

# National Health Performance Authority

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## Healthy Communities:

Avoidable deaths and life expectancies in 2009–2011

## Technical Supplement



National Health Performance Authority

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# Summary

The National Health Performance Authority (the Authority) publishes two streams of reports: Healthy Communities reports and Hospital Performance reports. The Authority bases its performance reports on the 48 indicators agreed by the Council of Australian Governments.

This technical supplement summarises the methods used to calculate the descriptive statistics for the indicators presented in *Healthy Communities: Avoidable deaths and life expectancies in 2009–2011*. The content of this supplement assumes that readers possess technical expertise in the creation and use of health information.

*Healthy Communities: Avoidable deaths and life expectancies in 2009–2011* publishes statistics for 61 Medicare Locals across Australia, and seven clusters of Medicare Locals called peer groups, in the form of:

- Comparable rates of potentially avoidable deaths and life expectancies at birth across local areas
- Profiles of the 61 Medicare Local catchments using a total of 18 measures.

Four of the measures presented in the report have not previously been reported nationally at the local level, including indicators in relation to potentially avoidable deaths, life expectancies at birth, specialist attendances and use of allied health professionals and nurses.

This technical supplement focuses on the methods and data sources used to report on the four new indicators, and the methods used to calculate the results for the unique Medicare Local catchment profiles.

The remaining 14 measures have been reported previously by the Authority. The methods for these measures are described in the relevant report's technical supplements. A list of each of the 18 measures included in this report and the relevant technical supplement are listed in the **Appendix on page 24**.

All measures in the report have been grouped into four categories: *health outcomes, prevention, use of health services* and *experiences with health services*. The measures are presented for each of the 61 Medicare Locals to show the unique profile of each local area.

The report also compares the results for these measures for each Medicare Local catchment area with the results for Medicare Local catchments with similar geographic, demographic and socioeconomic circumstances.

The Authority presents information from a range of data sources, including the Australian Bureau of Statistics (ABS) for Causes of Death and Life Tables 2009–2011, and survey data from the Australian Health Survey 2011–13 and the Patient Experience Survey 2011–12, as well as Medicare Benefits Schedule (MBS) for 2011–12, the Australian Childhood Immunisation Register (ACIR) for 2011–12, and the Admitted Patient Care National Minimum Data Set 2011–12.

The Authority has also released alongside this report updated local-level MBS data for 2012–13 on **[www.myhealthycommunities.gov.au](http://www.myhealthycommunities.gov.au)** for selected indicators relating to GPs and specialists.



# Introduction

The rate of potentially avoidable deaths in a local area is intended to measure the effectiveness of prevention activities and health care services, delivered by local health systems, across primary health care, hospitals and other health-related settings.

Potentially avoidable deaths comprise two subcategories: preventable deaths, for which the conditions or actions responsible for the deaths might have been prevented (an example being lung cancer), and deaths that might have been avoided by better access to or provision of medical care, even if the medical condition could not itself have been prevented (an example being breast cancer). For the purposes of this report, this first subcategory is referred to as 'potentially preventable deaths', and the second category is referred to as 'potentially treatable deaths'. These two categories are not mutually exclusive. Some deaths could be avoided by both prevention and treatment.

By comparison, life expectancy at birth is reported as a broad health outcome measure to provide context for local areas.

In order to assist local areas to target improvements in prevention and health care and improve health for all Australians, the report also includes profiles for each Medicare Local catchment using 18 measures of health outcomes, prevention, use of health services and experiences.

## Measures presented

The report presents national information on the following measures for the first time at a local level, using data for the three calendar years from 2009 to the end of 2011:

- Rates of **potentially avoidable deaths** per 100,000 people on average per year for all Australians, and for males and females
- Rates of **potentially preventable and potentially treatable deaths** per 100,000 people on average per year
- **Life expectancy at birth** in years for all Australians, and for males and females.

The report also presents information for the 61 Medicare Local catchments on a range of other measures using data for the financial period 2011–12. The 18 measures presented in the profiles, and the data sources for these measures are listed below:

- Potentially avoidable deaths, *ABS Causes of Death, 2009–2011*
- Life expectancy at birth, *ABS Life Tables, 2009–2011*
- Adults who are overweight or obese, *ABS Australian Health Survey, 2011–13*
- Adults who are obese, *ABS Australian Health Survey, 2011–13*
- Adults who smoke daily, *ABS Australian Health Survey, 2011–13*
- Immunisation rates for 1 year old children, *Australian Childhood Immunisation Register, 2011–12*
- Immunisation rates for 5 year old children, *Australian Childhood Immunisation Register, 2011–12*
- GP attendances, *MBS 2011–12*
- Specialist attendances, *MBS 2011–12*

- People who saw an allied health professional or nurse, *ABS National Health Survey, 2011–12*
- Adults who visit hospital EDs, *ABS Patient Experience Survey 2011–12*
- Adults admitted to hospital, *ABS Patient Experience Survey 2011–12*
- Potentially avoidable hospitalisations, *Admitted Patient Care National Minimum Data Set 2011–12*
- Waiting times for GP appointments, *ABS Patient Experience Survey 2011–12*
- Waiting times for medical specialists, *ABS Patient Experience Survey 2011–12*
- Cost barriers to GP care, *ABS Patient Experience Survey 2011–12*
- Cost barriers to prescribed medication, *ABS Patient Experience Survey 2011–12*
- Cost barriers to seeing a medical specialist, *ABS Patient Experience Survey 2011–12*.

Four of these measures have not previously been reported nationally at the local level, including indicators in relation to potentially avoidable deaths, life expectancy at birth, specialist attendances and use of allied health professionals and nurses. These measures are further described in this technical supplement. For further information on measures in the report that the Authority has reported previously, refer to the [Appendix on page 24](#) for the relevant technical supplement.

## Geography levels

All of the measures are presented by Medicare Local catchment and seven clusters of Medicare Local catchments called peer groups. This enables fairer comparisons of individual Medicare Local catchments, and also provides a summary of the variation across Australia's diverse metropolitan, regional and rural populations by presenting aggregate results for each peer group.

The Authority identified seven peer groups of Medicare Local catchments on the basis of:

- Proximity of each Medicare Local to major metropolitan areas (using the ABS Australian Standard Geographic Classification, 2006 Remoteness Structure)
- Proximity to major hospitals (A1 public hospitals in the Australian Institute of Health and Welfare Public Hospital Peer Group classification, 2010–11)
- Socioeconomic status.

More information on Medicare Local peer groups can be found in *Healthy Communities: Australians' experiences with primary health care in 2010–11, Technical Supplement* at [www.myhealthycommunities.gov.au](http://www.myhealthycommunities.gov.au)

The Authority also released with this report updated local-level information for 2012–13 on [www.myhealthycommunities.gov.au](http://www.myhealthycommunities.gov.au) for specialist attendances, GP attendances, after-hours GP attendances and bulk-billed GP attendances.

All of these updated measures, as well as additional tabular information for some of the measures are available by ABS Statistical Areas Level 3 (SA3) to enhance understanding of variation across local areas, and are available on [www.myhealthycommunities.gov.au](http://www.myhealthycommunities.gov.au)





## Medicare Local catchment profile

There are six statistics reported in the catchment profile. Their data sources are listed below:

- Total population: ABS Estimated Resident Population (ERP) June 2012 (preliminary)
- Indigenous population: Aboriginal and Torres Strait Islander Estimated Resident Population 30 June 2011, expressed as a percentage of ABS ERP June 2011 (final).
- Age proportions: Percentages within the following age groups (0–17, 18–64 and 65+) were calculated using single year of age, ABS ERP June 2012.

When the sum of age proportions did not equal 100%, individually rounded values were rescaled

- Total land area: Department of Health (km squared).  
Map projection: GDA 1994 Australian Albers Equal Area. The mapping software used to verify areas was ArcGIS Desktop
- Population split: Data was calculated using ABS ERP, June 2012. Male data was rounded to one decimal place, and then female computed as 100 – male rounded
- Socioeconomic status: 2011 Index of Relative Socioeconomic Advantage and Disadvantage (IRSAD), at the SA1 level.

Counts of SA1 by Medicare Local were summarised according to IRSAD percentile as follows:

Low:	Percentile 1 to 33
Medium:	Percentile 34 to 67
High:	Percentile 68 to 100

Note that SA1 areas that are split across Medicare Local boundaries were counted in each Medicare Local.

To summarise the diversity in a larger region, the ABS recommends a distributional analysis of SA1 results in the region. The percentage of SA1 areas in each category (Low, Medium, and High) was calculated. Note: this is not weighted by population – each SA1 area is weighted equally.

When the sum of Low, Medium and High did not equal 100%, individually rounded values were adjusted to sum to 100%. This was done by choosing the adjustment with the least percentage error.

## Age standardisation

The measures of potentially avoidable deaths (including preventable and treatable deaths), potentially avoidable hospitalisations and the measures using MBS statistics on health service use have been age-standardised to allow comparisons to be made between local areas that take account of differences in the age-structure of local populations.

## Suppression of estimates

The Authority applies suppression protocols that are customised to each data source used in the report, to ensure confidentiality when reporting at local levels of geography. The suppression rules for new measures are described in this technical supplement.

Additional information on the complete list of the measures included in this report, and released on [www.myhealthycommunities.gov.au](http://www.myhealthycommunities.gov.au) are provided in the [Appendix on page 24](#) .

# Potentially avoidable deaths

Potentially avoidable deaths are those that occur prematurely (before the age of 75) and which might have been avoided through better prevention or health care.

## Classification of potentially avoidable deaths

**Potentially avoidable deaths** are classified into two sub-categories:

- Firstly, deaths for persons caused by conditions or actions that might have been prevented through activities such as screening, good nutrition, and healthy habits such as exercise. Examples include premature deaths caused by lung cancer and heart disease.

In the report these deaths are referred to as **potentially preventable deaths**. Potentially preventable deaths include deaths for persons aged 0–74 years, except for deaths due to childhood vaccine-preventable diseases (0–14 years) and Chronic Obstructive Pulmonary Disease (45–74 years).

- Secondly, deaths caused by conditions that might have been avoided given better treatment such as better medical services and therapeutic interventions, including surgery or medication. Examples include premature deaths related to bowel, breast and skin cancer, and heart disease. In the report these deaths are referred to as **potentially treatable deaths**.

Potentially treatable deaths include deaths for persons aged 0–74 years, except for deaths due to asthma (0–44 years). While applicable, deaths due to breast cancer among males were excluded.

These two categories are not mutually exclusive. Some deaths could be avoided by both prevention and treatment.

The calculation of the number of deaths included decimals due to the application of reporting averages over three years and the potentially avoidable deaths classification. This classification required the inclusion of half of all deaths attributable to ischaemic heart disease, diabetes and cerebrovascular disease to each of the preventable and treatable categories. This can result in counts of deaths being calculated as fractions. To enable causes of death to be reported, the numbers were halved and equally distributed among each of the treatable and preventable classifications. Numbers were rounded to whole numbers.

The list of medical conditions used in this report to classify potentially avoidable deaths was originally developed by Tobias & Jackson (2001)<sup>1</sup> and subsequently refined for reporting national and state/territory results in Australia on behalf of the Council of Australian Governments.<sup>2</sup>

The definition used in the report includes more preventable causes of death in its calculations than the definition used by Nolte and McKee (2004)<sup>3</sup> which is used by the Organisation for Economic Co-operation and Development (OECD) for international comparative reporting. The OECD provides comparative data for 31 countries on indicators similar to those reported here.<sup>4</sup> **Table 1 on pages 10 and 11** shows the differences between the included categories of deaths between the two methods. The main differences between the two methods are the exclusion in Nolte and McKee of unintentional injuries, such as road accident deaths and drownings, some cancers, and intentional injuries, such as suicide.

The Authority applied both methods to the data in order to determine which to include in this report. After analysis, the Authority determined that the broader definition, which includes deaths that are preventable as well as treatable was most appropriate to report initially, as it aligns with current approaches to national reporting.

A graphical comparison between the differing results of age-standardised rates of potentially avoidable deaths due to their differing definitions is shown in **Figure 1, page 9** which compares the rates of avoidable deaths, termed amenable deaths (Nolte and McKee) to the rates of treatable deaths (COAG). Results are broadly comparable. This allows Medicare Local catchments to be compared internationally, using the rates of treatable deaths. Furthermore, the COAG method offers the benefit of additional information for each Medicare Local, showing the rates of preventable deaths.

## Data source

Rates for these three measures, potentially avoidable deaths, potentially preventable deaths and potentially treatable deaths were calculated using the Australian Bureau of Statistics Causes of Death data for 2009, 2010 and 2011.

ABS deaths data contain administrative information supplied by the Registry of Births, Deaths and Marriages in each state and territory and is supplemented with information from the National Coroners Information Service. For further details on scope, coverage and registration of deaths refer to ABS Causes of Death, Australia, 2011 (cat. no 3303.0). Population estimates were based on SA1 and aggregated to Medicare Local catchments. All populations are the sum of the years 2009, 2010 and 2011 as at 30 June of the given year.

National figures are also presented in the report by specific cause and include deaths coded to undefined geographic areas, such as migratory, offshore and shipping, overseas usual residence, no usual address, and unknown usual residence. For this reason, the total number of deaths for Australia are not equal to the sum of all the deaths across each Medicare Local catchment.

## Unit of measurement

Potentially avoidable deaths statistics are presented in this report at Medicare Local catchment level for the total population and separately for males and females. Deaths are attributed to the Medicare Local catchment in which a person usually resided, irrespective of where the person died. They are reported as the average numbers of deaths per 100,000 people, age-standardised, that occurred per year during the three calendar years from 2009 to the end of 2011.

## Age standardisation

All rates were directly age standardised and presented per 100,000 persons for the three-year period 2009–2011. For added simplicity for non-technical readers, the report refers to the “average” rate per year.

Age-standardised rates are hypothetical rates that would have been observed if the populations being studied had the same age distribution as the standard population, while all other factors remained unchanged. Age-standardised rates are derived by calculating crude rates within a Medicare Local catchment for each five year age group (0–4, 5–9, 10–14, ... , 80–84, 85+). These rates are then given a weight that reflects the age composition of the standard population, in this case the ABS Estimated Resident Population as at 30 June 2001 (based on 2001 Census).

When comparing rates adjusted for age, any remaining observed differences between the populations cannot be attributed to confounding by age.

For further information refer to Explanatory Notes 48-50, Causes of Death, Australia, 2011 (cat. no. 3303.0).

## Years of data

All numbers of deaths were reported as the average number of deaths for the three calendar year period 2009 to the end of 2011 and were calculated by dividing the number of deaths by the number of years reported.

To determine how many years of data were appropriate for reporting potentially avoidable deaths, the Authority aimed to report data for each of the 61 Medicare Local catchments, disaggregated by males and females, and disaggregated by preventable and treatable deaths.

For single years of data, the three Medicare Locals with small populations (under 100,000) had small numbers of deaths for some levels of disaggregation. The minimum number of deaths for estimating mortality rates is 20 deaths, and for each year of data for 2009, 2010 and 2011 there were some non-publishable rates for Far West NSW Medicare Local, Central and NW Qld Medicare Local and Lower Murray Medicare Local. These suppressions occur in the range of 11–19 deaths, which determined that three years of data would not require suppression, but two years of data may require occasional data values to be suppressed.

For comparability over time, we require estimates to be within reasonable limits of relative standard error (RSE). For single years of data, at the lowest

levels of disaggregation, the highest RSE was 25%, with an average of 10%. For three years of data, at the lowest levels of disaggregation, the highest RSE was 15%, with an average of 6%.

Therefore, on the basis of suppression and reliability of estimates, three years of data was required to produce a complete and reliable set of statistics that enables comparability over time.

## Reliability of estimates

Where possible, 95% confidence intervals have been presented. Confidence intervals represent a statement that the true value of the age-standardised rate lies within a given range of values at a specified level of confidence. The lower and upper figures represent the lower and upper limits of the confidence interval in which the true value of the rate may lie, with 95% confidence.

Deaths data presented in this report are based on complete administrative data and therefore are not subject to sampling error. However when the number of deaths is small, rates are subject to random variation. To quantify the random variation associated with deaths data, an assumption must be made regarding the appropriate underlying distribution. Deaths, as infrequent events, can be viewed as deriving from a Poisson probability distribution.<sup>5</sup> Using the properties of the Poisson distribution, the standard error (SE) associated with the number of deaths (d) is:

$$SE(d) = \sqrt{\text{var}(d)} = \sqrt{d}$$

With the assumption of zero covariance between age-specific rates, variability bands are calculated for single year rates using the following method for estimating 95% confidence intervals:

CI (ASR)<sub>95%</sub> = the 95% confidence interval for the direct age-standardised rate.

$$=ASR \pm 1.96 \sqrt{\sum_{i=1}^I \frac{w_i^2 d_i}{n_i^2}}$$

where

$d_i$  = the number of deaths in the age group  $i$

$n_i$  = the number of people in the population in age group  $i$

$w_i$  = the proportion of the standardised population in age group  $i$

$I$  = the number of age groups.

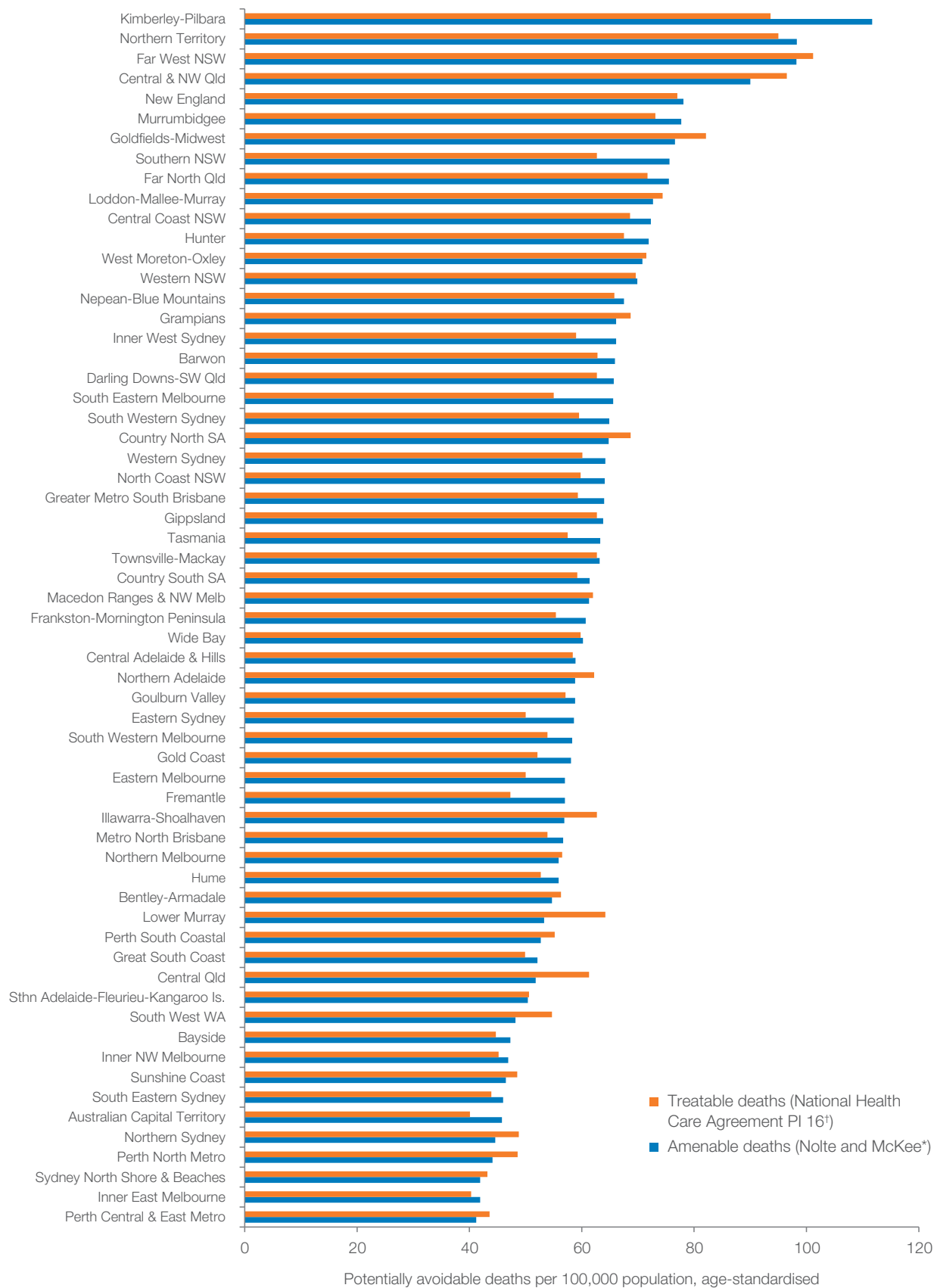
Assuming  $Cov(ASR_i, ASR_j) = 0$  for all  $i \neq j$ , variability bands are calculated for aggregated year rates (for  $T$  years) using the following method:

$$CI \overline{(ASR)}_{95\%} = \overline{ASR} \pm 1.96 \frac{1}{T} \sqrt{\sum_{t=1}^T Var(ASR_t)}$$

where  $\overline{ASR} = \frac{1}{T} \sum_{t=1}^T ASR_t$

and  $ASR_t$  = age-standardised rate at year  $t$ .

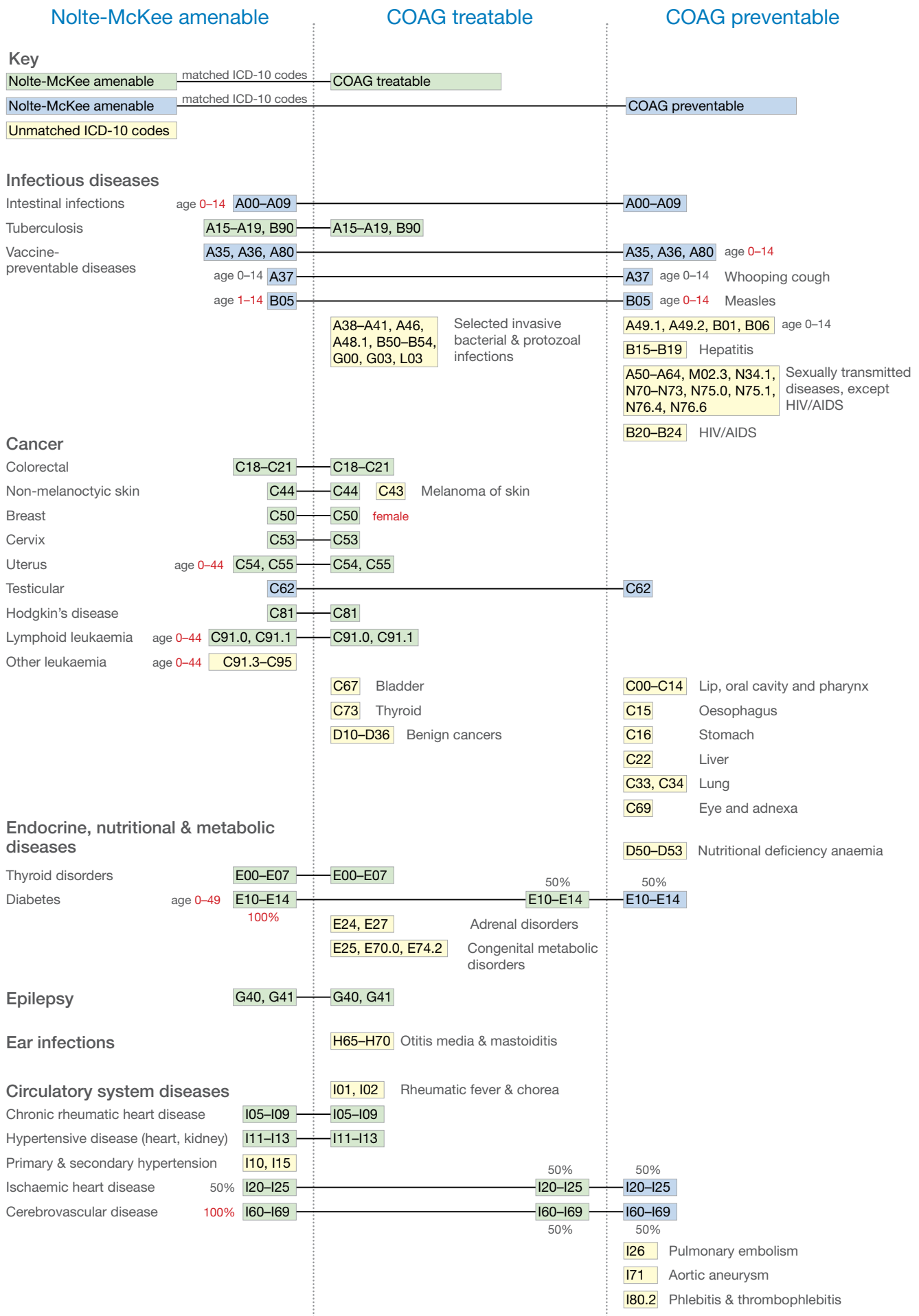
**Figure 1: Comparison of 2011 results by Medicare Local catchment, using amenable (Nolte and McKee\*) and treatable (National Healthcare Agreement Performance Indicator (PI) 16, 2013†) methodologies**



\* Nolte E, McKee CM, In Amenable Mortality – Deaths Avoidable Through Health Care. Health Affairs 2012; 31:2114-2122.  
 † Australian Institute of Health and Welfare. National Healthcare Agreement: PI 16 – Potentially avoidable deaths [Internet]. [cited 2013 Dec 4]. Available from: <http://meteor.aihw.gov.au/content/index.phtml/itemId/497242>

Source: Australian Bureau of Statistics Causes of Death 2011.

**Table 1: Comparison of the list of causes of death used by Nolte and McKee<sup>6</sup> and those used by the Council of Australian Governments<sup>2</sup> in the calculation of Potentially avoidable deaths**





Nolte-McKee amenable

COAG treatable

COAG preventable

Respiratory system diseases

Upper respiratory	age 1-14	J00-J06	J00-J06	
Influenza (animal) eg bird, swine	age 1-14	J09		
Influenza (identified)		J10	J10	
Influenza (not identified)		J11	J11	age 0-14
Viral pneumonia (other)		J12	J12	
Pneumonia		J13-J15, J18	J13-J15, J18	
Pneumonia (due to other diseases)		J16-J17		
Acute bronchitis	age 1-14	J20		
Acute bronchiolitis	age 1-14	J21	J21	
COPD	age 1-14	J40-J44	J40-J44	age 45-74
Asthma	age 1-14	J45, J46	J45, J46	age 0-44
Other respiratory	age 1-14	J22-J39, J47-J99		

Digestive system diseases

Peptic ulcer		K25-K27	K25-K27	K28 Gastrojejunal ulcer
Appendicitis		K35-K38	K35-K38	
Abdominal hernia		K40-K46	K40-K46	
Cholelithiasis & cholecystitis		K80, K81	K80, K81	
			K82-K86	Other gallbladder, biliary tract and pancreatic diseases
			K73, K74	Chronic liver disease (excluding alcohol-related)

Musculoskeletal diseases

M86, M89 Osteomyelitis & other osteopathies of bone

Genitourinary system diseases

Nephritis & nephrosis		N00-N07, N17-N19	N00-N07, N17-N19	
Prostatic hyperplasia		N40	N40	
Other kidney disorders		N25-N27	N13, N20, N21, N35	Obstructive uropathy & urolithiasis

Maternal death

O00-O99	O00-O99
---------	---------

Perinatal death

P00, P03-P95	P00, P03-P95
P01, P02, P96	

Birth defects

		Q20-Q28	Q20-Q28	Congenital cardiovascular
Tetanus neonatorum		A33	H31.1, Q00-Q18, Q30-Q99	Other congenital

Misadventures to patients

During surgical and medical care	Y60-Y69	Y60-Y69
Abnormal patient reaction	Y83-Y84	Y83-Y84
		Y70-Y82 Associated with medical devices

Drug use disorders

F10, I42.6, K29.2, K70 Alcohol related  
F11-F16, F18, F19 Illicit drug use

Unintentional injuries

V01-V04, V06, V09-V80, V87, V89, V99 Road traffic injuries  
W00-W19 Falls  
X00-X09 Fires, burns  
X40-X49 Poisonings  
W65-W74 Drownings  
Y36 War

Intentional injuries

X60-X84, Y87.0, Y10-Y34 Suicide  
X85-Y09, Y87.1 Violence

# Life expectancies at birth

Life expectancy refers to the average number of years a person of a given age might expect to live if the age-specific death rates, for a given period in a given geographic region, continued throughout his or her lifetime.

Life expectancy in *Avoidable deaths and life expectancies in 2009–2011* is presented as the estimated average number of years a newborn baby is expected to live assuming the average death rates for 2009–2011, for the Medicare Local catchment in which the person lived, continues throughout their lifetime.

Calculating life expectancy involves the use of deaths data to determine length of life. Data were based on the average number of deaths over the three calendar years from 2009 to the end of 2011, while the estimated resident population (preliminary rebased) was as at 30 June 2010.

For this report, life expectancies at birth were calculated with reference to state/territory and Australian life tables (where appropriate), using the Brass Logit method. The Brass Logit method was used as it enables the calculation of smooth abridged life tables for regions which may have a small number of deaths, by adjusting the age-specific death rates with reference to a standard life table. The technique does not alter the overall level of mortality, however, the age-specific functions of the life table are smoothed.

The Brass Logit technique essentially compares mortality between the Medicare Local and standard life tables across ages. A line of best fit is then calculated to describe that relationship by age. The line of best fit is then used in conjunction with the standard life table to determine death rates for the Medicare Local life table.

For further information, including mathematical notation of the formulae used in the calculation of the data refer to the ABS (cat.no. 3302.0.55.001).<sup>7</sup>

# Measures reported from the Medicare Benefits Schedule, 2011–12 and 2012–13

The report presents data at the Medicare Local catchment level from the Medicare Benefits Schedule (MBS) on the following measures:

- Specialist attendances, 2011–12 (new)
- GP attendances, 2011–12.

Additional measures are also reported on [www.myhealthycommunities.gov.au](http://www.myhealthycommunities.gov.au) including MBS data at the Medicare Local catchment and ABS Statistical Areas Level 3 (SA3) for:

- Specialist attendances, 2012–13 (new)
- Expenditure on specialist attendances, 2011–12 and 2012–13 (new)
- GP attendances, 2012–13 (updated)
- Expenditure on GP attendances, 2012–13 (updated)
- After-hours GP attendances, 2012–13 (updated)
- Expenditure on after-hours GP attendances, 2012–13 (updated)
- Bulk-billed GP attendances, 2012–13 (updated).

These statistics are derived from administrative information on services that qualified for a Medicare benefit under the *Health Insurance Act 1973* and for which a claim was processed by the Department of Human Services.

Under Medicare, 'eligible persons' are persons who reside permanently in Australia. This includes New Zealand citizens and holders of permanent residence visas. Applicants for permanent residence may also be eligible, depending on circumstances. In addition, persons from

countries with which Australia has reciprocal health care agreements might also be entitled to benefits under MBS arrangements. MBS data do not include services provided free of charge to public patients in hospitals, to Department of Veterans' Affairs beneficiaries, to some patients under compensation arrangements and through other publicly funded programs.

This report contains MBS statistics for the 12 months of processing ending 30 June 2012. These statistics exclude MBS rebatable investigations, tests and procedures which might occur during an attendance or consultation.

It is important to note that some Australian residents may access medical services through other arrangements, such as salaried doctor arrangements. As a result, MBS statistics may underestimate the rate of use of health services by some members of the community.

In producing crude results for Medicare Benefits data, the following conditions were required as a minimum:

- A total population count of 2,500 for the Medicare Local catchment or SA3.

In producing age-standardised results for Medicare Benefits data, the following conditions were required as a minimum:

- A denominator of at least 30 per age group
- A numerator of at least five per age group
- A total population count of 2,500 for the Medicare Local/SA3.

## Confidential results

Data rows containing information which could lead to the identification of individuals have been suppressed and their cell values marked as not available for publication (NP). The rules that were applied in ensuring confidential results of data are defined for the number of MBS services and benefits per person. The definition of confidential data for a number of MBS services is as follows:

- If number of services is less than six, or
- If the number of services is equal to or greater than six, but: two patients receive more than 90% of services, or one patient receives more than 85% of services; or two providers provide more than 90% of services or one provider provides more than 85% of services.

These confidentialisation methods were applied when producing both crude and age-standardised results.

## Specialist attendances

Specialist attendances are Medicare benefits-funded referred patient/doctor encounters, such as visits, consultations and attendances (including video conferencing), involving medical practitioners who have been recognised as specialists or consultant physicians for Medicare benefits purposes. Specialist attendances include: consultant physician attendances; consultant psychiatrist attendances; other specialist attendances; specialist case conferences; and all anaesthesia consultations, whether provided by general practitioners or specialists. It does not include specialist attendances provided in hospital.

These services correspond with the 'specialist attendances' broad type of service group used in MBS statistics published by the Department of Human Services and the Department of Health. Specialist attendances exclude obstetrics attendances, which are included in the 'Obstetrics' broad type of service group in official MBS statistics.

In terms of the MBS structure, specialist attendances comprise all items in Group A3 (specialist attendances to which no other item applies), Group A4 (consultant physician attendances to which no other item applies), Group A8 (consultant psychiatrist attendances to which no other item applies), Group A9 (contact lens attendances), Group A12 (consultant occupational physician attendances to which no other item applies), Group A13 (public health physician attendances to which no other item applies), Group A15, Subgroup 2, but only Items 820 - 880 (case conferences), Group A21 (medical practitioner (emergency physician) attendances to which no other item applies), Group A24 (pain and palliative medicine), Group A26 neurosurgery attendances to which no other item applies, Group A28 (geriatric medicine), Group A29 (early intervention for children with autism, pervasive developmental disorder or disability) and Group T6, Subgroup 1 (anaesthesia consultations).

## GP attendances

GP attendances are MBS non-referred attendances provided by medical practitioners, excluding services provided by practice nurses and Aboriginal and Torres Strait Islander health practitioners on behalf of medical practitioners. GP attendances represent non-referred attendances between patients and medical practitioners for the purposes of primary health care.

In terms of 'Broad Type of Service' Groups, GP attendances comprise all items in Broad Type of Service Group 'A' – GP/VRGP non-referred attendances, 'M' – Enhanced Primary Care and 'B' – Non-referred other attendances as published in official MBS statistics by the Department of Human Services and the Department of Health.

In terms of the Medicare Benefits Schedule (MBS) structure, GP attendances comprise all items in:

- Group A1 – general practitioner attendances to which no other item applies
- Group A2 – other non-referred attendances to which no other item applies
- Group A5 – prolonged attendances to which no other item applies
- Group A6 – group therapy
- Group A7 – acupuncture
- Group A11 – urgent attendances after hours
- Group A14 – health assessments
- Group A15, subgroup 1 – GP management plans, team care arrangements and multidisciplinary care plans
- Group A15, subgroup 2, items 735-758 – multidisciplinary case conference – medical practitioner (other than a specialist or consultant physician)
- Group A16 – medical practitioner sports physician attendances
- Group A17 – domiciliary and residential management reviews
- Group A18 – general practitioner attendances associated with PIP incentive payments
- Group A19 – other non-referred attendances associated with PIP incentive payments to which no other item applies
- Group A20 – general practitioner mental health treatment
- Group A22 – general practitioner after hours attendances to which no other item applies
- Group A23 – other non-referred after hours attendances to which no other item applies
- Group A27 – pregnancy support counselling
- Group A30 – medical practitioner telehealth attendances.

## After-hours GP attendances

After-hours GP attendances are Medicare benefit-funded after-hours patient/doctor encounters, such as visits and consultations, for which the patient has not been referred by another doctor. They include urgent and non-urgent non-referred attendances.

In terms of the Medicare Benefits Schedule (MBS) structure, this component of 'GP attendances' includes:

- all items in MBS Group A11 – urgent attendances after hours, and
- for non-urgent attendances after hours, all items in MBS Group A22 – general practitioner after hours attendances to which no other item applies and MBS Group A23 – other non-referred after hours attendances to which no other item applies.

## Bulk-billed GP attendances

Bulk-billing is an arrangement in which a GP bills Medicare directly for any medical or allied health service that the patient receives, and imposes no other 'gap payment' on the patient. In this arrangement the provider accepts the Medicare benefit as full payment for the service and the patient assigns their right to a Medicare benefit to the service provider.

Further information on these indicators that have been reported in previous reports published by the Authority can be found in *Healthy Communities: Australians' experiences with access to health care in 2011–12, Technical Supplement* available at [www.myhealthycommunities.gov.au](http://www.myhealthycommunities.gov.au)

# Measures reported from the ABS Australian Health Survey, 2011–13

The report presents data from the Australian Bureau of Statistics Australian Health Survey, 2011–13 on the following measures:

- People who saw an allied health professional or nurse, 2011–12 (new)
- Adults who are overweight or obese, 2011–12
- Adults who are obese, 2011–12
- Adults who smoke daily, 2011–12.

Data were sourced from the Australian Bureau of Statistics Australian Health Survey 2011–13. These data were collected between March 2011 and June 2012.

## Seeing an allied health professional or nurse

Data in the report includes reporting on allied health professionals and nurses. Participants in one component of the ABS Australian Health Survey 2011–13, the National Health Survey, 2011–12 were asked whether they had consulted a health professional other than a GP, medical specialist or dentist. The health practitioner types included were:

- Aboriginal health worker
- Accredited counsellor
- Acupuncturist
- Alcohol and drug worker
- Audiologist/audiometrist
- Chemist (for advice only)
- Chiropodist/podiatrist

- Chiropractor
- Diabetes educator
- Dietitian/nutritionist
- Naturopath
- Herbalist
- Hypnotherapist
- Nurse
- Occupational therapist
- Optician/optometrist
- Osteopath
- Physiotherapist/hydrotherapist
- Psychologist
- Social worker/welfare officer
- Speech therapist/pathologist or other.

For this indicator, the health professionals consulted excluded GPs, medical specialists and dentists. In-hospital consultations were not included.

## Overweight and obesity rates

This indicator was calculated using data from two components of the Australian Health Survey 2011–13: the ABS National Health Survey 2011–12 and the ABS National Nutrition and Physical Activity Survey 2011–12.

Of the total sample (25,525 adults), 15.7% did not agree to have their weight and height measured. Consenting participants aged 18 years and over were measured using digital weighing scales to measure weight and a stadiometer to measure height. These measurements were used to calculate Body Mass Index (BMI). Participants with a BMI greater than or equal to 25 and less than 30 were classified as overweight. Those with a BMI greater than or equal to 30 were classified as obese.

## Smoking rates

This indicator was calculated using data from two components of the ABS AHS 2011–13, the ABS National Health Survey (NHS) 2011–12 and the ABS National Nutrition and Physical Activity Survey (NNPAS) 2011–12. Participants aged 18 years and over in the ABS NHS 2011–12 and the ABS NNPAS 2011–12 were asked whether they currently smoked tobacco at least once a day.

## Suppression of estimates

Suppression rules were developed and applied by the Authority to ensure robust reporting of these data at small areas.

These suppression rules are based on limits for Relative Standard Error\* and confidence interval width of 30%, with additional cross-validation for estimates close to these limits that was plus or minus 3% of the limits. If an estimate was marginal† with respect to Relative Standard Error, the confidence interval width was used as the deciding factor. If an estimate was marginal with respect to confidence interval width, then Relative Standard

Error is used as the deciding factor. Data were suppressed based on the following rules:

- Relative Standard Error of 33% or greater, or Confidence Interval (95%) width of 33% or greater, or
- Relative Standard Error between 27% and 33%, with significantly wider Confidence Interval width than the average for that indicator, or
- Confidence interval width between 27% and 33%, with significantly‡ wider Relative Standard Error than the average for that indicator.

Further information on the smoking and overweight and obesity indicators that have been reported in previous reports published by the Authority can be found in the Technical Notes for *Healthy Communities: Overweight and obesity rates across Australia, 2011–12* and *Healthy Communities: Smoking rates across Australia, 2011–12*.

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\* For a dichotomous proportion, Relative Standard Error can be defined as the ratio of the standard error and the minimum of the estimate and its complement (100%–estimate).

† In this context, marginal is defined as within 10% of the 30% limit, or +/- 3%.

‡ In this context, statistical significance is defined as at least two standard deviations above average.



# Measures reported from the ABS Patient Experience Survey, 2011–12

The report presents data from the Australian Bureau of Statistics (ABS) Patient Experience Survey, 2011–12 on the following measures:

- Adults who visited a hospital ED
- Adults who were admitted to hospital
- Waiting times for GP appointments
- Waiting times for medical specialists
- Cost barriers to GP care
- Cost barriers to seeing a medical specialist
- Cost barriers to filling a prescription.

The ABS Patient Experience Survey is conducted annually. Information in this report is from the collection period July 2011 to June 2012, collected from a representative sample of the Australian population about their experiences with the health system in the 12 months prior to interview. Of persons asked to participate in the survey, 26,437 (79.6%) fully responded to the Patient Experience Survey 2011–12.

The sample was designed to produce representative results for states and territories.

Data collection for the Patient Experience Survey 2011–12 predated the establishment of some Medicare Locals. Accordingly, for some Medicare Locals that have a population living in very remote parts of Australia or in discrete Indigenous communities, survey results are not available at a level of reliability equivalent to state and territory level estimates for the 2011–12 survey cycle reported elsewhere.

In 2012, the Authority commissioned the ABS to assign all respondent data to Medicare Local geography to produce survey results for each Medicare Local and peer group. The ABS Patient Experience Survey 2011–12 data have been weighted to meet independent population benchmarks for the civilian population aged 15 years and over living in private dwellings in each state and territory, at 31 March 2012.

In the weighting method final weights were compiled through a generalised regression process taking into account age group, sex, State by Capital City Statistical Division/Rest of State plus ACT and NT, as defined in the ABS Australian Standard Geographical Classification (ASGC).

For the measure Waiting times for GP appointments, the question in the survey changed between 2010–11 and 2011–12 and therefore does not allow comparisons to be made for this measure over time.

## Suppression of estimates

The Authority developed a suppression protocol to ensure robust reporting of these data at smaller areas of geography where small numbers require additional consideration of confidentiality and reliability. Data were suppressed based on the following rules:

- All point estimate percentages had confidence interval width less than 20 percentage points
- Point estimate percentages between 5% and 15% or between 85% and 95% were only included if their confidence interval width was less than 15 percentage points

- Point estimate percentages that were less than or equal to 5% or greater than or equal to 95% were included if the confidence interval width was less than 10 percentage points

In addition to these constraints, five Medicare Local catchments were identified as having a small sample and potentially less robust estimates. These were Far West NSW, Great South Coast (Vic), Lower Murray (Vic/NSW), Central and North West Queensland and Kimberley-Pilbara(WA). Point estimate percentages were only included where the confidence interval width was less than 10 percentage points.

Further information on these indicators that have been reported in previous reports published by the Authority can be found in *Healthy Communities: Australians' experiences with access to health care in 2011–12, Technical Supplement* and *Healthy Communities: Australians' experiences with primary health care in 2010–11, Technical Supplement* (for waiting times for GP appointments) available at [www.myhealthycommunities.gov.au](http://www.myhealthycommunities.gov.au)

# Measures reported from the Australian Childhood Immunisation Register, 2011–12

The report presents data from the Australian Childhood Immunisation Register for 2011–12 on the following measures:

- Immunisation rates for 1 year olds
- Immunisations rates for 5 year olds.

Rates were calculated using data from the Australian Government Department of Health and Ageing sourced from the Australian Childhood Immunisation Register (ACIR) for 2011–12.

Definitions of fully immunised are established by legislation; A New Tax System (Family Assistance) Act 1999.

The definitions for the numerators are:

- Fully immunised at 1 year means that a child aged 12 months to less than 15 months received their 3rd vaccination for diphtheria, tetanus, whooping cough (DTPa) and polio (IPV) and either their second or third vaccination (dependent on the type of vaccine used) for hepatitis B (hepB) and Haemophilus influenza type b (Hib), all prior to the age of 1 year
- Fully immunised at 5 years means that a child aged 60 months to less than 63 months received their fourth or fifth vaccination (dependent on the type of vaccine used) for diphtheria, tetanus and whooping cough (DTPa), their fourth vaccination for polio (IPV) and their second vaccination for measles mumps and rubella (MMR), all prior to the age of 5 years.

These definitions assume that all previous vaccinations were received.

The denominator used was the number of children who turned each age as at 31 March 2012 in the eligible population i.e. those children who are registered on the ACIR.

Further information on these indicators can be found in a previous report published by the Authority, *Healthy Communities: Immunisation rates for children in 2011–12, Technical Supplement*.

# Measures reported from the Admitted Patient Care National Minimum Data Set, 2011–12

The report presents data from the Admitted Patient Care National Minimum Data Set for 2011–12 on the following measure:

- Potentially avoidable hospitalisations.

Age-standardised rates of potentially avoidable hospitalisations per 100,000 population in 2011–12 are presented. Rates are based on 21 conditions classified as being potentially avoidable hospitalisations.

The International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM) 7th edition was used to identify diagnoses related to potentially avoidable hospitalisations. ICD-10-AM codes are assigned by clinical coders in each hospital, based on the diagnoses recorded in the patient's medical record. The diagnosis is recorded for each hospital episode and is specific to that episode.

Some potentially avoidable hospitalisations are identified using procedure codes as well as diagnosis codes. A procedure is a clinical intervention represented by a code that:

- Is surgical in nature and/or
- Carries a procedural risk and/or
- Carries an anaesthetic risk and/or
- Requires specialised training and/or
- Requires special facilities or equipment only available in an acute care setting.

The procedure codes used in this report were based on the Australian Classification of Health Interventions 7th edition. The current core specification for the National Healthcare Agreement performance indicator for Selected potentially preventable hospitalisations includes hospitalisations for diabetes complications that are identified as hospitalisations with a principal diagnosis of diabetes or hospitalisations with an additional diagnosis of diabetes where the principal diagnosis is one of 15 selected conditions that are complications of diabetes.

However, changes to ICD-10-AM coding rules for diabetes since July 2006 resulted in decreased reporting of additional diagnoses for diabetes between 2007–08 and 2010–11.

A further change to diabetes coding was introduced in July 2012. These coding changes mean that it is difficult to compare hospitalisation rates for diabetes complications over time and therefore, after review by experts, the Authority decided to exclude diabetes as an additional diagnosis from the specification for selected potentially avoidable hospitalisations to ensure fair comparison nationally.

The Admitted Patient Care National Minimum Data Set includes 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 offshore territories may also be included. Hospitals specialising in dental, ophthalmic aids and other specialised acute

medical or surgical care are included. Episodes of non-admitted patient care provided in outpatient clinics or emergency departments are excluded from the APC NMDS data.

The counting unit for the APC NMDS is the 'separation'. Separation is the term used to refer to the episode of admitted patient care, 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 (e.g. from acute care to rehabilitation).

As a record is included for each separation, not for each patient, patients hospitalised more than once in the financial year will have more than one record.

For more information on the 2011–12 APC NMDS, see the Data Set Specification on the AIHW's Metadata Online Registry (METeOR) at: <http://meteor.aihw.gov.au/content/index.phtml/itemId/426861>.

Further information on this indicator can be found in a previous report published by the Authority, *Healthy Communities: Selected potentially avoidable hospitalisations in 2011–12, Technical Supplement* available at [www.myhealthycommunities.gov.au](http://www.myhealthycommunities.gov.au)

# Appendix: Measures presented in *Healthy Communities: Avoidable deaths and life expectancies in 2009–2011*

Indicator name	Unit of measure	Corresponding Healthy Communities Technical Supplement	New/Updated
<b>Health outcomes</b>			
Potentially avoidable deaths	Rate	This report	New
Life expectancy at birth	Years	This report	New
<b>Prevention</b>			
Immunisation for 1 year old children	Percentage	Healthy Communities: Immunisation rates for children in 2011–12	
Immunisation for 5 year old children	Percentage		
Adults who are overweight and obese	Percentage	Healthy Communities: Overweight and obesity rates across Australia, 2011–12 (InFocus)	
Adults who are obese	Percentage		
Adults who smoke daily	Percentage	Healthy Communities: Tobacco smoking rates across Australia, 2011–12 (InFocus)	
<b>Use of health services</b>			
GP attendances	Rate	Healthy Communities: Australians' experiences with access to health care in 2011–12	Updated
Specialist attendances	Rate	This report	New
After-hours GP attendances	Rate	Healthy Communities: Australians' experiences with primary health care in 2010–11	Updated
Bulk-billed GP attendances	Percentage	Healthy Communities: Australians' experiences with access to health care in 2011–12	Updated
Adults who saw an allied health professional or nurse	Percentage	This report	New
Adults who visit hospital EDs	Percentage	Healthy Communities: Australians' experiences with access to health care in 2011–12	
Adults admitted to hospital	Percentage		
Potentially avoidable hospitalisations	Rate	Healthy Communities: Selected potentially avoidable hospitalisations in 2011–12	
<b>Experiences with health services</b>			
Waiting times for GP appointments	Percentage	Healthy Communities: Australians' experiences with primary health care in 2010–11	Updated
Waiting times for medical specialists	Percentage	Healthy Communities: Australians' experiences with access to health care in 2011–12	
Cost barriers to GP care	Percentage		
Cost barriers to prescribed medication	Percentage		
Cost barriers to seeing a medical specialist	Percentage		

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# About the Authority

The National Health Performance Authority has been set up as an independent agency under the *National Health Reform Act 2011*. It commenced full operations in 2012.

Under the terms of the Act, the Authority monitors and reports on the performance of Local Hospital Networks, public and private hospitals, primary health care organisations and other bodies that provide health care services.

The Authority's reports give all Australians access to timely and impartial information that allows them to compare fairly their local health care organisations against other similar organisations and against national standards.

The reports let people see, often for the first time, how their local health care organisations measure up against comparable organisations across Australia.

The Authority's activities are also guided by a document known as the Performance and Accountability Framework agreed by the Council of Australian Governments. The framework contains 48 indicators that form the basis for the Authority's performance reports.

The Authority's role will include reporting on the performance of health care organisations against the 48 indicators in order to identify both high performing Local Hospital Networks, Medicare Locals and hospitals (so effective practices can be shared), and Local Hospital Networks and Medicare Locals that perform poorly (so that steps can be taken to address problems).

The Authority releases reports on a quarterly basis, and also publishes performance data on the MyHospitals website ([www.myhospitals.gov.au](http://www.myhospitals.gov.au)), the MyHealthyCommunities website ([www.myhealthycommunities.gov.au](http://www.myhealthycommunities.gov.au)) and on [www.nhpa.gov.au](http://www.nhpa.gov.au)

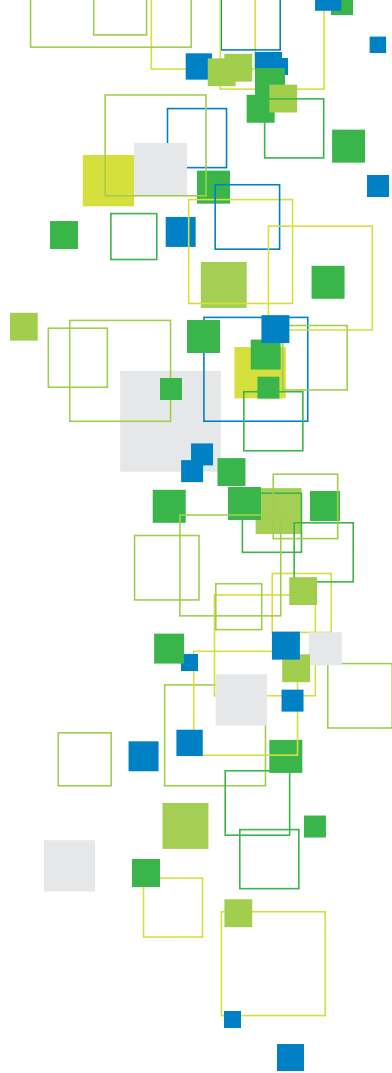
The Authority consists of a Chairman, a Deputy Chairman and five other members, appointed for up to five years. Members of the Authority are:

- Ms Patricia Faulkner AO (Chairman)
- Mr John Walsh AM (Deputy Chairman)
- Dr David Filby PSM
- Professor Michael Reid
- Professor Bryant Stokes AM RFD (on leave)
- Professor Paul Torzillo AM
- Professor Claire Jackson.

The conclusions in this report are those of the Authority. No official endorsement from any Minister, department of health or health care organisation is intended or should be inferred.







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