
11 Ambulance services interpretative material

11 Ambulance services interpretative material	11.1
11.1 Indicators	11.2
Outputs	11.2
Equity	11.2
Access — Response times by geographic location	11.2
Appropriateness — Clinical — Pain management	11.4
Quality — Safety — Sentinel events	11.5
Quality — Responsiveness — Patient satisfaction	11.5
Sustainability — Ambulance workforce	11.7
Efficiency	11.7
Ambulance services expenditure per person	11.7
Outcomes	11.8
Cardiac arrest survived event rate	11.8
11.2 Definitions of key terms	11.10
11.3 References	11.11

The Ambulance services interpretative material is supporting material and includes explanations of why indicators have been chosen, and wherever possible, a link to the stated objectives of the service. It includes indicator definitions, technical details defining how the indicator is measured and guidance on how the indicator is to be interpreted, including caveats and the indicator's completeness and comparability status.

Further information on the Report on Government Services including other reported service areas, the glossary and list of abbreviations is available at <https://www.pc.gov.au/research/ongoing/report-on-government-services>.

11.1 Indicators

Different delivery contexts, locations and types of clients can affect the equity, effectiveness and efficiency of ambulance services.

The comparability of performance indicator results is shaded in indicator interpretation boxes, figures and data tables as follows:

- Data are comparable (subject to caveats) across jurisdictions and over time.
- Data are either not comparable (subject to caveats) within jurisdictions over time or are not comparable across jurisdictions or both.

The completeness of performance indicator results is shaded in indicator interpretation boxes, figures and data tables as follows:

- Data are complete (subject to caveats) for the current reporting period. All required data are available for all jurisdictions.
- Data are incomplete for the current reporting period. At least some data were not available.

Outputs

Outputs are the services delivered (while outcomes are the impact of these services on the status of an individual or group) (see section 1). Output information is also critical for equitable, efficient and effective management of government services.

Equity

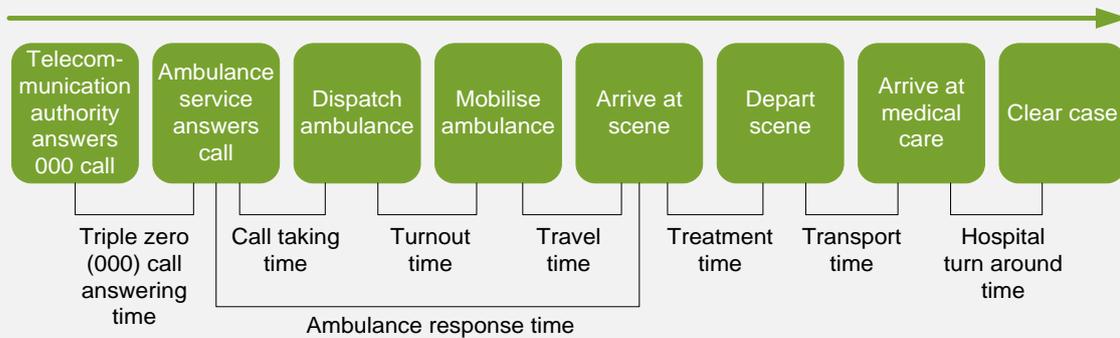
Equity indicators measure how well a service is meeting the needs of particular groups that have special needs or difficulties in accessing government services. Data on ambulance services provided to special needs groups are not available. However, indicators presented do provide information on whether ambulance services are equally accessible to everyone in the community with a similar level of need.

Access — Response times by geographic location

‘Response times by geographic location’ is an indicator of governments’ objective to provide ambulance services in an accessible manner (box 11.1).

Box 11.1 Response times by geographic location

'Response times by geographical area' is defined as the time taken between the initial receipt of the call for an emergency at the communications centre, and the arrival of the first responding ambulance resource at the scene of an emergency code 1 incident (illustrated below).



Response times are calculated for the 50th and 90th percentile — the time (in minutes) within which 50 per cent and 90 per cent of the first responding ambulance resources arrive at the scene of an emergency code 1 incident. Differences across jurisdictions in the geography, personnel mix, and system type for capturing data, affect response times.

Short or decreasing response times suggest the adverse effects on patients and the community of emergencies requiring ambulance services are reduced. Similar response times across geographic areas indicate equity of access to ambulance services.

Data reported for this indicator are:

- comparable (subject to caveats) across jurisdictions and over time
- complete (subject to caveats) for the current reporting period. All required 2019-20 data are available for all jurisdictions.

Appropriateness — Clinical — Pain management

‘Pain management’ is an indicator of governments’ objective to provide pre-hospital and out-of-hospital care and patient transport services that meet patients’ needs through delivery of appropriate health care (box 11.2).

Box 11.2 Pain management

‘Pain management’ is defined as the proportion of patients who report a clinically meaningful reduction in pain severity. Clinically meaningful pain reduction is defined as a minimum 2-point reduction in pain score from first to final recorded measurement (based on a 1–10 numeric rating scale of pain intensity).

Includes patients who:

- are aged 16 years or over and received care from the ambulance service, which included the administration of pain medication (analgesia)
- recorded at least 2 pain scores (pre- and post-treatment)
- recorded an initial pain score of 7 or above (referred to as severe pain).

Patients who refuse pain medication for whatever reason are excluded.

A higher or increasing proportion of patients who report a clinically meaningful reduction in pain severity at the end of ambulance service treatment suggests appropriate care meeting patient needs.

Data reported for this measure are:

- comparable (subject to caveats) across jurisdictions and over time
- complete (subject to caveats) for the current reporting period. All required 2019-20 data are available for all jurisdictions.

Quality — Safety — Sentinel events

‘Sentinel events’ is an indicator of governments’ objective to deliver ambulance services that are high quality and safe (box 11.3).

Box 11.3 Sentinel events

‘Sentinel events’ is defined as the number of reported adverse events that occur because of ambulance services system and process deficiencies, and which result in the death of, or serious harm to, a patient.

Sentinel events occur relatively infrequently and are independent of a patient’s condition.

A low or decreasing number of sentinel events is desirable.

Data are not yet available for reporting against this indicator. The Council of Ambulance Authorities has completed a trial for a national data collection, but the results were not available for this Report.

Quality — Responsiveness — Patient satisfaction

‘Patient satisfaction’ is an indicator of governments’ objective to provide emergency medical care, pre-hospital and out-of-hospital care, and transport services that are responsive to patients’ needs (box 11.4).

Box 11.4 Patient satisfaction

'Patient satisfaction' is defined as the quality of ambulance services, as perceived by the patient. It is measured as patient experience of aspects of response and treatment that are key factors in patient outcomes.

Patients are defined as people who were transported under an emergency event classified as code 1 (an emergency event requiring one or more immediate ambulance responses under lights and sirens where the incident is potentially life threatening) or code 2 (urgent incidents requiring an undelayed response by one or more ambulances without warning devices, with arrival desirable within 30 minutes).

The following measures of patient experience of ambulance services are reported:

- proportion of patients who felt that the length of time they waited to be connected to an ambulance service call taker was much quicker or a little quicker than they thought it would be
- proportion of patients who felt that the length of time they waited for an ambulance was much quicker or a little quicker than they thought it would be
- proportion of patients who felt that the level of care provided to them by paramedics was very good or good
- proportion of patients whose level of trust and confidence in paramedics and their ability to provide quality care and treatment was very high or high
- proportion of patients who were very satisfied or satisfied with the ambulance services they received in the previous 12 months.

High or increasing proportions can indicate improved responsiveness to patient needs.

Data reported for these measures are:

- comparable (subject to caveats) across jurisdictions and over time
- complete (subject to caveats) for the current reporting period. All required 2019-20 data are available for all jurisdictions.

Sustainability — Ambulance workforce

Sustainability is the capacity to provide infrastructure (that is, workforce, facilities, and equipment) into the future, be innovative and respond to emerging needs of the community.

‘Ambulance workforce’ is an indicator of governments’ objective to provide emergency medical care, pre-hospital and out-of-hospital care, and transport services that are sustainable (box 11.5).

Box 11.5 Ambulance workforce

‘Ambulance workforce’ is defined by two measures:

- ‘workforce by age group’ – the age profile of the salaried workforce, measured by the proportion of the operational salaried workforce in 10-year age groups (under 30, 30–39, 40–49, 50–59 and 60 and over)
- ‘operational workforce attrition’ – defined as the number of full time equivalent (FTE) salaried staff who exit the organisation as a proportion of the number of FTE salaried staff. Includes staff in operational positions where paramedic qualifications are either essential or desirable to the role.

A low or decreasing proportion of the workforce who are in the younger age groups and/or a high or increasing proportion who are closer to retirement suggests sustainability problems may arise in the coming decade as the older age group starts to retire. Low or decreasing levels of staff attrition are desirable.

The workforce by age group and staff attrition measures should be considered together. Each provides a different aspect of the changing profile and sustainability of ambulance service organisations’ workforce and should also be considered in conjunction with data on the:

- number of students enrolled in accredited paramedic training courses (table 11A.9)
- availability of paramedics and response locations, which show that for some jurisdictions, there can be a large proportion of volunteers or volunteer ambulance locations (tables 11A.2 and 11A.8).

Data reported for these measures are:

- comparable (subject to caveats) across jurisdictions and over time
- complete (subject to caveats) for the current reporting period. All required 2019-20 data are available for all jurisdictions.

Efficiency

Ambulance services expenditure per person

‘Ambulance service expenditure per person’ is a proxy indicator of governments’ objective to provide emergency medical care, pre-hospital and out-of-hospital care, and transport services in an efficient manner (box 11.6).

Box 11.6 **Ambulance services expenditure per person**

'Ambulance service organisations' expenditure per person' is defined as total ambulance service organisation expenditure per person in the population.

Both the total cost of ambulance service organisations and the cost to government of funding ambulance service organisations are reported, because revenue from transport fees is significant for a number of jurisdictions.

All else being equal, lower expenditure per person represents greater efficiency. However, efficiency data should be interpreted with caution.

- High or increasing expenditure per person may reflect deteriorating efficiency. Alternatively, it may reflect changes in: aspects of the service (such as improved response); resourcing for first aid and community safety; or the characteristics of events requiring an ambulance service response, such as more serious medical presentations requiring complex clinical interventions.
- Differences in geographic size, terrain, climate, and population dispersal may affect costs of infrastructure and numbers of service delivery locations per person.

Data reported for this measure are:

-  not comparable across jurisdictions, but are comparable (subject to caveats) within jurisdictions over time
-  complete (subject to caveats) for the current reporting period. All required 2019-20 data are available for all jurisdictions.

Outcomes

Outcomes are the impact services on an individual or group (see section 1).

Cardiac arrest survived event rate

'Cardiac arrest survived event rate' is an indicator of governments' objective to provide emergency medical care, pre-hospital and out-of-hospital care, and transport services that reduce the adverse effects of emergency events on the community (box 11.7).

Box 11.7 **Cardiac arrest survived event rate**

'Cardiac arrest survived event rate' is defined as the proportion of patients aged 16 years and over who were in out-of-hospital cardiac arrest and had a return to spontaneous circulation (that is, the patient having a pulse) until administration and transfer of care to the medical staff at the receiving hospital (Jacobs et al. 2004).

Three separate measures are reported:

- Adult cardiac arrest where resuscitation attempted, where:
 - a person was in out-of-hospital cardiac arrest (which was not witnessed by a paramedic)
 - chest compressions and/or defibrillation was undertaken by ambulance or emergency medical services personnel.
- Adult Ventricular Fibrillation (VF) or Ventricular Tachycardia (VT) cardiac arrests¹ where:
 - a person was in out-of-hospital cardiac arrest (which was not witnessed by a paramedic)
 - the arrest rhythm on the first ECG assessment was either VF or VT.

VF or VT are electrical rhythms of the heart but are not associated with effective beating of the heart to produce a pulse. Patients who suffer a VF/VT cardiac arrest are more likely to have better outcomes compared with other causes of cardiac arrest as these conditions are primarily correctable through defibrillation, and the earlier this intervention is applied (either by ambulance or by a member of the community through the use of Automated External Defibrillators), the greater the chance of survival.

- Paramedic witnessed cardiac arrest — where a person was in out-of-hospital cardiac arrest that occurred in the presence of an ambulance paramedic or officer.

Cardiac arrests that are treated immediately by the paramedic have a better likelihood of survival due to immediate and rapid intervention.

A high or increasing cardiac arrest survived event rate is desirable.

Data reported for these measures are:

- comparable (subject to caveats) across jurisdictions from 2018-19 onwards and over time for all jurisdictions except NSW (NSW changed in 2018-19 bringing it in line with national counting rules but creating a break with its historical reporting)
- complete (subject to caveats) for the current reporting period. All required 2019-20 data are available for all jurisdictions.

¹ Ventricular Fibrillation (VF) is a heart rhythm problem that occurs when the heart beats with rapid, erratic electrical impulses. Ventricular Tachycardia (VT) is a type of regular and fast heart beat that arises from improper electrical activity in the ventricles of the heart.

11.2 Definitions of key terms

Estimated resident population (ERP)	The official Australian Bureau of Statistics estimate of the Australian population. The ERP is derived from the 5-yearly Census counts and is updated quarterly between censuses. It is based on the usual residence of the person.
Expenditure	Includes: <ul style="list-style-type: none">• salaries and payments in the nature of salaries to ambulance personnel• capital expenditure (such as the user cost of capital)• other operating expenditure (such as running expenditure, contract expenditure, training expenditure, maintenance expenditure, communications expenditure, provision for losses and other recurrent expenditure). Excludes interest on borrowings.
User cost of capital	The opportunity cost of funds tied up in the capital used to deliver services. Calculated as 8 per cent of the current value of non-current physical assets (including land, plant and equipment).
Human resources	Human resources refers to any person delivering a service, or managing the delivery of this service, including: <ul style="list-style-type: none">• salaried ambulance personnel, remunerated volunteer and non-remunerated volunteer ambulance personnel• support personnel (any paid person or volunteer directly supporting operational providers, including administrative, technical and communications personnel).
Revenue	Revenue received directly or indirectly by ambulance service organisations on an accrual accounting basis, including:
Government grant funding	Grant funding, as established in legislation, from the Australian, State/Territory and Local governments.
Levies	Revenue from levies, as established in enabling legislation, raised on insurance companies and property owners.
User/transport charges	User/transport charges
Subscriptions and other income	Other revenue, including: <ul style="list-style-type: none">• subscriptions and benefit funds received from the community• donations, industry contributions and fundraising received• other income.
Indirect revenue	All revenue or funding received indirectly by the agency (for example, directly to Treasury or other such entity) that arises from the agency's actions.
Volunteer personnel	
Volunteer ambulance operatives	All personnel engaged on an unpaid casual basis who are principally involved in the delivery of ambulance services, generally on an on-call basis. These staff may include categories on the same basis as permanent ambulance operatives (with transport capability).
Remunerated volunteer ambulance operatives	All personnel who volunteer their availability, however, are remunerated in part for provision of an ambulance response (with transport capability).
Volunteer support staff	All personnel engaged on an unpaid casual basis that are not remunerated and are principally involved in the provision of support services. These can be people in operational support roles provided they do not receive payment for their services other than reimbursement of 'out of pocket expenses'.

11.3 References

Jacobs I, Nadkarni V, Bahr J, Berg RA, Billi JE, Bossaert L, Cassan P, Coovadia A, D'Este K, Finn J, Halperin H, Handley A, Herlitz J, Hickey R, Idris A, Kloeck W, Larkin GL, Mancini ME, Mason P, Mears G, Monsieurs K, Montgomery W, Morley P, Nichol G, Nolan J, Okada K, Perlman J, Shuster M, Steen PA, Sterz F, Tibballs J, Timerman S, Truitt T, Zideman D, 2004, AHA Scientific Statement, *Cardiac Arrest and Cardiopulmonary Resuscitation Outcome Reports*, Update of the Utstein Templates for Resuscitation Registries, A Statement for Healthcare Professionals from a Task Force of the International Liaison Committee on Resuscitation (American Heart Association, European Resuscitation Council, Australian Resuscitation Council, New Zealand Resuscitation Council, Heart and Stroke Foundation of Canada, Inter American Heart Foundation, Resuscitation Councils of South Africa), *circulation* 23 November 2004, 110(21)c pp. 3385–97.