact that differences in need across areas (as a result of differences in health status) have not been taken into consideration. All other things being equal, people in areas with poorer health status are likely to require greater medical attention, even though the cause of the poorer health is unlikely to be linked to resources, but rather to other (e.g. environmental) factors such as employment, empowerment, education, opportunity, and so on.
Related indicators:	Prevalence of chronic diseases (1.1.1), Self-assessed health status (1.3.2).
Consultation with:	Labour Force and Rural Health Unit, AIHW. Financing & Analysis Branch, DoHA. General Practice Branch, DoHA.

3.2.2 Specialist hospital procedures

Proposed definition:	Rate of hospital admission for a number of specific procedures (see page 41).						
Rationale:	Remoteness of major hospitals and specialists from the rural population may influence access to specialist procedures.						
Desired outcome:	The pattern presented for procedures should reflect the pattern for deaths or other outcomes, or alternatively rates of procedure should be similar across areas.						
Numerator:	The number of separations for each procedure.						
Denominator:	The population in each area.						
Calculation method:	Indirect age standardisation using Major Cities age-specific rates. Confidence intervals should be used. They could be calculated using the square root transform or similar method.						
Data source:	National Hospital Morbidity database. ABS population database.						
Presentation:	<table border="0" style="width: 100%;"> <tr> <td style="text-align: left;">MC</td> <td style="text-align: left;">IR</td> <td style="text-align: left;">OR</td> <td style="text-align: left;">R</td> <td style="text-align: left;">VR</td> <td style="text-align: left;">Total</td> </tr> </table> <p>Indirect age-standardised rate of procedure for:</p> <ul style="list-style-type: none"> • coronary artery bypass graft; • angioplasty; • hip replacement; • lens insertion; • tonsillectomy; • hysterectomy; and • myringotomy. <p>For the total (Indigenous plus non-Indigenous) and non-Indigenous populations.</p> <p>Describe rates in each area for non-Indigenous people younger than 65 years.</p> <p>For each of these comparisons, also compare with overall rates for Indigenous people living in those states for which identification is considered to be best – these are generally those states with large proportions of their Indigenous people living in regional and especially remote areas.</p> <p>Trend over time.</p>	MC	IR	OR	R	VR	Total
MC	IR	OR	R	VR	Total		
Data coverage:	Updates can be reported annually. Data coverage is Australia-wide.						
Data issues:	<p>A separation is not a count of the number of people who have been to hospital. Some separations are of the same person making several visits. Some people, if living close to a metropolitan hospital during treatment, may have their address recorded as other than their usual rural/remote home address.</p> <p>Indigenous people are under-identified in the hospital morbidity data set, with identification better in more remote</p>						

areas (ABS & AIHW 1999). Reporting for Indigenous people is likely to underestimate rates in all areas, but especially in metropolitan areas. For this reason reporting for Indigenous people in each area should not be attempted and reporting for non-Indigenous should be done with caution.

Related indicators: Specialist consultations (3.2.3).

Consultation with: Hospitals and Mental Health Services Unit, AIHW.

3.2.3 Specialist consultations

Proposed definition:	Non-hospital consultations with specialists from each of the major specialties (see page 41).						
Rationale:	Access to specialists is important for dealing with serious medical conditions and for surgical procedures. Specialist consultations may be inequitably distributed geographically. National Hospital Morbidity data has been used to quantify in-hospital services such as procedures (see indicator 3.2.2) because Medicare data describes procedures for hospital private patients (not hospital public patients). Non-hospital consultations with specialists can be quantified using Medicare and DVA data (i.e. these consultations will attract a Medicare or DVA benefit).						
Desired outcome:	To achieve equitable distribution of ‘out-of-hospital’ specialist consultations across geographic areas.						
Numerator:	For people who live in each area, the number of ‘out-of-hospital’ referred specialist attendances.						
Denominator:	The number of people resident in each area.						
Calculation method:	<p>Indirect age standardisation using Major Cities age-specific rates of non-hospital Medicare/DVA consultation for each speciality. Confidence intervals should be used. They could be calculated using the square root transform or similar method.</p> <p>In trends analysis, indirectly age standardise to Major Cities rates in one (perhaps the most recent) year. Assess the significance of any trends using weighted least squares.</p>						
Data source:	<p>Medicare and DVA data.</p> <p>ABS population estimates (throughout).</p>						
Presentation:	<table border="0" style="width: 100%;"> <tr> <td style="width: 10%;">MC</td> <td style="width: 10%;">IR</td> <td style="width: 10%;">OR</td> <td style="width: 10%;">R</td> <td style="width: 10%;">VR</td> <td style="width: 10%;">Total</td> </tr> </table> <p>Indirect age-standardised rate of procedure for:</p> <ul style="list-style-type: none"> • paediatrics; • obstetrics; • orthopaedics; • pathology; • diagnostic imaging; • optometry; • other specialities; • all specialities; and • all referred attendances. <p>For the total (Indigenous plus non-Indigenous) and non-Indigenous populations.</p> <p>Describe rates in each area for non-Indigenous people younger than 65 years.</p> <p>For each of these comparisons, also compare with overall rates for Indigenous people living in those states for which identification is considered to be best – these are generally those</p>	MC	IR	OR	R	VR	Total
MC	IR	OR	R	VR	Total		

states with large proportions of their Indigenous people living in regional and especially remote areas.

Trend over time.

Data coverage: Updates can be reported annually. Data coverage is Australia-wide.

Data issues: The indicator does not inform whether rates of illness or disease differ between areas, simply whether non-hospital specialist consultation rates differ.

Obtaining compatible Medicare and DVA data can be difficult.

Related indicators: Specialist hospital procedures (3.2.2).

Consultation with: General Practice Branch, DoHA.
Financing & Analysis Branch, DoHA.

3.2.4 Aged care

Proposed definition:	The number of places provided for the care and accommodation of older people in residential aged care services and hospitals, as well as packages (e.g. EACH (Extended Aged Care at Home) and CACP (Community Aged Care Packages)) and HACC (Home and Community Care) provided to assist continued living within the community (see page 42).
Rationale:	Housing and care of the aged is becoming more important because of the ageing population. The pattern of provision of services and care is likely to be different outside metropolitan areas, and people in some areas may be disadvantaged. All means of providing for older people should be considered so that a valid comparison across areas can be made.
Desired outcome:	To achieve equitable distribution of aged care in each area. Care in a residential aged care service or through an aged care package is seen as preferable to care in a hospital setting. Care close to the individual's family and friends is preferable to care further away.
Numerator:	Places (in residential aged care services), bed years (for separations approximating nursing home type patients (NHTPs) in hospitals) and numbers of aged care packages and HACC services provided in each area (i.e. where they are used). NHTPs are approximated as non-acute patients staying more than 35 days if older than 70 years (or more than 50 years if Indigenous). However, this group may also include some others.
Denominator:	Population of people 70 years and older who live in each area. In describing rates for Indigenous people, the Indigenous population older than 50 years could be used as a suitable denominator.
Calculation method:	Divide each numerator by the denominator, then multiply by 1,000. Average age of older people calculated as the mean of the ages of those older than 70 may not be possible (with available data). As an alternative, the percentage of the population older than 70 years who are also older than 85 years.
Data source:	AIHW National Hospital Morbidity database, ABS population estimates, ACCMIS (Aged and Community Case Management Information System) warehouse files supplied by DoHA annually, HACC minimum data set, Community Aged Care Package Census, Extended Aged Care At Home Census, Day Therapy Centre Census.

Presentation:	MC	IR	OR	R	VR	Total
	Number of people aged 70+.					
	Average age of those aged 70+ (or per cent of that group aged 85+).					
	Places in residential aged care services per 1,000 people aged 70+.					
	Bed years provided by hospitals per 1,000 people aged 70+.					
	Aged care packages per 1,000 people aged 70+.					
	HACC services per 1,000 people aged 70+.					
	Rates for these four modes of care would be presented separately for each area.					
Data coverage:	Updates can be reported annually. Data coverage is Australia-wide.					
Data issues:	<p>Each of the services or types of accommodation is not equivalent, therefore it is not possible to sum them to provide an overall picture. Some services such as places provided by multipurpose services and places provided through the ATSI Aged Care Strategy (which are more likely to be provided in more remote areas) are not able to be broken down by area and so are not reported.</p> <p>It may be more appropriate to use the number of people aged 65+ who have a physical disability as the denominator; however, it is not possible to accurately assess the size of this population within each area. If older people are cared for by relatives or friends without accessing government assistance, they would not be represented in this indicator.</p>					
Related indicators:	Internal migration (2.3.3), Dependency ratio (2.3.2).					
Consultation with:	Ageing and Aged Care Unit, AIHW.					

3.2.5 Morbidity managed in general practice

Proposed definition:	The most common health conditions managed by GPs (e.g. depression, anxiety, mental health problems generally, immunisation, insomnia, etc.) for people who live in each area. See page 42.
Rationale:	<p>This indicator describes, for the population in each area, the rate at which specific health conditions are managed by GPs (i.e. what the doctor treats).</p> <p>This indicator is important because little is known of how morbidity managed in general practice changes with remoteness of the patient.</p>
Desired outcome:	To achieve similar rates of consultation in each area, or reflect levels of chronic disease and injury in each area.
Numerator:	Proportions of GP consultations involving the management of each problem type to be based on the latest 4 years unweighted data (June release).
Denominator:	Not applicable.
Calculation method:	<p>Bettering the Evaluation And Care of Health (BEACH) data describes rates of encounter for specific problems managed per 100 GP encounters.</p> <p>BEACH data can also be used to describe the proportion of consultations billed to Medicare/DVA in each area.</p> <p>Medicare/DVA data can describe the number of consultations that are charged to Medicare/DVA on behalf of patients from each area (and indeed by GPs from each area).</p> <p>Using these data sources, the rate of consultation for each health condition can be compared between areas. Comparison involves the calculation of the adjusted number of consultations in each area and the number expected if national rates and patterns applied.</p> <p>The number of expected consultations for each specific condition can be calculated for patients from each area as the sum of the expected number of consultations in all of the age groups.</p> <p>The expected number of consultations (E_i) in each age group can be calculated as:</p> $E_i = R_n \times Q_i$ <p>where</p> <p>R_n = the individual national age-specific rates of consultation for that reason (condition); and</p> <p>Q_i = the number of individuals in that age group in each local population.</p> <p>R_n can be calculated as:</p> $R_n = [N_n \times P_n \times (1/B_n)]/Q_n$

N_n = the national number of consultations for that age group.

P_n = the national age-specific proportion of consultations managed for each reason.

B_n = for the reason, the proportion of consultations charged to Medicare/DVA, nationally for each age group.

Q_n = the number of individuals in that age group in the national population.

The estimated number of actual consultations in each area is the sum of the estimated number of age-specific consultations (O_i) in each area.

O_i can be calculated as:

$$O_i = [N_l \times P_l \times (1/B_l)]$$

N_l = the local number of consultations for that age group.

P_l = the local age-specific proportion of consultations managed for each reason.

B_l = for the reason, the proportion of consultations charged to Medicare /DVA, locally for each age group.

O = the sum of calculated age-specific consultations (O_i)

E = the sum of expected age-specific consultations (E_i)

O/E = the ratio of observed to expected GP consultations (excludes consultations with other primary care medical practitioners)

$O-E$ = the number of consultations in excess of what is expected (or for negative numbers, the shortfall).

The indirect age-standardised rate = $(O/E) \times C$

Where C = the crude national rate of consultation for that reason.

It is likely that use of specific values for B_n and especially for B_l will be on the basis of small numbers and their use may be impractical. Age-specific 'all cause' values for these variables in each area, or even single 'all cause' values for each area may suffice.

Data source:

BEACH data, Medicare/DVA data, ABS population estimate.

Presentation:

MC IR OR R/VR

Rate per 100 GP encounters.

Observed GP encounters.

Expected GP encounters.

O/E .

$O-E$.

Indirect age-standardised rate of GP encounter.

For the range of broad problems managed by GPs.

For residents of each area.

Data coverage:	BEACH survey, random sample of about 1,000 GPs per year who each supply information about 100 encounters with patients. Survey is annual, national, rolling.
Data issues:	<p>Consultations with primary care medical practitioners who are not GPs are not included. These other medical practitioners can provide a substantial volume of service in rural and remote areas. In this national sample of GPs, remote areas are not well represented (data for remote and very remote areas may need to be aggregated), and even so, numbers may be too small to be meaningful.</p> <p>In BEACH data, recording by the GP of the patient's expressed reason for encounter is believed to be considerably less reliable than the GP's coding of the problem managed. Further, the patient reason for encounter is often vague (such as 'need my scripts') and could be less informative regarding population morbidity patterns. Consequently, problem managed will be reported here.</p>
Related indicators:	Primary care medical consultations (3.5.4), Prevalence of chronic diseases (1.1.1), Self-assessed health status (1.3.2).
Consultation with:	Hospitals and Mental Health Services Unit, AIHW. General Practice Statistics and Classification Unit, AIHW.

3.3 Efficient dimension

No indicators

3.4 Responsive dimension

3.4.1 Waiting times for elective surgery

Proposed definition:	The mean, median, 25th and 75th percentiles of the number of days public patients have to wait for elective surgery in public hospitals located in each geographic area, by type of procedure (see page 47).
Rationale:	Private patients have effectively little waiting time for elective surgery. Public patients can sometimes be subjected to substantial waits, during which time they may endure additional pain and/or discomfort. Waiting times may be substantially different in regional or remote areas.
Desired outcome:	To achieve lower waiting times that are similar in each area.
Numerator:	The number of days between the patient being added to the waiting list and admission for elective surgery for hospitals that are in each area.
Denominator:	The number of separations, for elective surgery, of public patients in public hospitals in each area.
Calculation method:	Waiting times for elective surgery for public patients accessing services in public hospitals that are in each area. Medians and 90th percentiles of waiting times for public patients admitted to hospitals in each area.
Data source:	AIHW Elective Surgery Waiting Times data collection.
Presentation:	MC IR OR R VR Total Waiting times for public patients by indicator procedure. Median for hospitals in each area. 90th percentile for hospitals in each area.
Data coverage:	National and annual.
Data issues:	Currently it is not possible to describe waiting times for public patients from each area nationally (although is possible to some extent for patients in South Australia and for most patients in Queensland). This capacity may possibly be expanded in the future so that reporting of waiting times for public patients who live in each area can be described, if/when other states provide waiting time data linked to morbidity data. The statistic reported here is the waiting time for patients at hospitals in each area.
Related indicators:	Specialist hospital procedures (3.2.2), Specialist consultations (3.2.3), Supply of health workers (3.5.2).
Consultation with:	Hospitals and Mental Health Services Unit, AIHW.

3.4.2 GP bulk billing

Proposed definition:	Percentage of GP consultations that are bulk billed in each area (see page 47).
Rationale:	Reduced access to and competition between GPs may result in reduced access to bulk billing for the population. This may be an impediment for rural people (a larger proportion of whom are poorer) to access GP services.
Desired outcome:	To achieve high and similar rates of bulk billing in each area.
Numerator:	The number of unreferral GP consultations that were bulk billed for people who live in each area. The number of unreferral GP consultations that were bulk billed by GPs from each area.
Denominator:	The total number of unreferral GP consultations for people from each area and for GPs from each area.
Calculation method:	Simple percentage and directly age-standardised percentage of unreferral GP consultations that are bulk billed. Percentages to be standardised to the Australian population of consultations.
Data source:	Medicare data and ABS population estimates.
Presentation:	MC IR OR R VR Total Number of consultations by GPs from each area. Number of GP consultations for people from each area. Number of consultations bulk billed by GPs from each area. Number of GP consultations bulk billed for people from each area. Crude percentage bulk billed by GPs from each area. Crude percentage bulk billed for people from each area. Direct age-standardised percentage of consultations bulk billed for people who live in each area. Regional contribution to overall changes in bulk billing rates.
Data coverage:	Annual and national.
Data issues:	This indicator does not describe state-funded consultations by primary care medical practitioners working as salaried medical officers out of public hospital accident and emergency departments. Age standardisation is used because the probability of bulk billing is age-related.
Related indicators:	Household income (2.2.5), GP retention (3.9.2), Prevalence of chronic diseases (1.1.1), Morbidity managed in general practice (3.2.5).
Consultation with:	Financing & Analysis Branch, DoHA.

3.5 Accessible dimension

3.5.1 Distance to medical services

Proposed definition:

The proportion of people who are within 20, 40, 60 and 80 km by road of a GP, a GP service,² hospital, Aboriginal Medical Service (AMS), and a remote area nurse.

In addition to reporting for these five groups separately, reporting would also include the proportion who are:

- within 20 km of a hospital or full-time GP (\$250,000 worth of Medicare billing) or full-time AMS or remote area nurse base which the nurse never leaves (i.e. non-travelling nurse). This indicates access to emergency care with staff who have some level of medical/nursing skill who are permanently present at that location;
- within 20 km (or other distance(s)) of the above plus locations where there is a GP working at least 1 day a week (see definition below). This indicates access to medical/nursing workforce and to regular but non-continuous medical services (e.g. immunisation, updating scripts, check-ups etc.); and
- as above, but also including locations which are within 100 km by road of a remote area nurse base (where the nurse is a travelling nurse). This indicates access to at least intermittent medical services at the more basic end of the scale. Communities that have regular, but non-continuous, access to a remote area nurse are presumably more advantaged than those who do not have such access, but more disadvantaged than those who have access to a GP.

Currently, GISCA (the National Key Centre for the Social Applications of Geographic Information Systems) has the ability to report on the proportion of the population who are close to GPs, hospitals and AMSs. The capacity to report for remote area nurses is currently being developed.

Clearly it is not possible to equate the services provided by a remote area nurse (RAN) with that provided by a hospital (or GP) providing services from one centre. The former provides intermittent health services to small communities over a large area and under difficult conditions, while the latter provides more complex help on a continuous basis at a fixed point. Presentation of these data tries to recognise these issues.

Because of the importance of the issue of Indigenous health and the large proportions of the remote area population who are

² A location which has a GP service has been defined here as one where annual GP Medicare claims for all GPs working at that location total at least \$50,000. This equates to a GP service being available at that location for approximately 1 day per week (52 weeks per year).

Indigenous, it would also be desirable to report for Indigenous people. This would further complicate the presentation of the indicator. Against this must be balanced the possibility that for Indigenous people in more remote areas, the provision of services may be through other means or by workers for whom data does not exist.

See page 50.

Rationale:	This indicator has been proposed because of the importance of proximity to services for people living in the remote parts of Australia. Simply reporting ratio of certain services per head of population ignores the fact that people who live in towns where services exist have good physical access to services, while people who live in other areas may have very poor access. An additional feature of using GIS technology in this way is to identify areas where people do not have access to any of these services.
Desired outcome:	A high proportion of people who are close to each service in each area.
Numerator:	Not applicable.
Denominator:	Not applicable.
Calculation method:	Per GISCA.
Data source:	Per GISCA.
Presentation:	Data would be presented as a graph, table and map. The graph would compare the proportion of the population with access to each service and also to each combination of services in each area. The table would provide numeric information for the graph, along with total number of people affected. The map would identify specific geographic areas with lower levels of access and the identity and size of the population at each affected centre.
Data coverage:	National and yearly.
Data issues:	Using road distance as a measure of access presupposes that all roads are of equal quality and that all people have equal access to transport (i.e. cars). For those people without access to a car, and with lower levels of, or non-existent, public transport in rural and especially remote areas, being 20 km from services presents a much greater barrier to accessing those services than does such a distance in less remote areas. This issue assumes even greater significance when it is considered that the people who are less likely to have transport are also the people who are likely to have poorer health and are more likely to need to access health services (e.g. low income and Indigenous people).

Data for remote area nurses are not yet available.

Locations where services provided by GPs amount to less than \$50,000 per year are excluded.

GPs based in one area, who also provide services in another, can have two provider numbers: one for the main location and the other for the second location. Details of work performed at each location are based on these provider numbers. However, not all GPs who also work in another location use a second provider number, and so description of services provided in remote areas is likely to be understated using this indicator.

Related indicators: Specialist hospital procedures (3.2.2), Primary care medical consultations (3.5.4).

Consultation with: GISCA (the National Key Centre for the Social Applications of Geographic Information Systems).

3.5.2 Supply of health workers

Proposed definition:	The number of major groups of health workers and their full-time equivalent working in each area (see page 52).
Rationale:	Access to services is at least partially affected by the number of available workers in an area from each profession per unit of population. Differences in these ratios or in the ratio of expected numbers of services to actual numbers of available health workers may signal the need for changes in the number of workers in each area.
Desired outcome:	To achieve similar ratios in each area, or for ratios to become higher in areas with poorer health outcomes. For professions requiring travel (e.g. allied health workers), ratios should be higher in more remote areas.
Numerator:	The number (and full-time equivalent) of general practitioners, other primary care medical practitioners, selected specialist medical practitioners, enrolled and registered nurses, selected allied health workers, dentists and pharmacists working in each area.
Denominator:	The number of people living in each area. The predicted number of services required for people who live in each area.
Calculation method:	Divide the number of health workers or FTEs by the population resident in each area. The predicted number of services is the number of services that would be performed if national age-specific service provision rates were applied to the population in each area. The ratio of predicted services to FTE is the number of predicted services divided by the number of FTEs for that profession in that area. National age-specific service provision rates (or proxy) for most age groups and for several professions can be estimated from the National Health Survey, BEACH, Medicare and National Hospital Morbidity data.
Data source:	AIHW health labour force databases. ABS population estimates. Medicare/DVA data. ABS National Health Survey. AIHW National Hospital Morbidity Database. BEACH data.

Presentation:	MC IR OR R VR Total
	Number of health workers.
	FTE of health workers.
	Ratio of health workers to population.
	Ratio of FTE to population.
	Ratio of 'predicted' services to FTE (where possible).
	For:
	<ul style="list-style-type: none"> • GPs; • other primary care medical practitioners; • selected specialists (paediatricians, obstetricians, anaesthetists, orthopaedic surgeons, general surgeons); • registered nurses; • enrolled nurses; • allied health (selected physiotherapists, occupational therapists, etc.); • dentists; and • pharmacists.
Data coverage:	National, some annual, some up to 3 yearly.
Data issues:	<p>Some populations are older, some sicker, some poorer. Simply dividing the number of health workers by population and comparing the ratio, without taking population profile based need into consideration, may not make a valid comparison. An assessment of equity needs to be made on the basis of other indicators also, for example demographics (hence the ratio of predicted services to FTE) and health (which may be estimable from health status indicators).</p> <p>Estimates of values for FTE are based on the workers' estimates of where their main, second and third jobs are located. There is some concern that a proportion of workers may not identify their second and third job, and so the ratio may possibly be understated in more remote areas.</p> <p>Some workers in rural and remote areas need to travel to outlying communities. The time taken to travel is at the expense of time spent with patients, therefore a greater number of workers may be required for the same output. This effect has not been taken into consideration but needs to be considered during interpretation.</p> <p>The AIHW labour force databases are compiled as a by-product of annual or biannual professional registration. Professions that do not require registration are not represented.</p>
Related indicators:	Prevalence of chronic diseases and injury (1.1.1-1.1.2), Workforce in training (3.9.1), Leading causes of death and 'excess' death (1.4.4).
Consultation with:	Labour Force and Rural Health Unit, AIHW.

3.5.3 Hospital separations and bed days

Proposed definition:	<p>Rate of hospital separation and consumption of bed days due to acute causes, non-acute causes and all causes for patients from each area, and to hospitals in each area:</p> <ul style="list-style-type: none">• dialysis and chemotherapy;• non-acute staying more than 35 days and older than 70 years if non-Indigenous or older than 50 years if Indigenous*;• other non-acute;• injury and poisoning;• all other acute;• all acute; and• all causes. <p>*Approximates nursing home type patients (NHTPs). See page 53.</p>
Rationale:	<p>Hospital admission (separation) rates are frequently used to demonstrate the differences in health status or access to health services for people who live in non-metropolitan areas. This indicator compares rates of admission and bed days consumed for several classes of admission and to indicate where people from each area are admitted (e.g. are they admitted to metropolitan or local hospitals).</p>
Desired outcome:	<p>To achieve similar rates for acute admissions in each area, or higher rates where rates of chronic diseases and injury are higher. Bed days for 'NHTPs' low and similar in each area; admissions for dialysis and chemotherapy in line with prevalence of chronic disease and rates of chronic disease mortality.</p>
Numerator:	<p>Hospital separations of, and bed days consumed by, residents of each area, in hospitals in each area.</p>
Denominator:	<p>The population of each area.</p>
Calculation method:	<p>Rates to be indirectly age standardised using national age-specific rates of separation and consumption of bed days as the standard.</p>
Data source:	<p>AIHW National Hospital Morbidity Database. ABS population estimates.</p>

Presentation:	<p>MC IR OR R VR Total</p> <p>Hospital separations per 1,000 population and Bed days per 1,000 population for:</p> <ul style="list-style-type: none"> • dialysis and chemotherapy; • 'nursing home type patients' (NHTPs); • other non-acute; • injury and poisoning; • all other acute; • all acute; and • all separations. <p>For both sexes, for the total population, Indigenous and non-Indigenous.</p> <p>Comparison of rates of admission and consumption of bed days to be presented as ratios of observed to expected in a table. The percentage of admissions and bed days due to each cause in each area to be described using a stacked bar chart. The indirect age-standardised rate of admission and bed days consumed as a result of acute admissions to be presented in a stacked bar chart, with each segment proportional to the rate of admission or bed days consumed in hospitals in each area.</p>
Data coverage:	<p>Updates can be reported annually. Data coverage is Australia-wide.</p>
Data issues:	<p>Separation from hospital is both an indicator of health and also an indicator of access (although frequently it is unclear which of these has the greatest impact on rate of admission). Admission to hospital will also be affected by admission policies that will, of necessity, differ between metropolitan and rural areas.</p> <p>Indigenous people are under-identified in the National Hospital Morbidity data set, with identification better in more remote areas (ABS & AIHW 1999). Reporting for Indigenous people is likely to underestimate rates in all areas, but especially in metropolitan areas. For this reason reporting for Indigenous people should not be attempted and reporting for non-Indigenous people should be done with caution.</p>
Related indicators:	<p>Prevalence of chronic diseases (1.1.1), Specialist hospital procedures (3.2.2), Aged care (3.2.4), Waiting times for elective surgery (3.4.1).</p>
Consultation with:	<p>Hospital Morbidity and Mental Health Services Unit, AIHW.</p>

3.5.4 Primary care medical consultations

Proposed definition:	The adjusted rate of consultation of medical practitioners in general practice settings and in outpatient departments (see page 53).
Rationale:	Access to primary care medical practitioners is a major rural health issue. Primary medical care can be accessed through medical practitioners working in private practice or hospital outpatients departments. Adjusted Medicare/DVA data can provide information about private practice encounters, while information about encounters in hospital outpatients departments is available from the National Hospital Morbidity data set. The patterns of use for both of these types of service differ with remoteness.
Desired outcome:	To achieve similar rates of consultation across areas.
Numerator:	Number of GP-type Medicare and DVA consultations for residents of each area, adjusted for encounters not billed to Medicare or DVA (using BEACH data). Number of public hospital outpatient occasions of service.
Denominator:	Population in each area in the same year.
Calculation method:	The statistic involves comparing the adjusted number of primary medical care consultations with the expected number in each area. National age-specific rates of consultation for Medicare and DVA are adjusted using BEACH-derived national age-specific adjustment factors (AMWAC 2000). These national rates are applied to local populations to generate an expected number of consultations. The expected number of consultations is compared with the sum of the local (age-specific) numbers of consultations, adjusted by local age-specific BEACH adjustment factors. The reported statistic would be the ratio of the adjusted observed number over the adjusted expected number of consultations. The statistic for describing the rate of attendance at outpatient departments would be calculated in the same way, but without the need for adjustment. BEACH adjustment factors are a measure of the proportion of GP attendances that are charged to Medicare/DVA nationally and in each area (a proportion of GP attendances are not charged to Medicare or DVA). There needs to be some form of age standardisation because of the sensitivity of consultation rates to age and sex of the patient, coupled with the differences in the age and sex structure of the populations in the various areas.

	Rates need to be adjusted using BEACH data because attendances in more remote areas are less likely to be charged to Medicare or DVA.
Data source:	Medicare and DVA patient data, BEACH data, AIHW National Hospital Establishments Database, ABS population estimates.
Presentation:	<p>MC IR OR R VR Total</p> <p>Adjusted number of patient encounters per 100,000 population:</p> <ul style="list-style-type: none"> • in private practice; • as outpatients in public hospital; and • total. <p>The ratio of observed to expected attendances:</p> <ul style="list-style-type: none"> • in private practice; • as outpatients in public hospital; and • total.
Data coverage:	Data are available yearly. Coverage is national.
Data issues:	<p>This indicator may omit some proportion of contacts with primary medical care at Aboriginal Medical Services (AMS). Hospital outpatients primary care type services may not be identical to private practice services.</p> <p>The indicator does not take into consideration the fact that some populations may have poorer health and greater need. Interpretation needs to bear these issues in mind independently.</p> <p>The indicator also does not take into consideration any differences in the length of consultation (i.e. all consultations are assumed to be of equal average duration).</p> <p>Outpatient occasions of service described in the Hospital Establishments Database is by area of the hospital, not area of the patient. Also, it is not possible to describe the number of these occasions of service for each age group.</p>
Related indicators:	Rate of specialist consultation (3.2.2-3.2.3), Prevalence of chronic diseases and injury (1.1.1-1.1.2), Leading causes of death and 'excess' death (1.4.4), Health behaviour indicators (2.4.1-2.4.6).
Consultation with:	<p>General Practice Branch, DoHA.</p> <p>Financing & Analysis Branch, DoHA.</p> <p>Health Registers and Cancer Monitoring Unit, AIHW.</p> <p>Hospital Morbidity and Mental Health Services Unit, AIHW.</p>

3.5.5 Dental consultations

Proposed definition:	Rate of, and reason for, dental consultations. Reasons for visit include pain, other problem, check-up, and so on (see page 53).
Rationale:	Access to dentists is important for dealing with dental conditions that cause pain, affect wellbeing or reduce self-confidence. Dental consultations may be inequitably distributed geographically.
Desired outcome:	To achieve similar rates of consultation in each area.
Numerator:	Number of dental consultations, by broad reason for visit.
Denominator:	Number of respondents to the National Health Survey.
Calculation method:	Mean annual number of dental consultations, directly age standardised to the Australian population in 2001. Also report for broad age groups (e.g. 0–19, 20–39, 40–59, 65+ years) if the data supports this level of analysis. Although rates for females are higher than for males, the difference is not great. Reporting for persons rather than by sex will increase the power in the analysis.
Data source:	ABS National Health Survey (currently 1995 and 2001 available).
Presentation:	MC IR OR Total Direct age-standardised mean annual number of dental consultations. For all reasons and by reason for visit (if possible). For males and females, and for life-stage age groups. Total (Indigenous plus non-Indigenous) population. If inter-regional comparisons for non-Indigenous people are different from those for the total population, present for non-Indigenous also. In all cases make comparison with estimates for the total Indigenous population. For each year (e.g. 1995 and 2001, using Major Cities age-specific rates in each year as the standard). Include 95% confidence intervals for all estimates.
Data coverage:	National and approximately 5 yearly (prior to 2001), 2–3 yearly (from 2001).
Data issues:	The National Health Survey data has poor coverage in remote areas, has difficulty reporting for Indigenous people at regional level, and may be biased in the more remote areas. See comments on page 62. The use of direct rather than indirect age standardisation will diminish the opportunity to assess age-specific comparisons. Another source of data is the National Dental Telephone Interview Survey; however, its small sample size reduces its usefulness (particularly in non-metropolitan areas). Also,

telephone coverage in some regional areas and most remote and very remote areas may be substantially less than 100%. This may bias the survey results in these areas to wealthier people, who are likely to have better access and better health outcomes than poorer people. This survey was conducted in 1994–96, 1999, and will be again in 2002 and 2005. Sample sizes were 7,987 in 1994; 5,101 in 1995; 8,292 in 1996; and 7,829 in 1999.

The changes in availability of free/subsidised dental health care for lower income earners may result in changes in consultation rates over time. It is possible that a review of the data within cohorts may ultimately be appropriate.

Related indicators: Oral health (1.1.4), Supply of health workers (3.5.2).

Consultation with: Dental Statistics Research Unit, AIHW.

3.5.6 Prescription

Proposed definition:	Rate of prescription for selected groups of pharmaceuticals (see page 54).						
Rationale:	Large distance from a community pharmacist or a hospital pharmacist may reduce the opportunity for people to access this service and fill prescriptions. This indicator attempts to compare the rate of prescription for all, and several major groups of, pharmaceuticals for people who live in each area.						
Desired outcome:	To achieve similar rates of prescription in all areas, or higher in areas with poorer health outcomes.						
Numerator:	<p>The number of prescriptions for Generic (Anatomical Therapeutical Chemical (ATC) level 5) drugs costing more than the threshold amount, aggregated up to ATC level 2 for those categories for which inter-regional comparison is considered valid.</p> <p>Comparison of prescription rates for preventive and disease management pharmaceuticals would be desirable.</p>						
Denominator:	The number of people resident in each area.						
Calculation method:	<p>Indirect age-standardised rate of prescription, using Major Cities age-specific rates in the most recent year as the standard.</p> <p>Confidence intervals should be used. They could be calculated using the square root transform or similar method.</p> <p>In trends analysis, indirectly age standardise to Major Cities rates in one (perhaps the most recent) year. Assess the significance of any trends using weighted least squares.</p>						
Data source:	DoHA Pharmaceutical Benefits Scheme (PBS) data. ABS population estimates.						
Presentation:	<table><thead><tr><th>MC</th><th>IR</th><th>OR</th><th>R</th><th>VR</th><th>Total</th></tr></thead></table> <p>For males and females.</p> <p>Rate of prescription per 100,000 population.</p> <p>Major (level 2 ATC) groups of pharmaceuticals, for which inter-regional comparisons are likely to be valid (e.g. high expense).</p> <p>Trends over time.</p>	MC	IR	OR	R	VR	Total
MC	IR	OR	R	VR	Total		
Data coverage:	Annual and national.						
Data issues:	Full details of pharmaceutical use are collected for concession holders and also for those pharmaceuticals that are expensive enough to attract a benefit under the PBS. Valid comparison between total rates of supply in each area is not possible for the less expensive items, because recorded details apply only to concession cardholders. Valid inter-regional comparisons can currently only be for the more expensive items.						

Not all pharmaceuticals are supplied through the PBS. Some are supplied by state health departments through public hospitals and some by Aboriginal Medical Services (AMS). It also appears likely that there are regional differences in the likelihood of pharmaceuticals being supplied by each of these sources. It appears that hospitals and AMS provide information on the total cost of the pharmaceuticals they supply, but not on the number of units of specific pharmaceuticals supplied. These data sources would need to be developed to get an accurate understanding of the total supply of pharmaceuticals in each area.

Data on postcode has only lately become available and so reporting by area is possible only from 2002.

Related indicators: Supply of health workers (3.5.2), Prevalence of chronic diseases (1.1.1), Leading causes of death and 'excess' death (1.4.4).

Consultation with: Pharmaceutical Access and Quality Branch, DoHA.
Pharmaceutical Evaluation/Pharmaceutical Benefits Branch.

3.5.7 Access to disability services

Proposed definition:	The number of occasions of service of each major type, per 1,000 residents estimated to have a disability in each area (see page 55).						
Rationale:	Different rates of service provision may indicate different levels of access to services for people with disabilities.						
Desired outcome:	To achieve similar rates of service provision in each area.						
Numerator:	The number of people from each area accessing disability services on the snapshot day.						
Denominator:	The number of people estimated to have a profound/severe disability in each area.						
Calculation method:	Divide the number accessing the service on the snapshot day by the number of people estimated to have a profound/severe disability. The summary statistic is a ratio.						
Data source:	Commonwealth/State Disability Agreement (CSDA) Minimum Data Set (snapshot day data).						
Presentation:	<table border="0" style="width: 100%;"> <tr> <td style="text-align: center;">MC</td> <td style="text-align: center;">IR</td> <td style="text-align: center;">OR</td> <td style="text-align: center;">R</td> <td style="text-align: center;">VR</td> <td style="text-align: center;">Total</td> </tr> </table> <p>Ratio of the number of people accessing disability services to the number with a profound/severe disability in each area.</p>	MC	IR	OR	R	VR	Total
MC	IR	OR	R	VR	Total		
Data coverage:	Data available nationally and annually.						
Data issues:	<p>Until recently, it was not possible to use this statistic because data on the provision of service was available for location of the service, rather than location of the client.</p> <p>All jurisdictions now collect service user postcode, which is then converted to ASGC Remoteness region. The most recent year for which data are now available is 2003-04.</p> <p>This indicator describes only one of several programs that assist people with disabilities. This indicator ignores the contribution from programs such as Home and Community Care (HACC). One person can use more than one service on any one snapshot day.</p> <p>The summary statistic is not a true rate, but is based on a survey-generated estimate of the number who have a disability and an indicative measure of the number of people accessing a service on a snapshot day.</p> <p>This indicator should be interpreted with caution because people with disabilities, unable to obtain services where they live, may migrate to less remote areas so as to obtain services.</p>						
Related indicators:	Prevalence of disability (1.2.1).						
Consultation with:	Functioning and Disability Unit, AIHW.						

3.6 Safe dimension

3.6.1 Surgical and medical misadventure

Proposed definition:	The rates of death and hospital admission as a result of surgical and medical misadventure (see page 57).
Rationale:	The chances of successful medical and surgical care may not be similar for people from all areas.
Desired outcome:	To achieve rates of misadventure that are low and similar across all areas, decreasing over time.
Numerator:	The number of admissions and deaths as a result of surgical and medical misadventure (ICD10 Y40–Y84) for residents of each area.
Denominator:	The number of admissions requiring a procedure (as a measure of exposure to medical and surgical intervention) for residents of each area.
Calculation method:	<p>Indirect age-standardised rate of misadventure, using Major Cities age-specific rates in the most recent year as the standard.</p> <p>Confidence intervals should be used. They could be calculated using the square root transform or similar method.</p> <p>In trends analysis, indirectly age standardise to Major Cities rates in one (perhaps the most recent) year. Assess the significance of any trends using weighted least squares.</p>
Data source:	AIHW National Hospital Morbidity Database. AIHW Mortality Database. ABS population estimates.
Presentation:	MC IR OR R VR Total Number of deaths. Number of admissions. Indirect age-standardised rates of: <ul style="list-style-type: none">• death; and• admission. Trends over time.
Data coverage:	Annual and national.
Data issues:	<p>It is not possible to determine from the data where the misadventure took place.</p> <p>The denominator describes only admissions to hospital requiring procedure. Other interventions (e.g. private medical consultations) are not considered.</p>
Related indicators:	Specialist hospital procedures (3.2.2), Primary care medical consultations (3.5.4).
Consultation with:	Hospitals and Mental Health Services Unit, AIHW.

3.7 Continuous dimension

3.7.1 Care planning and case conferencing

Proposed definition:	The rate of care planning and case conferencing (i.e. care of a patient coordinated between health professionals) for the population in each area (see page 58).						
Rationale:	Care planning and case conferencing aim to promote coordination of the care of a patient with at least one chronic medical condition and complex multidisciplinary care needs. This involves a GP planning or meeting with at least two other health professionals. Better coordination is likely to improve the quality of care for patients.						
Desired outcome:	To achieve rates of care planning and case conferencing similar in each area. It is unclear what level of service is most appropriate.						
Numerator:	The number of Medicare claims for item numbers 720-730 (care planning) and 734-779 (case conferencing).						
Denominator:	The population in each area and the number of people who are admitted to hospital for a procedure.						
Calculation method:	<p>Indirect age-standardised rate of case planning and care conferencing, using Major Cities age-specific rates in the most recent year as the standard.</p> <p>Confidence intervals should be used. They could be calculated using the square root transform or similar method.</p> <p>In trends analysis, indirectly age standardise to Major Cities rates in one (perhaps the most recent) year. Assess the significance of any trends using weighted least squares.</p>						
Data source:	Medicare data, ABS population estimates, AIHW National Hospital Morbidity Database.						
Presentation:	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">MC</td> <td style="width: 10%;">IR</td> <td style="width: 10%;">OR</td> <td style="width: 10%;">R</td> <td style="width: 10%;">VR</td> <td style="width: 10%;">Total</td> </tr> </table> <p>Indirect age standardised rate of:</p> <ul style="list-style-type: none"> • care planning; and • case conferencing. <p>Time trends.</p> <p>The indirect age-standardised rate of hospital admission requiring procedure (as a proxy measure of ill health) for comparison.</p>	MC	IR	OR	R	VR	Total
MC	IR	OR	R	VR	Total		
Data coverage:	National and annual.						
Data issues:	<p>These data items are relatively new. It is anticipated that use of these Medicare item numbers will improve over time.</p> <p>The comparison will be between the number of occasions of service and both the number of people in the population and the number of people who are admitted to hospital for a procedure (as a measure of ill health requiring care). The statistics should</p>						

be treated as indicative ratios rather than as true rates.

Related indicators: Prevalence of chronic diseases (1.1.1).
Consultation with: Financing & Analysis Branch, DoHA.
Primary Care Division, DoHA.

3.8 Capable dimension

3.8.1 Public hospitals

Proposed definition:	<p>The distribution of public hospitals from each peer group, their size (in relation to number of beds) and the percentage that are accredited in each area (see page 59).</p> <p>The distribution of public hospitals from each peer group, their size (in relation to number of beds) and the percentage that are accredited in each area. See page 59.</p>						
Rationale:	Accreditation is a measure of compliance with recommended standards. A high proportion of hospitals complying with the standard indicates a higher level of capability.						
Desired outcome:	To achieve similar rates of public hospital accreditation in each area.						
Numerator:	The number of accredited public hospitals and hospital beds in each area that are in each hospital peer group.						
Denominator:	The number of public hospitals and hospital beds in each area that are in each hospital peer group.						
Calculation method:	The statistic to be reported as a simple proportion.						
Data source:	AIHW National Hospital Establishments Database.						
Presentation:	<table border="0" style="width: 100%;"> <tr> <td style="text-align: center;">MC</td> <td style="text-align: center;">IR</td> <td style="text-align: center;">OR</td> <td style="text-align: center;">R</td> <td style="text-align: center;">VR</td> <td style="text-align: center;">Total</td> </tr> </table> <p>The number of accredited hospitals and hospital beds in each peer group.</p> <p>The number of hospitals and hospital beds in each peer group.</p> <p>The proportion of hospitals in each peer group that are accredited.</p> <p>The proportion of hospital beds in each hospital peer group that are accredited.</p>	MC	IR	OR	R	VR	Total
MC	IR	OR	R	VR	Total		
Data coverage:	National and annual.						
Data issues:	<p>Private hospitals are not included.</p> <p>There are some concerns about the quality of data. Accreditation can be by a range of accrediting bodies and for a range of issues, not all of which are comparable. The use of each accreditation program varies with remoteness.</p>						
Related indicators:	Surgical and medical misadventure (3.6.1).						
Consultation with:	Hospitals and Mental Health Services Unit, AIHW.						

3.9 Sustainable dimension

3.9.1 Workforce in training

Proposed definition:	Number of commencements of students from each area enrolled in first-year studies of selected health disciplines (see page 60).
Rationale:	It is believed that health sector students from rural areas are more likely to return to rural areas to practise. This indicator describes enrolment of rural students in tertiary health sector courses. Increasing the proportions of enrolments from rural and remote areas is desirable.
Desired outcome:	To achieve strong and growing representation of students from rural and remote areas training in the health sector.
Numerator:	<p>The number of students aged 17–20 years from each area commencing bachelors degree health courses. Data are available from 1989 for trend analysis.</p> <p>Disciplines proposed for reporting include:</p> <ul style="list-style-type: none">• medicine (ASCO 07.05.02)• occupational therapy (ASCO 07.06.02)• physiotherapy (ASCO 07.06.03)• speech pathology (ASCO 07.06.04)• dentistry (excludes dental therapists) (ASCO 07.02.01)• health surveying and environmental health (ASCO 07.03.04)• nursing (basic) (ASCO 07.04.02)• medical radiography (ASCO 07.04.04)• medical technology (ASCO 07.04.05)• nutrition and dietetics (ASCO 07.04.06)• optometry (ASCO 07.04.07)• pharmacy (ASCO 07.04.08)• podiatry (ASCO 07.04.09)
Denominator:	Numbers of existing workers in each area and an estimate of the size of a 1-year cohort from each area.
Calculation method:	Report raw numbers for each year. Also divide numerator by denominator to provide a ratio of the number of students commencing training to the number of workers already practising, and a proxy for the percentage of their cohort enrolling from each area.
Data source:	Department of Education, Science and Training (DEST) Higher Education data holdings (commencements), AIHW labour force data, ABS population estimates.

Presentation:	MC	IR	OR	R	VR	Total
	For the following courses:					
	<ul style="list-style-type: none"> • medicine; • occupational therapy; • physiotherapy; • speech pathology; • dentistry (excluding therapists); • health surveying and environmental health; • nursing (basic); • medical radiography; • medical technology; • nutrition and dietetics; • optometry; • pharmacy; and • podiatry. 					
	Number of students.					
	Number of existing workers.					
	Number of FTE (existing workers).					
	Population in 'cohort'.					
	Ratio of students to workers.					
	Students per 1,000 in the 'cohort'.					
	Time trend.					
Data coverage:	Annual, national.					
Data issues:	<p>The postcode listed on the commencements file may not, in a small number of cases, reflect all students who have commenced study who are from a rural or remote area. It is possible that students may record their 'semester/term residence' address as their 'permanent home residence'. This is more likely to be a problem on the course completions file (a student's ties with the parental home are likely to be weaker by the time they complete a course).</p> <p>Also, there are difficulties in expressing commencements of health-related courses as a rate per head of population or as a ratio, due to the difficulty in selecting the appropriate source population. Using 15-19 or 15-24 year olds as the denominator would lead to a higher rate of commencements in rural and remote areas because of the smaller population of that cohort remaining in these areas after a substantial proportion move to seek employment or further education.</p> <p>The population of 10-14 year olds 5 years prior to commencement is an imperfect but practical denominator.</p>					
Related indicators:	Supply of health workers (3.5.2), High school retention rates (2.2.2).					
Consultation with:	Labour Force and Rural Health Unit, AIHW.					

3.9.2 GP retention

Proposed definition:	The number and percentage of general practitioners receiving rural retention payments (see page 61).
Rationale:	Rural retention payments are both a measure of how long GPs work in non-metropolitan areas and a reward for fulfilling a community need. Monitoring of the total amount paid in rural retention payments in each area would indicate changes in retention.
Desired outcome:	To achieve an increase in the percentage of GPs who receive rural retention payments over time, while maintaining or increasing the per capita supply of GPs.
Numerator:	The number of GPs receiving rural retention payments.
Denominator:	The number of GPs working in each area.
Calculation method:	Divide the numerator by the denominator.
Data source:	HIC data. AIHW Medical Labour Force database.
Presentation:	MC IR OR R VR Total Number of GPs receiving retention payments. Number of GPs in each area. Percentage of GPs receiving retention payments. Percentage of GPs qualifying for retention payment categories A to E.
Data coverage:	National and annual.
Data issues:	Primary care medical practitioners working under other systems (e.g. state salaried medical officers) are also included when they work in areas covered by retention payment categories C, D and E. Categories A, B, C, D and E are determined on the basis of remoteness (E being most remote); qualifying periods in more remote areas are shorter and payments are higher. An increase in the percentage of GPs receiving retention payments could result from a reduction in the overall number of GPs in each area, rather than from an increase in the number of those receiving retention payments. Percentages should be interpreted in the light of absolute numbers of GPs in each area.
Related indicators:	Supply of health workers (3.5.2).
Consultation with:	General Practice Branch, DoHA. Financing & Analysis Branch, DoHA.

3.9.3 Hours worked and age of health workers

Proposed definition:	Hours worked, age and sex of health workers; including general practitioners, other primary care medical practitioners, selected specialist medical practitioners, enrolled and registered nurses, selected allied health workers, dentists and pharmacists working in each area (see page 61).						
Rationale:	Rural health workers are likely to be older, work longer hours and be male. These features have important effects on the appropriateness and sustainability of the provision of service.						
Desired outcome:	To achieve similar characteristics in all areas.						
Numerator:	Hours worked, age and sex of health workers.						
Denominator:	Number of health workers.						
Calculation method:	Simple percentages, mean, median, 25th and 75th percentiles, and distribution of working hours and age.						
Data source:	AIHW health labour force databases.						
Presentation:	<table border="0" style="width: 100%;"> <tr> <td style="text-align: left;">MC</td> <td style="text-align: left;">IR</td> <td style="text-align: left;">OR</td> <td style="text-align: left;">R</td> <td style="text-align: left;">VR</td> <td style="text-align: left;">Total</td> </tr> </table> <p>For males and females, mean, median, 25th and 75th percentiles:</p> <ul style="list-style-type: none"> • hours worked in each area; and • age. <p>For:</p> <ul style="list-style-type: none"> • GPs; • other primary care medical practitioners; • selected specialists (paediatricians, obstetricians, anaesthetists, orthopaedic surgeons, general surgeons); • registered nurses; • enrolled nurses; • allied health (selected physiotherapists, occupational therapists, etc.); • dentists; and • pharmacists. 	MC	IR	OR	R	VR	Total
MC	IR	OR	R	VR	Total		
Data coverage:	Some occupations can be updated annually (e.g. medical), while others can be updated 2 yearly (nursing), 3 yearly (allied health) or less frequently (dentistry, pharmacy). Coverage is for all of Australia.						

Data issues: Total hours worked on call by medical practitioners is not available, but rather is included among the total hours worked reported here. It is not possible from the data to determine the number of nights or weekends off duty for medical practitioners in each area.

Because health workers can work in several locations, hours worked have been proportionally allocated to the various locations where the worker said they worked.

The use of full-time workload equivalent (FWE) was considered. FWE (based on receipts from Medicare for each GP) could be used as an estimate of workload, with those earning more from Medicare than a standard amount (e.g. \$185,000) considered to be overworked. A potential complication is that rural and remote GPs may need to travel more (therefore reducing the opportunity to earn), and it is possible that, for some GPs, Medicare may be only one source of income.

The suggested indicator is based on hours worked (not income earned) and may consequently be a better measure.

Related indicators: GP retention (3.9.2).

Consultation with: Labour Force and Rural Health Unit, AIHW.