## Data quality information — Fire and ambulance services, chapter 9

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| Data Quality Information |
| Data quality information (DQI) was prepared for the first time for the 2011 Report on Government Services. DQI provides information for a selection of performance indicators in the Fire and ambulance services chapter. DQI for additional indicators will be progressively introduced in future reports.  Where RoGS indicators align with National Agreement indicators, DQI has been sourced from the Steering Committee’s reports on National Agreements to the COAG Reform Council.  Technical DQI has been supplied or agreed by relevant data providers. Additional Steering Committee commentary does not necessarily reflect the views of data providers. |
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**DQI are available for the following performance measures:**

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## Emergency services for fire events

### Fire incidents

Data quality information for this indicator has been drafted by the Emergency Management Working Group in consultation with the Australasian Fire and Emergency Service Authorities Council (AFAC), with additional Steering Committee comments.

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| **Indicator definition and description** | | |
| **Element** | Emergency management sector performance indicator framework | |
| **Indicator** | Fire incidents | |
| **Measures** | ‘Fire incidents’ is defined as the number of fire events that are reported to a fire service organisation and require a response.  A jurisdiction’s fire service organisation includes fire service providers, land management agencies and their umbrella department/s.  Measures are provided for:   * *fire incidents attended by fire service organisations per 100 000 people* — the total number of fire events that are reported to a fire service and require a response * *accidental residential structure fires attended by fire service organisations per 100 000 households* — ‘Accidental residential structure fires’ is defined as those fires that are not deliberately lit and with effective educational programs can be reduced and prevented from occurring in the first instance * *ignition factors for structure fires* — the ignition factor is the circumstances which permitted the heat source and combustible material to combine and start the fire * *fire service organisations and land management agencies reported total landscape (bush and grass) fire incidents*. ‘Landscape (bush and grass) fire incidents’ includes all vegetation fires (such as bushfires or grassfires), irrespective of the size of the area burnt.   Measures of ‘non‑fire’ incidents and false alarms incidents attended to by fire service organisations is provided as contextual information relating to the broader activities of fire service organisations.  Measures (other than ignition factors for structure types) are calculated as:   |  |  | | --- | --- | | **Numerator:** | **the number of fire incidents (by type)** | |  |  | |  |  | | **Denominator:** | **(estimated resident population)**  **(number of households)** |   Fire incidents are coded by type according to the Australian Incident Reporting System (AIRS) classification:   * Fire incident events are where the Type of Incident is a *fire or explosion*:   A23 = Division 1 (Codes 100 to 199 inclusive) * Accidental residential structure fires are where the Type of Incident is a *building fire*: [A23 = Division 1 (codes 110 to 129 inclusive)]   AND the Fixed property use is *residential*: [A20 = 410 to 439 inclusive]  AND Ignition factor is *accidental*: [E05 = codes 300 to 790 inclusive]  AND Area of fire origin is within a *structure*: [E01 = codes 01 to 79].   * Ignition factors for structure fires is Type of Incident is a *building fire*:   A23 = Division 1 (codes 110 to 129 inclusive)   CODED by Ignition factor: [E05 = all codes]   * Landscape (bush and grass) fire incidents are where the Type of Incident is a *vegetation or other outside fire*:  A23 = Division 1 (Codes 160 to 179 inclusive). | |
| **Data source** | Numerator  State and Territory governments. The Secretariat collects data directly from all jurisdictions. Within each jurisdiction, fire service and emergency services organisations collect and compile data.  Denominator  Population: *Australian Demographic Statistics*, Cat. no. 3101.0 (table 2A.2)  Households: *Australian Demographic Statistics*, Cat. no. 3101.0. | |
| **Data Quality Framework dimensions** | | |
| **Institutional environment** | | Fire incident data are collected by fire and emergency service organisations in each State and Territory according to the Australian Incident Reporting System (AIRS).  The AIRS is a nationally agreed data standard. It takes a systematic approach to collecting, recording and reporting information about responses to incidents and emergencies attended primarily by fire services. It provides a standard for the structure, definitions and integrity of the data collected.  The AFAC Data Management Group is responsible for sustaining the production and currency of AIRS data and support the continued development of data requirements to ensure consistent and reliable methods of data collection, compilation and analysis can be applied throughout member agencies. For further information about the AFAC knowledge data base see the AFAC National Data and Glossary.  Not all of the contributing fire and emergency services collect all of the data because each fire service has different legislated roles and responsibilities, environments and history of reporting and therefore have developed processes relevant to their business. In addition, many land management agencies do not record their response to fires according to the AIRS.  The data are requested and submitted to the Secretariat in accordance with the authority of the terms of reference of the Review of Government Service Provision. |
| **Relevance** | | ‘Fire incidents’ is an indicator of governments’ objective to manage the risk of fires by preventing/reducing the number of structure, landscape and other fires.  Fire service organisations respond to all reported fires within emergency response areas. Fire agencies may choose to manage some landscape fires (rather than fight the fire), particularly in remote areas  A lower or decreasing number of fire incidents, adjusted for population/households, indicates a better community outcome. Higher or increasing proportions of fire incidents indicate higher emergency response workloads. |
| **Timeliness** | | Fire incident are published annually for the latest financial year preceding the January release of each ROGS Report. |
| **Accuracy** | | Text caveats in the RoGS provide a generalised warning that data are not strictly comparable and cite a number of physical, operational and data collection system factors that influence fire incident data.  Jurisdictions predominately follow the data definitions. Substantive differences to the counting procedures are summarised in table 1 and include:   * *land management agencies* — not all jurisdictions report the number of fire incidents attended to by land management agencies that have a fire response role * *incomplete voluntary reporting procedures —* accurate identification of incidents attended by volunteer fire brigades is sometimes not possible * *merging of landscape fires* — Jurisdictions have noted that it is common practice to merge landscape fire data (i.e. one fire incident that with another is then treated as a single event). The AIRS incident type coding requires assessment of the ‘most serious situation arising from a landscape fire’, which usually occurs after fires have merged and may result in some merged fires being counted as a single incident. |
| **Coherence** | | Each State and Territory government maintain their own systems, processes, and training for estimation.  Any time series changes are identified with relevant footnotes. |
| **Accessibility** | | Fire incident data are publicly available on the Productivity Commission’s website from the time of RoGS publication.  Additional data may be available upon request through AFAC. |
| **Interpret­ability** | | Copies of the complete AFAC AIRS data standard are available upon request through AFAC.  Text caveats and chapter footnotes provide additional commentary on data quality, as do the footnotes in the relevant attachment tables. |
| **Data Gaps/Issues Analysis** | | |
| **Key data gaps/issues** | The Steering Committee notes the following key data gaps/issues:   * Text caveats note the need for fire incident data to be ‘interpreted with caution because the data are not strictly comparable across jurisdictions.’   A number of factors are identified as contributing to this lack of comparability, but without detailed analysis of such factors. | |

Table 1 Jurisdictional practices in counting fire incidents

|  | Jurisdiction comments |
| --- | --- |
| NSW | Included in fire incidents data are incidents recorded by:   * Fire & Rescue NSW * NSW Rural Fire Service * The Fire Management Unit, Parks and Wildlife Group of the Office of Environment and Heritage currently report to RoGS the number of landscape fires.   Land Management Agencies  NSW includes landscape incident data.  Merging of fires  **na**  Other significant counting practices  None |
| Vic | Included in fire incidents data are incidents recorded by:   * Victorian Metropolitan Fire and Emergency Services Board * Victorian Country Fire Authority * Department of Sustainability and Environment.   Land Management Agencies  Landscape fires data include incidents from the Department of Sustainability and Environment from 2004‑05 onwards.  Merging of fires  **na**  Other significant counting practices  Some degree of duplicate counting may be present across Country Fire Authority and Department of Sustainability and Environment figures. |
| Qld | Included in fire incidents data are incidents recorded by:   * Queensland Fire and Rescue Service (QFRS) Urban stations. QFRS Urban stations are estimated to serve 87.6 per cent of Queensland’s population. * QFRS Rural brigades. Rural Fire Brigades respond to the majority of landscape fires in Queensland. In fact, they cover approximately 93 per cent of the geographical area of the State.   Prior to 2012‑13, accurate identification of incidents attended by the QFRS was not possible. A trial of new procedures has seen reporting completion rates rise to over 95 per cent for Rural Fire Brigade attendances logged through FireCom during 2012‑13. New procedures will be fully implemented from 1 July 2013 and should see ongoing improvement to the rate of reporting for volunteer attendances.  Land Management Agencies  Queensland incident data excludes responses by land management agencies.  Merging of fires  Each fire is counted as a separate incident, whether the fires burn into each other or not.  Other significant counting practices  Data are likely to be under‑reported due to non‑completion of fire reports by QFRS volunteer staff. |
| WA | Included in fire incidents data are incidents recorded by:   * Department of Fire and Emergency Services (DFES) * The Department of Environment and Conservation (DEC).   Land Management Agencies  Data for *total fire incidents* includes DEC fires.  Data for *total landscape fire incidents* includes responses by land management agencies (see above). Data are reviewed and cleansed on an annual basis to remove duplications resulting from fires managed by different agencies.  Merging of fires  WA agencies currently record all landscape fires separately, according to the number of ignitions.  Other significant counting practices  Data are likely to be under‑reported for two reasons:   * 1) Some fires are only monitored and no suppression activity takes place. DEC does not record these incidents – DFES records them as monitored fires. * 2) Local Government Bushfire Brigades may self‑mobilise to small localised incidents. Often these are not reported and are therefore not recorded. |
| SA | Included in fire incidents data are incidents recorded by:   * SA Metropolitan Fire Service (MFS) * SA Country Fire Service (CFS) * Parks SA * Forestry SA.   Land Management Agencies  SA’s landscape fire incident reporting has included land management agencies such as Parks SA and Forestry SA, since these agencies have brigades registered as CFS brigades and work with CFS’s Group System.  Merging of fires  SA agencies generally record merged landscape fires as a single fire. As per AIRS manual, incidents are recorded as the ‘most serious’ situation. In SA landscape fires are generally the highest fire intensity when fires merge and often the greatest area is burnt  after merging. Therefore, the ‘most serious’ situation that occurred is most likely at/after  merger. Further, most forest fires, due to spotting, are usually an amalgam of many  thousands of ignitions.  Other significant counting practices  Rural Prescribe Burns can get populated into the AIRS database, but are later removed as a part of data quality procedures, however a small number may not get picked up. |
| Tas | Included in fire incidents data are incidents recorded by:   * Tasmania Fire Service (TFS).   Land Management Agencies  Data include all vegetation fires, regardless of size, from all fire brigades (full time and volunteer) and land management agencies.  Merging of fires  **na**  Other significant counting practices  None |
| ACT | Included in fire incidents data are incidents recorded by:   * ACT Fire and Rescue * ACT Rural Fire Service.   Land Management Agencies  **na**  Merging of fires  **na**  Other significant counting practices  None |
| NT | Included in fire incidents data are incidents recorded by:   * NT Fire and Rescue Service * Bushfires NT.   Land Management Agencies  NTFRS includes data provided by Bushfires NT.  Merging of fires  Each fire is counted as a separate incident, whether the fires burn into each other or not.  Other significant counting practices  Some duplicate counting may exist due to the amalgamation of data between NTFRS and Bushfires NT. NTFRS and Bushfires NT are currently reviewing data collection policies. |

*Source*: State and Territory governments.

### Non‑fire incidents: Reported road crash rescue incidents

Data quality information for this indicator has been drafted by the Emergency Management Working Group in consultation with the Australasian Fire and Emergency Service Authorities Council (AFAC) and the Australian Council of State Emergency Services (ACSES), with additional Steering Committee comments.

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| **Indicator definition and description** | | |
| **Element** | | Emergency management sector performance indicator framework |
| **Indicator** | | .. |
| **Measure incidents (computation)** | | ‘Reported road crash rescue incidents’ is defined as the number of reported incidents involving a motor vehicle and the presumption that assistance is required from emergency services organisations.  It is measured by the rate of reported road crash rescue incidents per 100 000 people. It is calculated as:   |  |  | | --- | --- | | **Numerator:** | **the number of road rescue incidents** | |  | **——————————————————————————** | | **Denominator:** | **estimated resident population** |   According to the Australian Incident Reporting System (AIRS) classification road crash rescue incidents are where:  The Type of Incident is A23 = Division 3: 351 and 352  AND the Type of Action Taken is A24= 20–23, 29  **OR**: the No. of Injuries is D2>=1, Fatalities is D4>=1, Rescued is D5>=1  AND the Mobile Property Type is J1 = 10–29, 61–65, 67 |
| **Measure extractions (computation)** | | ‘Reported road crash rescue extrications’ is defined as an assisted release and removal of trapped people (usually casualties) from motor vehicles by specially equipped and trained emergency service crews, arising from incidents reported. It is measured by the rate of reported extrications per 100 000 people; per 100 000 registered vehicles; and per million vehicle kilometres travelled. It is calculated as:   |  |  | | --- | --- | | **Numerator:** | **the number of road rescue extractions** | |  | **——————————————————————————** | | **Denominator:** | **(estimated resident population)**  **(number of registered vehicles)**  **(number of vehicle kilometres travelled)** |   According to the AIRS classification road crash rescue extractions are:  The ‘Type of Incident’ is A23 = Division 3: 351 and 352  AND the: ‘Type of Action Taken’ is A24= 21–23  **AND** No. of Injuries is D2 >=1, Fatalities is D4 >=1, Rescued is D5 >=1  AND the Mobile Property Type is J1 = 10–29, 61–65, 67 |
| **Data source** | | Numerator  State and Territory governments. The Secretariat collects data directly from all jurisdictions. Within each jurisdiction, fire service and emergency services organisations collect and compile data.  Denominator  Population: *Australian Demographic Statistics*, Cat. no. 3101.0 (table 2A.2)  Registered Vehicles: *Motor Vehicle Census*, Cat. no. 9309.0  Vehicle kilometres travelled: *Survey of Motor Vehicle Use*, Cat. No. 9208.0. |
| **Data Quality Framework dimensions** | | |
| **Institutional environment** | Road crash rescue data are collected by fire and emergency service organisations in each State and Territory according to the reporting requirements of their jurisdiction.  Not all of the contributing fire and emergency services collect all of the data because each fire and emergency service has different legislated roles and responsibilities, environments and history of reporting and therefore have developed processes relevant to their business.  Jurisdictions that code their road crash rescue data according to the Australian Incident Reporting System (AIRS) are:   |  |  | | --- | --- | | * Victoria (fire agencies only) | * Tasmania | | * Queensland | * Australian Capital Territory | | * Western Australia | * Northern Territory (?) | | * South Australia |  |   The AIRS is a nationally agreed data standard. It takes a systematic approach to collecting, recording and reporting information about responses to incidents and emergencies attended primarily by fire services. It provides a standard for the structure, definitions and integrity of the data collected.  The AFAC Data Management Group is responsible for managing and reviewing the AIRS data standard. For further information about the AFAC knowledge data base see the AFAC National Data and Glossary.  The data are requested and submitted to the Secretariat in accordance with the authority of the terms of reference of the Review of Government Service Provision. | |
| **Relevance** | ‘Reported road crash rescue incidents’ and ‘Reported road crash rescue extractions’ are an indicator of governments’ objective to reduce the adverse effects of road incidents on the community through appropriate response activities. A lower or decreasing number of reported road crash rescue incidents and extrications, adjusted for population, indicates a better community outcome. Higher or increasing proportions of reported road crash rescue incidents and extrications indicate higher emergency response workloads.  Each State and Territory have different road crash rescue attendance policies (table 1). As a result, road crash rescue incident data may vary according to the jurisdiction’s attendance policy, rather than the underlying number of road crash rescue incidents. | |
| **Timeliness** | Reported road crash rescues are published annually for the latest financial year preceding the January release of each ROGS Report. | |
| **Accuracy** | Text caveats in the RoGS provide a generalised warning that data are not strictly comparable and cite a number of physical, operational and data collection system factors that influence road rescue data.  Jurisdictions predominately follow the data definitions, although jurisdictions have indicated probable over‑counting in the data collection due to:   * *multiple agency response —* where both fire and SES services attend the same road crash event, due to data collection deficiencies several jurisdiction count this as multiple incidents * *multiple SES response —* where multiple SES services attend the same incident * *counting of ‘call‑backs’ as incidents —* in some cases SES may count events as road crash rescue ‘incidents’, which are outside the scope provided in the data definition (such as counting ‘call‑back’ incidents or traffic management incidents).   In practice there are differences in the method between (and within) jurisdictions to estimate road rescue data. Each jurisdiction’s approach is summarised in the Road crash rescue data quality appendix (table 2). | |
| **Coherence** | Each State and Territory government maintain their own systems, processes, and training for estimation.  Any time series changes are identified with relevant footnotes. | |
| **Accessibility** | Road crash rescue data are publicly available on the Productivity Commission’s website from the time of RoGS publication. | |
| **Interpret­ability** | Copies of the complete AFAC AIRS data standard are available upon request through AFAC.  Text caveats and chapter footnotes provide additional commentary on data quality, as do the footnotes in the relevant attachment tables. | |
| **Data Gaps/Issues Analysis** | | |
| **Key data gaps/issues** | The Steering Committee notes the following key data gaps/issues:   * Text caveats note the need for road crash rescue data to be ‘interpreted with caution because the data are not strictly comparable across jurisdictions.’   A number of factors are identified as contributing to this lack of comparability, but without detailed analysis of such factors. | |

#### Road crash rescue appendix

Table 1 Road crash rescue policies

Attendance policies that influence the number of road crash rescue incidents attended to and recorded by emergency service organisations.

|  |  |
| --- | --- |
|  | Jurisdiction’s emergency service road crash rescue attendance policies |
| NSW | Rescue units in NSW are predominantly provided by the NSW Police, Ambulance Service of NSW, Fire and Rescue NSW, State Emergency Service, NSW Volunteer Rescue Association Incorporated, Marine Rescue NSW, and Australian Volunteer Coast Guard Association Incorporated.  Under the State Emergency and Rescue Management Act 1989 and the State Rescue Policy, the NSW Police Force has a central role in coordinating rescue. Rescue services in NSW are based on a network of ‘accredited' rescue units located throughout the State, managed by the Board through an accreditation process. A Primary Rescue Unit is a unit with trained crew, rescue vehicle and rescue equipment which has been accredited to respond first to rescue situations, on a 24 hour, seven day a week basis. |
| Vic | Road rescue services are provided by 145 Road Rescue approved crews in Victoria. These crews are derived from the Country Fire Authority (CFA), Metropolitan Fire and Emergency Services Board (MFESB), Victoria State Emergency Service (VICSES), and two independent units (the Echuca‑Moama and Shepparton Search and Rescue Squads.  Road Rescue crews must be called out concurrently with ambulance to all road rescue events by communications centres unless it is known that no persons are trapped.  In addition, fire service and police will also be responded concurrently.  Once verified that no persons are trapped, responding crews are immediately advised. |
| Qld | Revised road crash rescue protocols were implemented in September 2009 to reduce unnecessary attendance by the QFRS at mobile property crashes. Revised road crash rescue response protocols were again implemented on 18 October 2011, as part of ongoing service delivery review for QFRS attendance at mobile property crashes. |
| WA | In Western Australia the Hazard Management Agency is the Western Australia Police Service. Response services are provided by career and volunteer firefighters, the State Emergency Service and St John Ambulance. |
| SA | The SA emergency services work to a dispatch policy that requires a fire service response as well as a rescue response for any reported vehicle accident outside the Metro Area. |
| Tas | The main agencies responding to Road Accident Rescue (RAR) incidents are the Tasmania Police (TasPol), Tasmanian Ambulance Service (TAS), Tasmania Fire Service (TFS) and State Emergency Service (SES).  The agency receiving the emergency call ‘000’ for a road accident must ascertain whether any persons are trapped. Information on road accidents must be passed to the TAS, TasPol, and TFS (FireComm) control rooms. TFS (FireComm) will dispatch TFS and SES RAR Units when it is determined necessary.  Requests for multiple unit dispatches (TFS and/or SES) can be made if extra rescue or other services are required. There are also some dual response areas where both SES and TFS RAR units are dispatched at the same time. |
| ACT | The ACT Fire and Rescue have the sole responsibility for road rescue in the ACT.  ACT Fire and Rescue are dispatched whenever notified of an incident. In most cases, when the ACT Ambulance Service receive a call from the general public or from ACT Policing, the ACT CAD system creates a road rescue job for both the ACT Ambulance Service and ACT Fire and Rescue. |
| NT | na |

*Source*: State and Territory governments.

Table 2 Calculation of road crash rescue incidents

A summary of each jurisdiction’s approach calculating road crash rescue data and differences to the data collection manual.

|  |  |
| --- | --- |
|  | Jurisdiction’s calculating road crash rescue data |
| NSW | Rescue data reported in the RoGS are sourced from the State Rescue Log, an electronic database of rescue incidents managed by the NSW Police Force. The State Rescue Log has been established as the definitive list of all rescue incidents that occur in New South Wales. Rescue incidents are logged by the Rescue Coordinator at each of the various Police Communications Centres. In situations where the NSW Police Force itself is not the agency that calls out the rescue units, it is to be advised of rescue incidents that have occurred and details of these incidents are to be recorded on the State Rescue Log.  The State Rescue Policy defines a Rescue Incident is an event requiring the dispatch of an accredited rescue unit to effect the safe removal of persons or domestic animals from actual or threatened danger or physical harm. |
| Vic | Fire agencies use the AIRS codes as provided in data dictionary to calculate the incident count. VICSES road rescue definitions are taken from the Road Rescue Arrangements Victoria document (RRAV) — the relationship between these definitions and AIRS to be confirmed.  Where the call out has been cancelled prior to arrival on scene, the incident is not counted towards rescue.   * Where the SES attends the incident after cancellation, the incident is counted as what the incident is found to be. (This might occur when the Unit was cancelled in error or the type of incident has changed, usually to Assist Agency). |
| Qld | Queensland agencies use the AIRS codes as provided in data dictionary. |
| WA | * Incidents where Fire and SES both attend are counted as one. * Only incidents involving a rescue are counted (as per the dictionary), therefore if a service is called back prior to arrival that incident would not be counted. * Road crash incidents only requiring clean‑up of fuel spills are not counted. |
| SA | In SA, AIRS codes are used calculate the incident count. The incident types used are: (All over fields are correct)   * 322 – Vehicle Accident with Injuries * 352 – Vehicle Accident no injury * 351 – Vehicle Accident Rescue   At the time of the year data are extracted for RoGS, SA has not finished data cleaning. As a result some records counted in the RoGS may been inaccurately coded.  If SES get a stop call before getting out the station gate they do not record an RCR incident attendance. If they get a stop call after getting out the station gate they record and RCR incident attendance. |
| Tas | * Over‑counting may occur where:   As reporting is completed by both TFS & SES on separate databases, there may be duplication of incidents (although this would be minimal).  It is also possible within the SES figures where multiple SES Units attend a single incident, that each SES Unit will submit a report for the same incident. ie 1 report per Unit, not one report per incident.   * For Tas SES, all events attended to by a Unit is counted as an incident, irrespective of action taken (eg extrication, traffic management, called off en‑route). * For TFS the following events are not included:   ‘Cancelled prior to arrival on scene’ events  ‘No rescue service was required’ events  ‘Washaways events’. |
| ACT | In ACT, AIRS codes are used calculate the incident count. The incident types used are:   * Type of incident (A23):   322 – vehicle accident with injuries  351 – vehicle accident rescue  352 – vehicle accident no injury   * AND Type of action taken (A24): 20‑23, 29   OR No. of other persons injured (D2)>=1, Fatalities (D4) >=1, Rescued is (D5) >=1 |
| NT | na |

*Source*: State and Territory governments.

Table 3 Calculation of road crash rescue extractions

|  |  |
| --- | --- |
|  | Jurisdiction comments |
| NSW | Extrication is the assisted release and removal of trapped people (or domestic animals) by specially equipped and trained emergency service crews, arising from incidents reported. The State Rescue Log has a dedicated field to where the Rescue Coordinator can indicate whether the primary rescue unit at the scene performed extrication, or whether the unit provided general assistance to the affected persons. |
| Vic | For fire services there should be no other interpretation issues associated with this data, other than those noted for incidents.  For VICSES Road Rescue Arrangements Victoria (RRAV) defines a road rescue as ‘The release and extrication of trapped people from motor vehicles’, which is what VICSES conforms to. As such, VICSES conforms with the data dictionary, but note that:   * a person is trapped if they are unable to leave the vehicle by their own efforts, which could include a jammed door. * where Victoria Police have requested SES return to extricate a deceased after the coroner has completed his investigation a separate report is completed with an incident type of Assist Police (or assist crime scene as appropriate). |
| Qld | No further details |
| WA | * The data dictionary definition counts all rescues (extrications and releases). WA is now able to separate extrications and releases. * WA counts the number of incidents involving rescues not the number of persons rescued. |
| SA | In SA the incident types used are: (All over fields are correct)   * Type of incident (A23):   322 – vehicle accident with injuries  351 – vehicle accident rescue  352 – vehicle accident no injury  At the time of the year data are extracted for RoGS, SA has not finished data cleaning. As a result some records counted in the RoGS may been inaccurately coded. |
| Tas | * For TFS, the extraction count complies strictly with the ROGS definition. * For Tas SES:   There is inconsistency in the reporting of injuries, fatalities and extrications.  D5 Number of personnel rescued by authority definition ‘Persons non‑injured, injured and deceased’ that were trapped, in difficulty that are subsequently released or rescued by the Reporting Authority.  A deceased person requiring extrication is being recorded as a fatality only. An injured person requiring extrication is being recorded as extrication only, or as an extrication and injury. |
| ACT | In ACT the incident types used are   * Type of incident (A23):   322 – vehicle accident with injuries  351 – vehicle accident rescue  352 – vehicle accident no injury   * AND Type of action taken (A24):21‑23   AND No. of other persons injured (D2)>=1, Fatalities (D4) >=1, Rescued is (D5) >=1 |
| NT | No further details |

*Source*: State and Territory governments.

### Residential structures with smoke alarms

Data quality information for this indicator has been drafted by the Emergency Management Working Group in consultation with the Australasian Fire and Emergency Service Authorities Council (AFAC), with additional Steering Committee comments.

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| **Indicator definition and description** | |
| **Element** | Fire events performance indicator framework – Outputs |
| **Indicator** | Residential structures with smoke alarms |
| **Measure (computation)** | ‘Proportion of residential structures with smoke alarms’ is defined as the number of households with an smoke alarm installed, divided by the total number of households. |
| **Data source** | State and Territory governments. Jurisdictions collect and compile data for their own jurisdiction.  Survey questions, as recommended by the *Directory of National Data Items and Questions for Evaluation of Household Preparedness for Fire and Natural Disaster Emergencies*, are:   |  |  | | --- | --- | | Identifier | Question | | **188** | **Q1.** Are there any smoke alarms or smoke detectors installed in [this / your] home?  **Q2.** How many? | | **189** | [How many are / Is it] currently in working order? | | **190** | **Q1**. [Was it / Were any of them] manually tested [in the last 12 months / since moving into [this / your] home]?  **Q2**. When [was it / were they] last tested?   * Less than 3 months ago * 3 months to less than 6 months ago * 6 months to less than 9 months ago * 9 months to 12 months ago. | |
| **Data Quality Framework dimensions** | |
| **Institutional environment** | Not all jurisdictions regularly collect data on residential structures with smoke alarms. Where they do, they measurement questionnaires and tools are not applied consistently across Australia (table 1).  Directory of National Data Items and Questions for Evaluation of Household Preparedness for Fire and Natural Disaster Emergencies  The Australian Natural Disasters Impacts Framework Project is being managed by the NSW Fire Brigade, funded under the Natural Disaster Mitigation Program, through the NSW State Emergency Management Committee, with 50 per cent contribution from the Australian and 50 per cent from NSW.  To assist agencies collect up‑to date, comprehensive and coherent information on household preparedness, the ABS was contracted the Project to develop the *Directory of National Data Items and Questions for Evaluation of Household Preparedness for Fire and Natural Disaster Emergencies.* The Directory aims to help inform decision making at the policy level by development of this nationally agreed directory of questions to measure household preparedness. |
| **Relevance** | High or increasing numbers of households with a smoke alarm installed, increases the likelihood that the adverse effects of fire will be avoided or reduced.. |
| **Timeliness** | Nationally consistent data for all jurisdictions were last available for the reference period February to November 2000, from the discontinued ABS Population Survey Monitor.  Since 2000, jurisdictions have collected data for their own states and territories, with the frequency and timeliness determined by jurisdiction requirements and available resources. |
| **Accuracy** | All jurisdictions collect data from a sample of households in their state or territory. These are subject to sample and non‑sample error, particular to their collection. |
| **Coherence** | Each State and Territory government maintain their own systems, processes, and training for estimation of  Data were sourced from jurisdictional collections that were not strictly comparable because of methodological differences.  Collection methods and time series changes for each jurisdiction are identified with relevant footnotes. |
| **Accessibility** | Residential structures with smoke alarms data are publicly available on the Productivity Commission’s website from the time of RoGS publication. |
| **Interpret­ability** | The *Directory of National Data Items and Questions for Evaluation of Household Preparedness for Fire and Natural Disaster Emergencies* is available on the Australian Natural Disasters Impacts Framework Project page, hosted by NSW Fire Brigade website at:  www.fire.nsw.gov.au/page.php?id=914 |
| **Data Gaps/Issues Analysis** | |
| **Key data gaps/issues** | The Steering Committee notes the following key data gaps/issues:   * Residential structures with smoke alarms indicators lack a consistent, comparable and iterative data source. * Text caveats note the need for of residential structures with smoke alarms to be ‘interpreted with caution because the data are not strictly comparable across jurisdictions.’   A number of factors are identified as contributing to this lack of comparability, but without detailed analysis of such factors. |

#### Residential structures with smoke alarms appendix

Table 1 Residential structures with smoke alarms calculation

Jurisdiction’s method for estimating ‘Residential structures with smoke alarms’.

|  |  |
| --- | --- |
|  | Jurisdiction’s collection and estimation method |
| NSW | Data are sourced from the New South Wales Population Health Survey (HOIST), Centre for Epidemiology and Research, NSW Department of Health.  Estimates are based on the following numbers of respondents for NSW: 2003 (13,008), 2004 (8892), 2005 (10,687), 2006 (7795), 2007 (7301), 2008 (8417) and 2009 (7846).   * The 95 per cent confidence interval for 2009 is (92.9 ‑ 94.5). * The indicator includes those who have a smoke alarm or detector in their home. The question used to define the indicator was:   **Do you have smoke alarms installed in your home?** |
| Vic | Data are sourced from Household Preparedness for Emergencies Survey, 2007‑08 (ABS cat. no. 4818.0).   * The number of households enumerated for the survey were 1207 for Victoria. * Relative standard error for Victorian estimate is 0.8 per cent.   The indicator includes those who have a smoke alarm or detector in their home. The question used to define the indicator was:  **Do you have smoke alarms installed in your home?** |
| Qld | The 2012‑13 result is sourced from an online survey undertaken in November 2012. The survey is conducted annually. Data are estimates for the whole population of Queensland.  The indicator includes those who have a smoke alarm or detector in their home. The question used to define the indicator was:  **Do you have smoke alarms installed in your home?**  A household is deemed to have an operational smoke alarm if, in the past 12 months, any of the following apply: ‘tested smoke alarm’; ‘vacuumed or cleaned smoke alarm’; ‘replaced smoke alarm battery’; or ‘replaced smoke alarm unit’.  Note that households without an operational smoke alarm include those where a smoke alarm is not installed and those where a smoke alarm is installed but none of the above maintenance activities have been carried out in the past 12 months. |
| WA | Data are based on market research conducted annually (most recently April 2011).  The indicator includes those who have a smoke alarm or detector in their home. The question used to define the indicator was:  **Do you have smoke alarms installed in your home?** |
| SA | .. |
| Tas | .. |
| ACT | Data are sourced from Household Preparedness for Emergencies Survey, 2007‑08 (ABS cat. no. 4818.0).   * The number of households enumerated for the survey were 1207 for the ACT. * Relative standard error for the ACT estimate is 2.0 per cent   The indicator includes those who have a smoke alarm or detector in their home. The question used to define the indicator was:  **Do you have smoke alarms installed in your home?** |
| NT | .. |

*Source*: State and Territory governments.

### Structure fire response times

Data quality information for this indicator has been drafted by the Secretariat in consultation with the Australasian Fire and Emergency Service Authorities Council (AFAC), with additional Steering Committee comments.

|  |  |
| --- | --- |
| **Indicator definition and description** | |
| **Element** | Fire events performance indicator framework – Outputs |
| **Indicator** | Response times to structure fires |
| **Measure (computation)** | There are two measures of structure fire response times:   * response times to structure fires (*including* call taking time) * response times to structure fires (*excluding* call taking time).   Response times to structure fires *(including call taking time)*  Response times to structure fires *(including call taking time)* is defined as the interval between the receipt of the call at the dispatch centre and the arrival of the first vehicle at the scene (that is, when the vehicle is stationary and handbrake is applied).  Response times to structure fires *(excluding call taking time)*  Response time *(excluding call taking time)* is defined as the interval between the dispatch of the fire crew and the arrival of the first vehicle at the scene (that is, when the vehicle is stationary and handbrake is applied). |
| Structure fire response time intervals | |
|  | Further guidance is provided in the Fire and Emergency Services Activity Data Dictionary as follows:   * The measures of response times are for emergency calls only — exclude all calls where vehicle travels ‘code 3’ or under normal road conditions. * Include ‘genuine’ outliers and 0 response times (i.e. where passing appliance notifies the event). * Exclude from the calculation records with incomplete time stamps. * Exclude from the calculation records where the appliance was called off en‑route to scene. * The 50th percentile is the time within which 50 per cent of first fire resources actually arrive on scene. * The 90th percentile is the time within which 90 per cent of first fire resources actually arrive on scene. * The call handling time by the Telstra ‘000’ triple‑zero operator which occurs prior to hand over to the emergency services operator is excluded.   Structure fire  A structure fire is a fire inside a building or structure, whether or not there is damage to the structure. Within the Fire and Emergency Services Activity Data Dictionary, the following guidance is provided:   * Structure fires are defined as Australian Incident Reporting System (AIRS) data element A23, type of incident codes 110‑129 inclusive.   All jurisdictions conform with the definition but SA uses a limited range of codes namely 110, 111, 112, 113, 121,123 and 126. |
| **Data source** | State and Territory governments. The Secretariat collects data directly from all jurisdictions.  Within each jurisdiction, fire service and emergency services organisations collect and compile data. Not all jurisdictions have systems in place to capture all components of the response time continuum from time of call to arrival at the scene, as outlined in the figure above. Some agencies use manual systems to calculate response times, while others retrieve data from computer aided dispatch (CAD) systems. |
| **Data Quality Framework dimensions** | |
| **Institutional environment** | Response time estimates are collected by fire and emergency service organisations in each State and Territory according to the Australian Incident Reporting System (AIRS).  The AIRS is a nationally agreed data standard. It takes a systematic approach to collecting, recording and reporting information about responses to incidents and emergencies attended primarily by fire services. It provides a standard for the structure, definitions and integrity of the data collected.  The AFAC Data Management Group is responsible for sustaining the production and currency of AIRS data and support the continued development of data requirements to ensure consistent and reliable methods of data collection, compilation and analysis can be applied throughout member agencies. For further information about the AFAC knowledge data base see the AFAC National Data and Glossary.  Not all of the contributing fire and emergency services collect all of the data because each fire service has different legislated roles and responsibilities, environments and history of reporting and therefore have developed processes relevant to their business.  The data are requested and submitted to the Secretariat in accordance with the authority of the terms of reference of the Review of Government Service Provision. |
| **Relevance** | Timeliness of response and early intervention is a precursor for preventing the spread of fire and reducing its impacts on life and property. Timeliness of arrival is used to measure the effectiveness of reducing the impacts of fire, not the actions taken after arrival.  Data are available both on a state‑wide basis and by remoteness area, with response times reported in minutes for the 50th and 90th percentiles in each category.  Data are presented by remoteness area in an attempt to correct for some of the physical and operational factors that are believed to adversely affect response times in areas that are relatively remote compared with the major cities.  Response times are classified according to the Remoteness Area (RA) classification maintained by the ABS (Australian Standard Geographical Classification (ASGC) (cat. no. 1216.0)), The delimitation criteria for RAs are based on the Accessibility/Remoteness Index of Australia (ARIA) developed by the Commonwealth Department of Heath and Ageing and the National Key Centre For Social Applications of GIS. ARIA measures the remoteness of a point based on the physical road distance to the nearest Urban Centre in each of five size classes. |
| **Timeliness** | Response time data are published annually for the latest financial year preceding the January release of each ROGS Report. |
| **Accuracy** | Text caveats in the RoGS provide a generalised warning that data are not strictly comparable and cite a number of physical, operational and data collection system factors that influence response times.  Response time data are not collected for all incident responses.  Separate urban and rural fire service organisations — consisting of both volunteer and career/permanent personnel — provide fire response services within jurisdictions.  Resulting data issues include:   * whether structure fires attended by volunteer brigades are included in calculating a jurisdictional response time value * the percentage of structure fires attended by volunteer brigades, where:   response times tend to be calculated manually  there is potential for variation in data completeness.  In practice there are differences in the method each jurisdiction uses to estimate response time to structure fires. Each jurisdiction’s approach is summarised in the Structure fire response times appendix (page 6), including their approach to:   * response time definition (table 1) * differences data collection systems and coverage (table 2) * data completeness (volunteer and permanent brigades) (table 3) * extrapolation and estimation (table 4) * percentile calculations (table 5). |
| **Coherence** | Each State and Territory government maintain their own systems, processes, and training for estimation of response times in accordance with AIRS.  Any time series changes are identified with relevant footnotes. |
| **Accessibility** | Structure fire and response time data are publicly available on the Productivity Commission’s website from the time of publication.  Interested parties, particularly researchers, may request access to unpublished portions of the AFAC Knowledge data base’s Core Data (de‑identified unit record data) to undertake their own statistical analysis for particular research and/or projects. For more information about access to national data see AFAC data requests. |
| **Interpretability** | Copies of the complete AFAC AIRS data standard, 1997, are available upon request through AFAC.  The AFAC knowledge web provides links to a range of related statistics to enable a better understanding of how interrelationships between socio‑demographic, economic, geographic and environmental factors influence emergency incidents.  Text caveats and chapter footnotes provide additional commentary on data quality, as do the footnotes in the relevant attachment tables. |
| **Data Gaps/Issues Analysis** | |
| **Key data gaps/issues** | The Steering Committee notes the following key data gaps/issues:   * Response times are identified on the three point comparability scale as ‘not complete or not directly comparable’. * Text caveats note the need for response times to be ‘interpreted with caution because the data are not strictly comparable across jurisdictions.’   A number of factors are identified as contributing to this lack of comparability, but without detailed analysis of such factors. |

#### Structure fire response times appendix: Jurisdictions response time calculation

The following tables are a summary of each jurisdiction’s compliance in calculating the structure fires response time.

Table 1 Response time definition

|  |  |  |
| --- | --- | --- |
|  | Complies with definition | Jurisdiction’s interpretation and/or application of definition that may impact on comparability |
| NSW | Yes (FRNSW) No (NSWRFS) | The NSW Rural Fire Service (NSWRFS) does not capture the ‘Call taking time’ data to calculate Response times to structure fires *(including call taking time)*. |
| Vic | Yes | Response times are calculated from the time the Emergency Services Telecommunications Authority (ESTA) creates an event for the emergency call to arrival of the first appliance on scene. |
| Qld | No | Response time for Queensland applies the following additional parameters:   * Exclude calls where A37 Delayed Arrival code is 71 (Severe weather conditions), 91 (Initial response by other agency). * Incident must be within the urban levy boundary. * Alarm time is not at the point of call pickup but at the time the incident is placed in the waiting queue (waiting assignment to a crew) and deemed an actual incident. |
| WA | Yes | .. |
| SA | No | SA does not capture the ‘Call taking time’ data to calculate Response times to structure fires (*including call taking time*). |
| Tas | Yes | .. |
| ACT | Yes | Up until and including the 2009–2010 data the ACTFB’s response times had been calculated from dispatch to arrival. This was an error in the data extraction programming and has been rectified for the 2010–2011 year to reflect the ROGS definition. |
| NT | Yes | .. |

*Source*: State and Territory governments.

Table 2 Data collection and storage

Computer Assisted Dispatch (CAD), manual or combined systems

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | System | | What % of response time data are extracted from CAD systems (2008‑09)? | Additional information | |
| NSW | Combination of manual and CAD systems. | | 89 per cent | The Fire & Rescue NSW (FRNSW) collects response times using a CAD system.  The NSWRFS collects response times using a manual system. | |
| Vic | | Combination of manual and CAD systems. | 93 per cent | The MFB collects response times using a CAD system.  CFA collects response times according to:   * Category 1 Brigades (Full Radio Traffic) collect response times using a CAD system. * Other brigades collect response times using a manual system. | |
| Qld | CAD system | | 100 per cent |  |
| WA | Combination of manual and CAD systems. | | 100 per cent | Bush Fire Brigade data may be entered manually where volunteers have self‑dispatched (<1%).  Times may also be modified manually as a consequence of data auditing where incorrect times are recorded through CAD (estimated at 1% of total incidents). |
| SA | Combination of manual and CAD systems | | MFS: Metropolitan Stations (arrival times) are documented via the CAD system (82%). Country Stations (arrival times) are manually populated with the AIRS database (12%).  CFS: CAD dispatches CFS’s structure fire responses but all (100%) of CFS’s arrival times are manually entered in the incident record. For 2008–2009 CFS brigades attended 13% of the structure fires we’re reporting in RoGS 2010 | All incidents are despatched from CAD for Metropolitan and Country Stations.  Call taking time for the MFS is the time incident is received on pagers or MCTs and is created from CAD.  Metro Stations mobile and arrival times are automatically populated by CAD.  Country Stations (MFS and CFS) complete hand written or electronic form for documenting mobile and arrival times (except CFS only have pagers) |
| Tas | CAD system | | 100 per cent |  |
| ACT | CAD system | | 100 per cent | CAD data are automatically loaded to AIRS data system. |
| NT | Combination of manual and CAD systems | | Data is entered directly into AIRS via CAD. Percentage (estimate of <10%) of data is entered manually into AIRS by remote stations. |  |

*Source*: State and Territory governments.

Table 3 Data completeness (volunteer and permanent brigades)

|  |  |  |  |
| --- | --- | --- | --- |
|  | Volunteer brigade data included? | Percentage of data relating to volunteer brigades (2008–2009) | Other information relating to data completeness |
| NSW | Yes | Approximately 13 per cent of structure fires |  |
| Vic | Yes | Approximately 29 per cent of structure fires | MFB account for around 50% of all structure fires and is fully staffed by paid crews.  CFA account for around 50% of all structure fires and comprises brigades fully staffed by paid crews, brigades fully crewed by volunteer fire fighters and brigades with a mixture of paid crews and volunteer firefighters.  For CFA around 58 percent of structure fires are attended to by volunteer brigades which, after taking into account MFB activity, translates to around 29 percent of Victoria’s structure fires. |
| Qld | No | na | Queensland data exclude volunteer brigades and are limited to incidents within the urban levy boundary. |
| WA | Yes | Approximately 21 per cent of structure fires (average over 5 years) | Response time data can only be provided if all time fields are completed. In 2007‑08 approximately 10% of total structure fires were excluded as some time fields were incomplete. |
| SA | Yes | Approximately 13 per cent of structure fires | MFS Stations are all paid personnel allocated to stations. Metro Stations are all full time and Country Stations are retained.  CFS stations are all volunteer. CFS has no paid firefighters.  Both fire services have data quality assurance processes but were not able to estimate record completeness. In any case, incomplete record numbers are expected to be smaller than record numbers with keying errors. For RoGS 2009,1353 structure fires (88% of the total) were used in response time calculations i.e. had the data necessary for response time calculation. |
| Tas | Yes | Approximately 43 per cent of structure fires | TFS collects data from career and volunteer brigades and the data set is >98% complete. |
| ACT | No | .. | .. |
| NT | No | .. | Currently there are no provisions for data entry by volunteers in the NTFRS. It should be noted that Bushfires NT provides response to grassfires only outside NTFRS Emergency Response Areas and does not provide any data to ROGS |

*Source*: State and Territory governments.

Table 4 Extrapolation and estimation responses

|  |  |  |
| --- | --- | --- |
|  | Are any response time data extrapolated | Are any response time data estimated and if so explain the rationale and method used |
| NSW | No | Response times collected manually from volunteer brigades are estimates. Incident information provided by volunteer fire‑fighters is entered into an AIRS‑compliant database. However, the information is provided post incident. There is a margin of error, in that times are very difficult to correlate from independent sources. |
| Vic | No | Where response time data is incomplete it is excluded from reporting.  CFA response time data (mostly volunteer brigades) may incorporate an estimation factor of arrival time provided by the responding operational crews, either to the nearest minute on a wrist watch, or in the case of rural volunteer brigades, estimated after the incident.  There is no estimation undertaken on data reported by the brigades. |
| Qld | No | No |
| WA | No | No |
| SA | No | If times required to calculate response time are not documented then these records are excluded from response time calculations. |
| Tas | No | No |
| ACT | No | No |
| NT | No | No |

*Source*: State and Territory governments.

Table 5 Percentiles calculationa

|  |  |  |
| --- | --- | --- |
|  | Are there any records excluded from the percentile calculations other than those recommended in the data dictionary? | Are outliers excluded? If so, how they are defined? |
| NSW | Records with incomplete response time data are excluded. | FRNSW — outliers are not excluded.  NSWRFS — outliers are excluded. The NSWRFS excludes records with response times that are deemed to be entry errors (for example, greater than 100 hours). |
| Vic | No | Outliers are not excluded.  However, given the low number of remote structure fires, these data are incorporated into the outer regional figures for statistical purposes.  If the ESTA CAD is off‑line and ESTA is in manual mode and there is an observed timestamp issue with the manual data, then that information is excluded from the calculations. |
| Qld | Exclusions include: structure fires outside the Urban Levy Boundary; delays due to extreme weather conditions or where the initial response was by another agency or brigade. | Outliers are not excluded. |
| WA | No | Outliers are not excluded. |
| SA | No | Outliers resulting from manual keying errors are excluded.  MFS’s historic system did not use a standard data base date/time field. Rather, they used separate fields for dates and times, so the time field could not be assumed to relate to the recorded date (that is, if the dispatch occurred five minutes before midnight and the travel time was 10 minutes then the arrival time should be for the date of arrival (not the day beforehand). Therefore, we exclude records where apparent ‘response time’ exceeds 12 hours. |
| Tas | No | Outliers are not excluded. |
| ACT | No | Outliers are not excluded. |
| NT | No | Outliers are excluded.  Where it is clear by built‑rules related to response type and reasonable response time within or outside Emergency Response Areas. |

a  There are various statistical methods implemented in different software for calculating percentiles which can result in different values being calculated.

*Source*: State and Territory governments.

### Annual fire death rate

Data quality information for this indicator has been drafted by the Secretariat in consultation with the ABS, with additional Steering Committee comments.

|  |  |
| --- | --- |
| **Indicator definition and description** | |
| **Element** | Fire events performance indicator framework – Outcomes |
| **Indicator** | Fire death rate |
| **Measure (computation)** | This indicator is defined as the number of deaths from fire:  Numerator  The following International Classification of Diseases (ICD) codes are aggregated to define the data set:   * Exposure to smoke, fire and flames (ICD X00 — X09) as follows:   ICD X00 Exposure to uncontrolled fire in building or structure  ICD X01 Exposure to uncontrolled fire, not in building or structure  ICD X02 Exposure to controlled fire in building or structure  ICD X03 Exposure to controlled fire, not in building or structure  ICD X04 Exposure to ignition of highly flammable material  ICD X05 Exposure to ignition or melting of nightwear  ICD X06 Exposure to ignition or melting of other clothing and apparel  ICD X08 Exposure to other specified smoke, fire and flames  ICD X09 Exposure to unspecified smoke, fire and flames   * Intentional self‑harm by smoke, fire and flames (ICD X76) * Assault by smoke, fire and flames (ICD X97) * Exposure to smoke, fire and flames, undetermined intent (ICD Y26)   Denominator  Population by State and Territory and Australian total  The measure is expressed by State and Territory and Australian total, by ICD code detail and total, as an annual, and a three year rolling weighted average rate per million people. |
| **Data source** | Numerator  ABS Causes of Death, Australia, Cat. no. 3303.0 (Underlying causes of death, State and Territory tables, published and unpublished data).  Denominator  ABS Estimated Residential Population, Cat. no. 3101.0 (for more detail about the population data used in the Report see RoGS Statistical context (chapter 2), attachment table AA2). |
| **Data Quality Framework dimensions** | |
| **Institutional environment** | The Causes of Death collection is published by the Australian Bureau of Statistics (ABS), with data sourced from deaths registrations administered by the various State and Territory Registrars of Births, Deaths and Marriages. It is a legal requirement of each State and Territory that all deaths are registered.  The ABS operates within a framework of the Census and Statistics Act 1905 and the Australian Bureau of Statistics Act 1975. These Acts ensure the confidentiality of respondents and ABS’ independence and impartiality from political influence. For more information on the institutional environment of the ABS, including the legislative obligations of the ABS, financing and governance arrangements, and mechanisms for scrutiny of ABS operations, please see ABS Institutional Environment. |
| **Relevance** | The ABS Causes of Death collection includes all deaths that occurred and were registered in Australia, including deaths of persons whose usual residence is overseas. Deaths of Australian residents that occurred outside Australia may be registered by individual Registrars, but are not included in ABS deaths or causes of death statistics.  Data in the Causes of Death collection include demographic items, as well as Causes of Death information coded according to the International Classification of Diseases (ICD). The ICD is the international standard classification for epidemiological purposes and is designed to promote international comparability in the collection, processing, classification, and presentation of cause of death statistics. The classification is used to classify diseases and causes of disease or injury as recorded on many types of medical records as well as death records. The ICD has been revised periodically to incorporate changes in the medical field. The 10th revision of ICD (ICD‑10) has been used since 1997. |
| **Timeliness** | Causes of Death data are published on an annual basis.  Death records are provided electronically to the ABS by individual Registrars on a monthly basis for compilation into aggregate statistics on a quarterly and annual basis. One dimension of timeliness in death registrations data is the interval between the occurrence and registration of a death. As a result, a small number of deaths occurring in one year are not registered until the following year or later.  Preliminary Estimated Residential Population (ERP) data are compiled and published quarterly and are generally made available five to six months after the end of each reference quarter. Commencing with data for September quarter 2006, revised estimates are released annually and made available 21 months after the end of the reference period for the previous financial year, once more accurate births, deaths and net overseas migration data becomes available. In the case of births and deaths, the revised data are compiled on a date of occurrence basis. In the case of net overseas migration, final data are based on actual traveller behaviour. Final estimates are made available every 5 years after a census and revisions are made to the previous inter‑censal period. ERP data are not changed once finalised. Releasing preliminary, revised and final ERP involves a balance between timeliness and accuracy. |
| **Accuracy** | Information on Causes of Death is obtained from a complete enumeration of deaths registered during a specified period and is not subject to sampling error. However, deaths data are subject to non-sampling error. Non‑sampling error can arise from inaccuracies in collecting, recording and processing the data. The most significant of these errors are: misreporting of data items; deficiencies in coverage; non‑response to particular questions; and processing errors. Every effort is made to minimise error by working closely with data providers, the careful design of forms, training of processing staff and efficient data processing procedures.  All ERP data sources are subject to non‑sampling error. Non‑sampling error can arise from inaccuracies in collecting, recording and processing the data. In the case of Census and Post Enumeration Survey (PES) data, every effort is made to minimise reporting error by the careful design of questionnaires, intensive training and supervision of interviewers, and efficient data processing procedures.  Causes of Death data for 2007 are subject to revision. All coroner certified deaths registered after 1 January 2007 will be subject to a revision process. This is a change from previous years, where all ABS processing of causes of death data for a particular reference period was finalised approximately 13 months after the end of the reference period. Where insufficient information was available to code a cause of death (e.g. a coroner certified death was yet to be finalised by the Coroner), less specific ICD codes were assigned as required by the ICD coding rules. The revision process will enable the use of additional information relating to coroner certified deaths as it becomes available over time. This will result in increased specificity of the assigned ICD‑10 codes. Causes of death data for 2007 coroner certified deaths will be updated as more information becomes available to the ABS. Revisions will only impact on coroner certified deaths, as further information becomes available to the ABS about the causes of these deaths. See Causes of Death, 2007, Australia (Cat. no 3303.0).  Some rates are unreliable due to small numbers of deaths over the reference period. All rates in this indicator must be used with caution. |
| **Coherence** | The ABS provide source data for the numerator and denominator for this indicator. |
| **Accessibility** | Causes of Death data are available in a variety of formats on the ABS website, www.abs.gov.au, under Causes of Death, Australia (Cat. no 3303.0).  ERP data are available in a variety of formats on the ABS website, www.abs.gov.au, under the 3101.0 and 3201.0 product families.  Further information on deaths and mortality may be available on request. The ABS observes strict confidentiality protocols as required by the Census and Statistics Act (1905). This may restrict access to data at a very detailed level. |
| **Interpretability** | Data for this indicator are presented as crude rates, per million estimated resident population, and as three year rolling averages due to volatility of the small numbers involved.  Information on how to interpret and use the cause of death data is available from the Explanatory Notes in Causes of Death, Australia (Cat. no 3303.0).  Small value data are randomly adjusted to avoid the release of confidential data.  Causes of death statistics for states and territories have been compiled in respect of the state or territory of usual residence of the deceased, regardless of where in Australia the death occurred and was registered.  The ERP is Australia’s population reported by state and territory and by place of usual residence. |
| **Data Gaps/Issues Analysis** | |
| **Key data gaps/issues** | The Steering Committee notes the following key data gaps/issues:   * Timeliness — data available for the Report on Government Services are delayed by one reference year. This is due to a trade-off between accuracy and timeliness. * Volatility — due to the small numbers of fire deaths annually, there is a high level of volatility in reported indicator rates. It is important therefore to assess longer term trends where data are available. |

### Landscape fire death rate

Data quality information for this indicator has been drafted by the Secretariat in consultation with AFAC, with additional Steering Committee comments.

|  |  |
| --- | --- |
| **Indicator definition and description** | |
| **Element** | Fire events performance indicator framework – Outcomes |
| **Indicator** | Fire death rate |
| **Measure (computation)** | Numerator  The number of people killed by landscape fires in the jurisdiction during the defined period times one million.  Denominator:  The estimated resident population for the jurisdiction on 31 December during the defined period. |
| **Data source** | Numerator  AFAC Landscape Fire Deaths Database [Dated] that contains data sourced from media reports, agency reports, PerilAus from Risk Frontiers and NCIS records.  Denominator  ABS Estimated Residential Population (ERP) 3101.0 (for more detail about the population data used in the Report see RoGS Statistical context (chapter 2), attachment table AA2). |
| **Data Quality Framework dimensions** | |
| **Institutional environment** | AFAC maintains the Landscape Fire Deaths database on behalf of its members. It has a formal data access agreement with the Victorian Institute of Forensic Medicine to use records in the National Coroners Information System. Data sharing arrangements are in place with the Bushfire CRC that first compiled the data from the PerilAus data held by Risk Frontiers. The original data has been modified for Bushfire CRC research objectives and more recently for the Landscape Fire Performance Measures project. There is no legislative framework for the existence of the data.  The estimated resident data is from the ABS that operates within a framework of the Census and Statistics Act 1905 and the Australian Bureau of Statistics Act 1975. These ensure the independence and impartiality from political influence of the ABS, and the confidentiality of respondents. |
| **Relevance** | The Landscape Fire Deaths Database contains records of every death that has been attributed to a landscape fire.  Landscape fires include all planned and unplanned fires burning outside in vegetation fuels. They exclude campfires and receptacle fires.  A death that is attributed to a landscape fire as confirmed by a coroner or inquest or provisionally by the incident controller. Unconfirmed deaths are recorded as provisional until an inquest or finding is completed. Included are deaths travelling to and from fires and the full range of causes not just heat, fire and smoke. Unborn babies are excluded as are intentional self-harm, assault or murder.  The data contain other data elements that allow for analysis of the reasons, background and activities associated with the incident.  The data contains all known records back to July 2003 and all known civilian deaths back to 1900.  The indicator is titled Landscape fire death rate because although the term bushfire is more recognisable than Landscape fire the former has the correct technical meaning. Bushfires are an entire sub set of Landscape fires which also includes planned fires. Deaths from planned fires are included in the deaths data. |
| **Timeliness** | The data is added periodically and continually. The NCIS is interrogated annually to find any additional records and to confirm the status of any provisional records.  Historic records are periodically reviewed to add known firefighter deaths.  Releasing preliminary, revised and final ERP involves a balance between timeliness and accuracy. |
| **Accuracy** | The deaths data is considered accurate although it has many sources and contains both provisional and confirmed records. The number of deaths from landscape fires is well known within the industry and each record can be confirmed from multiple sources.  All ERP data sources are subject to non‑sampling error. Non‑sampling error can arise from inaccuracies in collecting, recording and processing the data. In the case of Census and Post Enumeration Survey (PES) data, every effort is made to minimise reporting error by the careful design of questionnaires, intensive training and supervision of interviewers, and efficient data processing procedures.  The records will change over time as there can be a two year delay between the death and the coronial finding. Provisional records may be later eliminated and new records added for deaths that were unknown to incident controllers.  The actual numbers can be reported and there is no requirement to randomise small numbers.  The data back to 2003 has been thoroughly researched and most records are confirmed from multiple sources.  The same data for civilian deaths from a previous source was submitted as evidence to the Victorian Bushfire Royal Commission. |
| **Coherence** | The management of the database by AFAC on behalf of 29 contributing agencies provides coherence.  The ABS provides the denominator for this indicator with reliable coherence. |
| **Accessibility** | The Landscape Fire Deaths Database contains personal identification information. This is essential in being able to eliminate potential duplicate records from different sources for the same death. There are privacy issues in being able to access the NCIS and all reported uses of the data must be de‑identified. The privacy concerns are managed by restricting access to the data with the identities retained. Analysed and de‑identified data can be freely accessed although its uses must be reported to the Victorian Institute of Forensic Medicine.  ERP data is available in a variety of formats on the ABS website, www.abs.gov.au, under the 3101.0 and 3201.0 product families. |
| **Interpretability** | Data for this indicator are controlled by a comprehensive Data Dictionary. Every element is defined as fully as possible. There are still some interpretations required to record a death. The degree to which the fire contributed to the death is interpreted by the coroner and then again at the time of data entry.  Data are reported by jurisdiction of the incident irrespective of the home location of the deceased. |
| **Data Gaps/Issues Analysis** | |
| **Key data gaps/issues** | The Steering Committee notes the following key data gaps/issues:   * Volatility — due to the small numbers of fire deaths annually, there is a high level of volatility in reported indicator rates. It is important therefore to assess longer term trends where data are available. A five year rolling average will be investigated. The impact of the Black Saturday fires will remain as a spike in the data for a number of years. Spikes in the trends have occurred on about a 30 year cycle. Longer term trends can also be investigated. Recent research has indicated that the 1939 fires killed more people per population than Black Saturday 2009 so there may be a long term downward trend. |

### Annual fire hospitalisation rate

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

|  |  |
| --- | --- |
| **Indicator definition and description** | |
| **Element** | Outcome |
| **Indicator** | Annual fire hospitalisation rate |
| **Measures (computation)** | The *numerator* is the number of hospital separations for people who sustained injuries from smoke, fire or flames.  The following International Classification of Diseases (ICD) codes are aggregated to define the data set:   * Exposure to smoke, fire and flames (ICD X00 — X09) as follows:   ICD X00 Exposure to uncontrolled fire in building or structure  ICD X01 Exposure to uncontrolled fire, not in building or structure  ICD X02 Exposure to controlled fire in building or structure  ICD X03 Exposure to controlled fire, not in building or structure  ICD X04 Exposure to ignition of highly flammable material  ICD X05 Exposure to ignition or melting of nightwear  ICD X06 Exposure to ignition or melting of other clothing and apparel  ICD X08 Exposure to other specified smoke, fire and flames  ICD X09 Exposure to unspecified smoke, fire and flames   * Intentional self‑harm by smoke, fire and flames (ICD X76) * Assault by smoke, fire and flames (ICD X97) * Exposure to smoke, fire and flames, undetermined intent (ICD Y26)   The *denominator* is the Estimated Resident Population.  A separation is an episode of care for an admitted patient, which can be a total hospital stay (from admission to discharge, transfer or death), or a portion of a hospital stay beginning or ending in a change of type of care (for example, from acute care to rehabilitation).  Calculation is 100 000 × (Numerator ÷ Denominator), presented as a number per 100 000. |
| **Data source** | Numerator: This indicator is calculated using data from the NHMD, based on the National Minimum Data Set for Admitted Patient Care.  Denominator:  For total population: Australian Bureau of Statistics (ABS) Estimated Resident Population (ERP) as at 31 December as a midpoint of the reference period.  Computation:  1000 × (Numerator ÷ Denominator), presented as a rate. |
| **Data Quality Framework dimensions** | |
| **Institutional environment** | The Australian Institute of Health and Welfare (AIHW) has calculated this indicator.  The Institute is an independent statutory authority within the Health and Ageing portfolio, which is accountable to the Parliament of Australia through the Minister for Health. For further information see the AIHW website.  The data were supplied to the Institute by state and territory health authorities. The state and territory health authorities received these data from public hospitals. States and territories use these data for service planning, monitoring and internal and public reporting. Hospitals may be required to provide data to states and territories through a variety of administrative arrangements, contractual requirements or legislation.  States and territories supplied these data under the terms of the National Health Information Agreement, available online at:  www.aihw.gov.au/WorkArea/DownloadAsset.aspx?id=6442472807&libID =6442472788 |
| **Relevance** | The purpose of the NMDS for Admitted patient care is to collect information about care provided to admitted patients in Australian hospitals. The scope of the NMDS is episodes of care for admitted patients in essentially all hospitals in Australia, including public and private acute and psychiatric hospitals, free‑standing day hospital facilities, alcohol and drug treatment hospitals and dental hospitals. Hospitals operated by the Australian Defence Force, corrections authorities and in Australia’s off‑shore territories are not included. Hospitals specialising in ophthalmic aids and other specialised acute medical or surgical care are included.  The hospital separations data do not include episodes of non‑admitted patient care provided in outpatient clinics or emergency departments.  There are a range of other burn related injuries excluded from the fire injuries data. These include:   * Contact with heat and hot substances. * Injuries due to Explosion and rupture of boilers, Explosion and rupture of gas cylinder, Discharge of fireworks, Explosion of other materials (for example, munitions, blasting material), Exposure to electric current, Exposure to excessive heat of man‑made origin, Exposure to sunlight, or Exposure to lightning, Intentional self‑harm by steam, hot vapours and hot objects, Assault by means of explosive material, Assault by steam, hot vapours and hot objects. |
| **Timeliness** | The reference periods for this data set are 2002‑03 to 2010‑11. |
| **Accuracy** | For 2005‑06 almost all public hospitals provided data for the NHMD, with the exception of a mothercraft hospital in the ACT and five small hospitals in New South Wales. The great majority of private hospitals also provided data, the exceptions being the private day hospital facilities in the ACT and the single private free‑standing day hospital facility in the NT.  For 2006‑07 almost all public hospitals provided data for the NHMD, with the exception of a mothercraft hospital in the ACT. The great majority of private hospitals also provided data, the exceptions being the private day hospital facilities in the ACT, the single private free‑standing day hospital facility in the NT, and a small private hospital in Victoria.  For 2007‑08 almost all public hospitals provided data for the NHMD, with the exception of a mothercraft hospital in the ACT. The great majority of private hospitals also provided data, the exceptions being the private day hospital facilities in the ACT, the single private free‑standing day hospital facility in the NT, and a small private hospital in Victoria.  For 2008‑09 , almost all public hospitals provided data for the NHMD, with the exception of a mothercraft hospital in the ACT. The great majority of private hospitals also provided data, the exceptions being the private day hospital facilities in the ACT, the single private free‑standing day hospital facility in the NT, and two private hospitals in Tasmania.  For 2009‑10 almost all public hospitals provided data for the NHMD, with the exception of all separations for a mothercraft hospital in the Australian Capital Territory and about 2400 separations for one public hospital in Western Australia. The majority of private hospitals provided data, with the exception of the private day hospital facilities in the Australian Capital Territory and the Northern Territory. In addition, Western Australia was not able to provide about 10 600 separations for one private hospital.  For 2010‑11 almost all public hospitals provided data for the NHMD, with the exception of all separations for a mothercraft hospital in the Australian Capital Territory. The majority of private hospitals provided data, with the exception of the private day hospital facilities in the Australian Capital Territory and the Northern Territory. However, 2010‑11 data were not available for the NT.  States and territories are primarily responsible for the quality of the data they provide. However, the Institute undertakes extensive validations on receipt of data. Data are checked for valid values, logical consistency and historical consistency. Where possible, data in individual data sets are checked with data from other data sets. Potential errors are queried with jurisdictions, and corrections and resubmissions may be made in response to these edit queries. The AIHW does not adjust data to account for possible data errors or missing or incorrect values.  Variations in admission practices and policies lead to variation among providers in the number of admissions for some conditions.  Cells have been suppressed to protect confidentiality (where the presentation could identify a patient or a single service provider) or where rates are likely to be highly volatile (for example, the denominator is very small). |
| **Coherence** | For 2010‑11, NT data are not available and are excluded from the Australian total. With this exception, data for this indicator are comparable over time. |
| **Accessibility** | The AIHW provides a variety of products that draw upon the NHMD. Published products available on the AIHW website are:   * *Australian hospital statistics* with associated Excel tables. * Interactive data cube for Admitted patient care (for Principal diagnoses, Procedures and Diagnosis Related Groups).   Some data are also included on the MyHospitals website. |
| **Interpretability** | Supporting information on the quality and use of the NHMD are published annually in *Australian hospital statistics* (technical appendixes), available in hard copy or on the AIHW website. Readers are advised to read caveat information to ensure appropriate interpretation of the performance indicator. Supporting information includes discussion of coverage, completeness of coding, the quality of Indigenous data, and changes in service delivery that might affect interpretation of the published data. Metadata information for the NMDS for Admitted patient care are published in the AIHW’s online metadata repository — METeOR, and the National health data dictionary. |
| **Data Gaps/Issues Analysis** | |
| **Key data gaps /issues** | The Steering Committee notes the following issues:   * NT data were not available for 2010‑11. * The hospital separations data do not include episodes of non‑admitted patient care provided in outpatient clinics or emergency departments. |

### Confinement to room/object of origin

Data quality information for this indicator has been drafted by the Emergency Management Working Group in consultation with the Australasian Fire and Emergency Service Authorities Council (AFAC), with additional Steering Committee comments.

|  |  |  |
| --- | --- | --- |
| **Indicator definition and description** | | |
| **Element** | | Fire events performance indicator framework – Outcomes |
| **Indicator** | | Confinement to room/object of origin |
| **Measure (computation)** | | There are two measures of Confinement to room/object of origin:   * confinement of building fires to room of origin * confinement of building and other structure fires to room/object of origin.   (1) Confinement of building fires to room of origin  Confinement of building fires to room of origin is a measure of the proportion of building fires confined to the room in which the fire originated, calculated as:   |  |  | | --- | --- | | **Numerator:** | **the number of building fires\* confined to the object, part room and room of origin** | |  | **——————————————————————————** | | **Denominator:** | **the number of building fires attributed to confinement** |  * A building fire is a fire that has caused some damage to a building structure (such as a house).   According to the Australian Incident Reporting System (AIRS) classification this is:   |  |  | | --- | --- | | A23 Type of Incident 110 – 119  where K20 Extent of Flame Damage is (1,2,3) | \* 100 | | A23 Type of Incident 110 – 119  where K20 Extent of Flame Damage is (1 to 7) |   (2) Confinement of building and other structure fires to room/object of origin  Confinement of building and other structure fires to room/object of origin is a measure of the both the proportion of building fires andother structure fires\* confined to the room/object from which the fire originated, calculated as:   |  |  | | --- | --- | | **Numerator:** | **the number of building and other structure fires\* confined to the object, part room and room of origin** | |  | **——————————————————————————** | | **Denominator:** | **the number of building fires attributed to confinement** |  * Other structure fires are fires within a building structure (such as fires confined to rubbish bins, burnt foodstuffs and fires confined to cooking equipment) that requires a fire service response.   According to the AIRS classification this is:   |  |  | | --- | --- | | A23 Type of Incident 110 – 129  where K20 Extent of Flame Damage is (1,2,3) | \* 100 | | A23 Type of Incident 110 – 129  where K20 Extent of Flame Damage is (1 to 7) | |
| **Data source** | | State and Territory governments. The Secretariat collects data directly from all jurisdictions.  Within each jurisdiction, fire service and emergency services organisations collect and compile data. |
| **Data Quality Framework dimensions** | | |
| **Institutional environment** | Confinement data are collected by fire and emergency service organisations in each State and Territory according to the Australian Incident Reporting System (AIRS).  The AIRS is a nationally agreed data standard. It takes a systematic approach to collecting, recording and reporting information about responses to incidents and emergencies attended primarily by fire services. It provides a standard for the structure, definitions and integrity of the data collected.  The AFAC Data Management Group is responsible for sustaining the production and currency of AIRS data and support the continued development of data requirements to ensure consistent and reliable methods of data collection, compilation and analysis can be applied throughout member agencies. For further information about the AFAC knowledge data base see the AFAC National Data and Glossary.  Not all of the contributing fire and emergency services collect all of the data because each fire service has different legislated roles and responsibilities, environments and history of reporting and therefore have developed processes relevant to their business.  The data are requested and submitted to the Secretariat in accordance with the authority of the terms of reference of the Review of Government Service Provision. | |
| **Relevance** | Confinement of building fires to room of origin is reflective of the response strategies of the fire services to extinguish structure fires before they cause extensive building damage. It also reflective of the community’s overall mitigation and preparedness strategies such as constructing buildings that are fire resistant, installing and maintaining operational smoke alarms, and other fire safety practises.  Other structure fires confined to object of origin is reflective of the community’s overall mitigation and preparedness strategies such as constructing ‘objects’ (such as electronic appliances, cooking equipment, and chimneys) that are fire resistant. It is also reflective of the community’s response abilities to contain a fire by having working fire alarms, fire extinguishers and/or fire blankets. | |
| **Timeliness** | Confinement to room/object of origin data are published annually for the latest financial year preceding the January release of each ROGS Report. | |
| **Accuracy** | Text caveats in the RoGS provide a generalised warning that data are not strictly comparable and cite a number of physical, operational and data collection system factors that influence confinement data:   * Confinement data are not collected for all incident responses and excludes records where the extent of flame damage is not recorded or zero. * The calculation of this measure has been amended over time and therefore the results are not fully comparable between years. * Confinement data a collected separately by most jurisdictions’ urban and rural fire service organisations — which also consist of volunteer and career/permanent personnel. * Confinement data from rural/volunteer fire services are not available in all jurisdictions.   In practice there are differences in the method between (and within) jurisdictions to estimate confinement of structure fire data. Each jurisdiction’s approach is summarised in the confinement of structure fire appendix, including approaches to:   * confinement rate calculation (table 1) * data completeness (table 2) * extrapolation and estimation (table 3). | |
| **Coherence** | Each State and Territory government maintain their own systems, processes, and training for estimation of confinement to room/object of origin in accordance with AIRS.  Any time series changes are identified with relevant footnotes. | |
| **Accessibility** | Structure fire confinement rate data are publicly available on the Productivity Commission’s website from the time of RoGS publication.  Interested parties, particularly researchers, may request access to unpublished portions of the AFAC Knowledge data base’s Core Data (de‑identified unit record data) to undertake their own statistical analysis for particular research and/or projects. For more information about access to national data see AFAC data requests. | |
| **Interpret­ability** | Copies of the complete AFAC AIRS data standard, 1997, are available upon request through AFAC.  The AFAC knowledge web provides links to a range of related statistics to enable a better understanding of how interrelationships between socio‑demographic, economic, geographic and environmental factors influence emergency incidents.  Text caveats and chapter footnotes provide additional commentary on data quality, as do the footnotes in the relevant attachment tables. | |
| **Data Gaps/Issues Analysis** | | |
| **Key data gaps/issues** | | The Steering Committee notes the following key data gaps/issues:   * Confinement of structure fires to room/object of origin is identified on the three point comparability scale as ‘not complete or not directly comparable’. * Text caveats note the need for of confinement to room/object of origin to be ‘interpreted with caution because the data are not strictly comparable across jurisdictions.’   A number of factors are identified as contributing to this lack of comparability, but without detailed analysis of such factors. |

#### Confinement to room/object of origin appendix

The following tables are a summary of each jurisdiction’s compliance in calculating the of confinement of structure fires to room/object of origin.

Table 1 Confinement rate calculation

|  |  |  |
| --- | --- | --- |
|  | Complies with definition | Jurisdiction’s interpretation and/or application of definition that may impact on comparability |
| NSW | Yes | No further information. |
| Vic | na | na |
| Qld | Yes | Structure fires *within* the Urban Levy Boundary are included.  Excluded are non‑emergency calls and those where QFRS experience delays due to either extreme weather conditions or where the initial response was by another agency or brigade. |
| WA | Yes | Blanks in both the numerator and denominator are excluded. Only structure fires originating inside a building are included in the calculation. |
| SA | na | na |
| Tas | Yes | All fires coded as a ‘building fire’ (AIRS code A23 Type of Incident 110 – 119)  are included.  Blanks in both the numerator and denominator are excluded. |
| ACT | Yes | Blanks in both the numerator and denominator are excluded. |
| NT | na | na |

*Source*: State and Territory governments.

Table 2 Data completeness

|  |  |  |  |
| --- | --- | --- | --- |
|  | Volunteer brigade data included? | Urban and rural areas included | Other information relating to data completeness |
| NSW | Yes | Yes | No further information. |
| Vic | na | na |  |
| Qld | Partial — where volunteers enter an Urban Levy Boundary | Yes — where Urban Levy Boundaries are in rural areas. | Accurate identification by QFRS Rural brigades (volunteers) is not possible at this stage due to incomplete voluntary reporting procedures. |
| WA | Yes | Yes | Incidents where there are blanks or zeros are excluded from calculation in both the numerator and denominator. |
| SA | na | na |  |
| Tas | Yes | Yes | No further information. |
| ACT | .. | Yes | Volunteer data is not applicable in the ACT |
| NT | na | na |  |

*Source*: State and Territory governments.

Table 3 Extrapolation and estimation responses

|  |  |  |
| --- | --- | --- |
|  | Are any confinement data estimated/ extrapolated | If so explain the rationale and method used |
| NSW | No | When reporting on incidents coded as ‘other building fire’ (A23 Type of Incident 120 – 129), it is assumed that where fires are confined to non‑combustible containers, such as foodstuffs burnt or cooking equipment, there is no flame damage or damage is confined to the object of origin. |
| Vic | na | na |
| Qld | No | When reporting on incidents coded as ‘other building fire’ (A23 Type of Incident 120 – 129), it is assumed that there is either no flame damage or damage confined to the object of origin. |
| WA | Yes / No | When reporting on incidents coded as ‘other building fire’ (A23 Type of Incident 120 – 129), it is assumed that there is either no flame damage or damage confined to the object of origin. |
| SA | na | na |
| Tas | No | When reporting on incidents coded as ‘other building fire’ (A23 Type of Incident 120 – 129), it is assumed that there is either no flame damage or damage confined to the object of origin. |
| ACT | No | No further information. |
| NT | na | na |

*Source*: State and Territory governments.

### Value of property losses from structure fire

Data quality information for this indicator has been drafted by the Secretariat in consultation with AFAC, with additional Steering Committee comments.

|  |  |
| --- | --- |
| **Indicator definition and description** | |
| **Element** | Fire events performance indicator framework – Outputs |
| **Indicator** | Value of asset losses from fire events |
| **Measure (computation)** | ‘Firefighter assessed property losses from structure fire’ is the assessed asset losses recorded by the responding firefighter at the scene of a structure fire. Structure fires are those fires in housing and other buildings. Data are presented for:  1) Median dollar losses from structure fire  Median dollar loss from structure fire is the median of all values of damage as a result of structure fires, and includes the estimated monetary value of the damage to property and contents caused by the fire and fire‑fighting operations.  The median is the middle number in a sequence of data observations. Where the value of loss is null, these records are excluded from the data prior to calculating the median value.  2) Property losses from structure fire  Property losses from structure fire is expressed as a rate (numerator / denominator) defined as:  numerator — total value of property loss in a State or Territory  denominator — population of a State and Territory.  A structure fire is a fire inside a building or structure, whether or not there is damage to the structure. Within the Fire and Emergency Services Activity Data Dictionary, the following guidance is provided:   * Structure fires are defined as Australian Incident Reporting System (AIRS) data element A23, type of incident codes 110‑129 inclusive. |
| **Data source** | Median dollar losses from structure fire and Numerator: Property losses from structure fire  State and Territory governments. The Secretariat collects data directly from all jurisdictions  Within each jurisdiction, fire service and emergency services organisations collect and compile data.  Denominator: Property losses from structure fire  Australian Bureau of Statistics (ABS) 2010 and previous years, *Australian Demographic Statistics, December 2009* (Cat. no. 3101.0). (for more detail about the population data used in the Report see ROGS Statistical context (chapter 2), attachment table 2A.2) |
| **Data Quality Framework dimensions** | |
| **Institutional environment** | Value of fire loss estimates are collected by fire and emergency service organisations in each State and Territory according to the Australian Incident Reporting System (AIRS).  The AIRS is a nationally agreed data standard. It takes a systematic approach to collecting, recording and reporting information about responses to incidents and emergencies attended primarily by fire services. It provides a standard for the structure, definitions and integrity of the data collected.  The AFAC Data Management Group is responsible for sustaining the production and currency of AIRS data and support the continued development of data requirements to ensure consistent and reliable methods of data collection, compilation and analysis can be applied throughout member agencies. For further information about the AFAC knowledge data base see the AFAC National Data and Glossary.  Not all of the contributing fire and emergency services collect all of the data because each fire service has different legislated roles and responsibilities, environments and history of reporting and therefore have developed processes relevant to their business.  The data are requested and submitted to the Secretariat in accordance with the authority of the terms of reference of the Review of Government Service Provision.  Denominator:  Population data are collected by the ABS as part of its demographics collection.  The ABS operates within a framework of the Census and Statistics Act 1905 and the Australian Bureau of Statistics Act 1975. These Acts ensure the confidentiality of respondents and ABS’ independence and impartiality from political influence. For more information on the institutional environment of the ABS, including the legislative obligations of the ABS, financing and governance arrangements, and mechanisms for scrutiny of ABS operations, please see ABS Institutional Environment. |
| **Relevance** | Value of asset loss is a measure of the economic cost of fire and is consistent with the objective of emergency management in reducing the impact of fire.  Measures exclude the value of asset loss from landscape fires (such as bushfire). |
| **Timeliness** | Data are published annually for the latest financial year preceding the January release of each ROGS Report.  Population data are published quarterly. |
| **Accuracy** | Text caveats in the RoGS provide a generalised warning that data are not strictly comparable and cite a number of physical, operational and data collection system factors that influence value of asset loss estimates.  Value of asset loss estimates are generally made by responding firefighters in each jurisdiction. The accuracy of these estimates can be affected by:   * the quality of the firefighters subjective assessment * firefighter assessors not completing the value of asset loss field. Of the total number of structure fires reported in 2008, approximately 39 per cent were recorded as having a zero dollar loss (12 per cent) or the value of asset loss field was not completed by the assessor (28 per cent).   In practice there are differences in the method each jurisdiction uses to estimate value of asset loss. Each jurisdiction’s approach is summarised in the Value of asset loss appendix (page 20), including their approach to:   * scope of value of asset loss data (table 6) * definition of dollar loss (table 7) * assessing dollar loss for each structure fire (table 8) * calculation of ‘Median dollar loss per structure fire’ (table 9).   All population data sources are subject to non‑sampling error. Non‑sampling error can arise from inaccuracies in collecting, recording and processing the data. In the case of Census and Post Enumeration Survey (PES) data, every effort is made to minimise reporting error by the careful design of questionnaires, intensive training and supervision of interviewers, and efficient data processing procedures. |
| **Coherence** | Each State and Territory government maintain their own systems, processes, and training for estimation of dollar loss estimates in accordance with AIRS. Value of asset loss estimates are generally sourced from firefighters’ or fire investigators’ estimates.  Any time series changes are identified with relevant footnotes. |
| **Accessibility** | Value of asset loss data are publicly available on the Productivity Commission’s website from the time of publication.  Interested parties, particularly researchers, may request access to unpublished portions of the AFAC Knowledge data base’s Core Data (de‑identified unit record data) to undertake their own statistical analysis for particular research and/or projects. For more information about access to national data see AFAC data requests.  Population data are available in a variety of formats on the ABS website, www.abs.gov.au, under the 3101.0 and 3201.0 product families. |
| **Interpretability** | Copies of the complete AFAC AIRS data standard, 1997, are available upon request through AFAC.  The AFAC knowledge web provides links to a range of related statistics to enable a better understanding of how interrelationships between socio‑demographic, economic, geographic and environmental factors influence emergency incidents.  Text caveats and chapter footnotes provide additional commentary on data quality, as do the footnotes in the relevant attachment tables. |
| **Data Gaps/Issues Analysis** | |
| **Key data gaps/issues** | The Steering Committee notes the following key data gaps/issues:   * Value of asset loss is identified on the three point comparability scale as ‘not complete or not directly comparable’. * Text caveats note the need for value of asset loss to be ‘interpreted with caution because the data are not strictly comparable across jurisdictions.’   A number of factors are identified as contributing to this lack of comparability, but without detailed analysis of such factors. |

#### Firefighter assessed property losses appendix: Asset loss estimation

The following tables are a summary of each jurisdiction’s approach to estimating the value of asset loss from structure fires.

Table 1 Scope of value of asset loss data

|  |  |  |
| --- | --- | --- |
|  | Does your jurisdiction’s figures on dollar loss conform to the scope of ‘structure fires’ in the fire activity data dictionary? | Additional details regarding the interpretation of the scope that may impact on comparability. |
| NSW | Yes | AIRS reports that have not been submitted to the central database at time of reporting are excluded from ‘Median dollar loss per structure fire’ and ‘Total property loss from structure fires’.  Also excluded from ‘Median dollar loss per structure fire’ and ‘Total property loss from structure fires’ are AIRS records categorised as bush, grass and landscape fires but may involve structures and buildings. |
| Vic | Yes | .. |
| Qld | Yes | .. |
| WA | Yes | .. |
| SA | Yes | .. |
| Tas | Yes | .. |
| ACT | Yes | .. |
| NT | Yes | .. |

*Source*: State and Territory governments.

Table 2 Definition of dollar loss

|  |  |  |  |
| --- | --- | --- | --- |
|  | Jurisdiction’s definition of dollar loss | Are indirect costs included in the dollar loss estimate figure? | Is the estimated dollar loss figure the replacement cost or market value of the item? |
| NSW | Estimated monetary value of the damage to property and contents caused by fire and fire fighting operations. Excludes land value. | Estimates based on firefighters subjective estimate, which may be direct or indirect costs. | Estimates based on firefighters subjective estimate, which may be replacement or market costs. |
| Vic | MFB: Estimated monetary value of the damage to property and contents caused by fire and fire fighting operations. Excludes land value  CFA: As per the data dictionary. | Estimates based on firefighters subjective estimate, which may be direct or indirect costs. | Estimates based on firefighters subjective estimate, which may be replacement or market costs. |
| Qld | Estimated monetary value of the damage to property and contents caused by fire and fire fighting operations. Excludes land value. | No | QFRS Fire Investigation Unit estimates in line with the Insurance Council of Australia ($1150 per sq metre for Brisbane residential area. Up to $1500 per sq metre in the Mt Isa residential area).  Other estimates based on firefighters subjective estimate, which may be replacement or market costs. |
| WA | As per the data dictionary. | Estimates based on firefighters subjective estimate, which may be direct or indirect costs. | Estimates based on firefighters subjective estimate, which may be replacement or market costs. |
| SA | MFS: Estimate includes the damage to the structure, the removal of debris to bring the structure back to its original state and the cost of replacing all contents. Losses due to business disruption are not included.  CFS: Estimated dollar value of damage caused by fire. | MFS: losses include cost of replacement of all goods, painting etc.  CFS: Estimates based on firefighters subjective estimate, which may or may not include indirect costs.. | MFS: Market value.  CFS: Estimates based on firefighters subjective estimate, which may be replacement or market costs. |
| Tas | Estimated monetary value of the damage to property and contents caused by fire and fire fighting operations. Excludes land value. |  | Market value |
| ACT | As per the data dictionary | Estimates based on firefighters subjective estimate, which may be direct or indirect costs. | Estimates based on firefighters subjective estimate, which may be replacement or market costs. |
| NT | As per the data dictionary | Estimates based on firefighters subjective estimate, which may be direct or indirect costs. | Estimates based on firefighters subjective estimate, which may be replacement or market costs. |

*Source*: State and Territory governments.

Table 3 Assessing dollar loss for each structure fire

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Training | Are ‘small’ building fires included? | What does a loss of $0 mean? | Method for assessing asset loss |
| NSW | No training or estimation guidelines provided | FRNSW: Yes. However, 20% of ‘small fires’ have no dollar loss value reported.  NSWRFS: does not have any protocol. | It can mean:   * asset loss is $0 * damage undetermined * NSWRFS does not have a determination for a $0. No conclusion can be drawn from a $0 entry. | (a),(b),  (c),(d)a |
| Vic | MFB: Firefighters have some training in AIRS entry which does not specifically provide information on the estimation of property loss values.  CFA: No training or estimation guidelines provided. | MFB: Yes  CFA: Rarely | MFB: Value of asset loss is $0  CFA: It can mean:   * asset loss is $0 * damage undetermined * dollar loss unknown. | (b) |
| Qld | QFRS Fire Investigation Unit liaises with Insurance companies to determine estimated dollar loss of contents. | Yes | Value of asset loss is $0. | (b),(c)b |
| WA | No formula or tools for determining dollar loss are currently provided.  Dollar loss recording is covered in general information system training and is based on AFAC guidelines. | Optional | Value of asset loss is $0 | (a),(b) |
| SA | No training or estimation guidelines provided  (except for full‑time fire investigators). | Yes | Value of asset loss is $0 | (a),(b),  (c),(d)c |
| Tas | No training or estimation guidelines provided. | No | Value of asset loss is $0 | (a),(b),  (c)d |
| ACT | Estimate guides were issued many years ago. | Yes | Value of asset loss is $0 | (a),(b),  (c),(d)e |
| NT | Firefighters are advised to use common sense approach to considering estimated replacement costs. | Yes | Value of asset loss is $0 | (b) |

(a) Information from owners/occupiers. (b) Fire fighter judgement (for example, based on local knowledge or real estate sales). (c) Other expert judgement (such as insurance or builders). (d)  Dollar Loss Guide .

d NSWRFS can only answer based on anecdotal evidence. b QFRS Fire Investigation Unit uses dollar loss figures in line with the Insurance Council of Australia ($1150 per sq metre for Brisbane residential area. Up to $1500 per sq metre for Mt Isa residential area). c When MFS Fire Cause Investigator(s) investigate a fire the AIRS report is updated with this information when the Fire Cause Investigation Report is received – for MFS and CFS. d Where an insurance assessor is available his opinion will be sought. e No formal method.

*Source*: State and Territory governments.

Table 4 Calculation of ‘Median dollar loss per structure fire’

|  |  |  |  |
| --- | --- | --- | --- |
|  | Describe method | Are $0 loss included? | Exclude outliers? |
| NSW | Reported dollar loss values are listed in ascending order together with a cumulative frequency count of the number of incident exposures that have that value. The dollar loss value that has a cumulative frequency closest to but less than or equal to 50% is taken as the median.  In our past and current calculations the frequency count has inadvertently been based on the number of exposures rather than the number of incidents. However due to the small number of incidents with multiple exposures this has not distorted the median dollar loss reported to RoGs. | No | No |
| Vic | Median dollar loss is the median of all values of damage as a result of structure fires. Include dollar loss values reported as 0’s if value is legitimate.  The median is that value in an array which divides it so that there are an equal number of observations on either side of it. | Yes | No |
| Qld | Excel is used to calculate the median dollar loss. Zeros are included in the calculation though nulls are excluded. | Yes | No |
| WA | Entire array is used for calculation of median dollar loss per structure fire, including zero and blank values. | Yes | No |
| SA | As per data dictionary | Yes | No |
| Tas | As per data dictionary — except that the incidents coded A23 120 to 129 are assumed to have zero loss and therefore are included. | Yes | No |
| ACT | The median incident is picked from the data table. | Yes | No |
| NT | NTFRS data for ROGS is raw data. | Yes | No |

*Source*: State and Territory governments.

### Value of insurance claims from fire events

Data quality information for this indicator has been drafted by the Secretariat in consultation with EMWG, with additional Steering Committee comments.

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| **Indicator definition and description** | |
| **Element** | Fire events performance indicator framework – Outputs |
| **Indicator** | Value of asset losses from fire events |
| **Measure (computation)** | (1) Average domestic insurance claim from fire events   |  |  | | --- | --- | | **Numerator:** | **Incurred cost of domestic claims** | |  | **\_\_\_\_\_** | | **Denominator:** | **Total number of domestic claims** |   (2) Total commercial/domestic insurance claims from fire events per person   |  |  | | --- | --- | | **Numerator:** | **Incurred cost of domestic/commercial claims** | |  |  | | **Denominator:** | **Population of a state and territory.** | |
| **Data source** | Insurance claims  ISA Database (2013), unpublished  Population of state of territory  Australian Bureau of Statistics (ABS) 2012 and previous years, *Australian Demographic Statistics, December 2011*(Cat. no. 3101.0). (for more detail about the population data used in the Report see ROGS Statistical context (chapter 2), attachment table 2A.2) |
| **Data Quality Framework dimensions** | |
| **Institutional environment** | Insurance Statistics Australia (ISA) was established in 1988 by Australian insurance companies to produce management information of relevance to the pricing and profitability of selected classes of insurance business. ISA manages data on behalf of the ISA and Insurance Council of Australia.  ISA is managed by a board of directors drawn from participating insurance companies. Finity Consulting acts as the Manager of ISA. |
| **Relevance** | The data collected by ISA provide a measurable impact of selected emergency events on the community. The data also allow for estimates of assets lost against several classes of emergencies.  ISA data relate to those members of the community that have household and/or commercial insurance. ISA insurance data are available for:   * *Domestic Household* — relates to building and/or contents cover for householders or house owners. For strata units, contents cover is included by building cover is excluded. * *Commercial Property* — cover for commercial property premises, which can cover loss and/or damage to buildings, contents, machinery, stock and loss of profits.   For each class of insurance the following data may be available: Incurred cost of claims; Domestic Total Number of Policies; Domestic Total Number of Claims; Average Premium; Average Sum Insured; Claim Frequency; Average Claim Size; Cost per Policy; and Loss Ratio.  ISA data are available for the following geographic dissections:   * *Domestic Household* — state and territory * *Commercial Property* — Australia total, but not by state and territory. |
| **Timeliness** | Data are available for financial year and calendar year.   * *Domestic Household* — data are submitted by direct insurers within three weeks following the end of March, June, September, and December each year. Reports are also produced quarterly * *Commercial Property* — data are submitted by insurers within 4 weeks following the end of June and December each year. Reports are produced biannually.   Reports are available approximately four months after the reference period. 2012‑13 financial year data should be available for inclusion in the 2014 RoGS. |
| **Accuracy** | The ISA data are the actualcost to insurers. As administrative data they are not subject to sampling error. Total claims incurred will misstate the total value of assets lost due to:   * *under insurance* — under insurance will lead to the value of asset loss data to be under stated. Insurance payouts are limited by the estimated value of assets a policy holder provides when taking out insurance. Where they have under‑estimated their assets the cost to the insurer will be below total losses to the policy holder * *ISA market share* — ISA data are incomplete, in that they only cover ISA members that submit insurance data returns. The ISA estimates that their data cover approximately 80 per cent of the Domestic Household market and 60 per cent of the Commercial Property market. * *new for old* — new for old policies will lead to the value of asset loss data to be over stated. New for old policies replace a lost ‘old’ asset for a ‘new’ equivalent asset. Given that most assets depreciate, the replacement item would ordinarily have a greater value than the item it replaces * *excess policy* — excess policies will lead to the value of asset loss data to be under stated. To avoid having to process too many small claims, most insurance policies require policy holders to pay an ‘excess’. This will mean that most small incidents will not be recorded in the insurance data. |
| **Coherence** | Insurance companies must adhere to common accounting practices for insurance companies, and provide data to the ISA according to an agreed classification system.  The ISA data should relate to the published emergency event series already published in the Emergency management sector overview, however further work is required to validate their coherence. |
| **Accessibility** | Information supplied by ISA is generally free of charge for government organisations. However, data requests are subject to approval by the Board of ISA. Before ISA can provide data, details must be provided of what the data will be used for. ISA’s written permission is required for anything that will be circulated externally. |
| **Interpretability** | The ISA publishes an *Operations Guidebook*, which documents the key collection processes, standards and classifications. The guidebook is available at: http://www.insurancestats.com.au/objectives.html |
| **Data Gaps/Issues Analysis** | |
| **Key data gaps/issues** |  |

## Ambulance services

### Response Locations

Data quality information for this indicator has been drafted by the Secretariat in consultation with the Council of Ambulance Authorities (CAA), with additional Steering Committee comments.

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| **Indicator definition and description** | | |
| **Element** | Equity — Access | |
| **Indicator** | ‘Response locations’ is defined as the number of paid (or salaried), mixed and  volunteer response locations per 100 000 people. | |
| **Measure (computation)** | Numerator: Number of ambulance response locations  The total number of separate sites or response locations operated (either owned, leased or occupied) by the ambulance service and serviced by either an ambulance general purpose, special operations vehicles, salaried ambulance operatives or volunteer ambulance operatives.  Response locations excludes both ambulance community and third party first responder locations.  Denominator: Estimated resident population  Source: *Australian Demographic Statistics* (ABS Cat. no. 3101.0). For further information see Statistical context (chapter 2), table 2A.2. | |
| **Data source** | *Consolidated Returns*, Council of Ambulance Authorities (CAA) | |
| **Data Quality Framework dimensions** | | |
| **Institutional environment** | The CAA is the peak body representing the principal statutory providers of ambulance services in Australia.  The CAA collects administrative data annually from all statutory ambulance services, using the same core questionnaire and instructions — the *CAA Consolidated Returns*.  The ambulance service organisations send their data to the CAA. The CAA then collates all data to be provided to the Productivity Commission use in the RoGS. | |
| **Relevance** | The indicator is available for all statutory ambulance services in Australia, by State and Territory.  The *CAA Consolidated Returns* collects data for:   * Ambulance response locations   Ambulance response locations with paid staff only  Ambulance response locations with mix of paid staff and volunteer staff  Ambulance response locations with volunteer staff only   * Communication centres * Other Locations   Educational centres  Administrative centres  Fleet management centres  This indicator complements the ‘availability of paramedics’ indicator, as some jurisdictions’ ambulance workforce comprises a large proportion of volunteers, particularly in rural and remote locations. | |
| **Timeliness** | Response location data is published annually for the latest financial year preceding the January release of each ROGS Report. | |
| **Accuracy** | The *CAA Consolidated Returns* compile administrative data from all statutory providers of ambulance services in Australia.  They are collected according to agreed definitions provided in the CAA data dictionary. | |
| **Coherence** | All data (numerators and denominators) are sourced from the CAA *Consolidated Returns*.  Estimates from the CAA *Consolidated Returns* are comparable over time and between jurisdictions, subject to caveats provided by services.  The collection, instructions, definitions and analysis are prepared and overseen by the CAA and are the same for all state and territory services. | |
| **Accessibility** | The response locations data is made publicly available as part of the CAA Annual Report on the CAA website annually (www.caa.net.au). | |
| **Interpret­ability** | The response locations data is publicly available and includes definitions of the collected data. | |
| **Data Gaps/Issues Analysis** | | |
| **Key data gaps/issues** | | The Steering Committee notes the following issues:   * Some jurisdictions do not satisfy the criteria for all the staffing categories. * The data definition for response locations are collected under a revised data definition to exclude first responder locations. |

### Availability of ambulance officers/paramedics

Data quality information for this indicator has been drafted by the Secretariat in consultation with the Council of Ambulance Authorities (CAA), with additional Steering Committee comments.

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| **Indicator definition and description** | | |
| **Element** | Ambulance events performance indicator framework – Equity – Access | |
| **Indicator** | Availability of ambulance officers/paramedics | |
| **Measure (computation)** | Availability of ambulance officers/paramedics is defined as the number of fulltime equivalent ambulance (FTE) officers/paramedics per 100 000 people. Ambulance officers/paramedics include student and base level ambulance officers and qualified ambulance officers but excludes patient transport officers. | |
| **Data source** | *Consolidated Returns*,Council of Ambulance Authorities (CAA) | |
| **Data Quality Framework Dimensions** | | |
| **Institutional environment** | The CAA is the peak body representing the principal statutory providers of ambulance services in Australia.  The CAA collects administrative data annually from all statutory ambulance services, using the same core questionnaire and instructions — the *CAA Consolidated Returns*.  The ambulance service organisations send their data to the CAA. The CAA then collates all data to be provided to the Productivity Commission for use in the RoGS. | |
| **Relevance** | The indicator is available for all statutory ambulance services in Australia, by State and Territory.  The *CAA Consolidated Returns* collects data for each of the availability of ambulance officers/paramedics categories, as defined in the measure.  The availability of ambulance officers/paramedics represents one aspect of equity — indicating equal access of the population to essential/lifesaving government services. | |
| **Timeliness** | The availability of ambulance officers/paramedics data is published annually for the latest financial year preceding the January release of each ROGS Report. | |
| **Accuracy** | The *CAA Consolidated Returns* compile administrative data from all statutory providers of ambulance services in Australia.  They are collected according to agreed definitions provided in the CAA data dictionary. | |
| **Coherence** | All data (numerators and denominators) are sourced from the CAA *Consolidated Returns.*  Estimates from the CAA *Consolidated Returns* are comparable over time and between jurisdictions, subject to caveats provided by services.  The collection, instructions, definitions and analysis are prepared and overseen by the CAA and are the same for all state and territory services. | |
| **Accessibility** | The availability of ambulance officers/paramedics data is made publicly available as part of the CAA Annual Report on the CAA website annually (www.caa.net.au). | |
| **Interpretability** | The availability of ambulance officers/paramedics data is publicly available and includes definitions of the collected data. | |
| **Data Gaps/Issues Analysis** | | |
| **Key data gaps/issues** | |  |

### Urban centre response times

Data quality information for this indicator has been drafted by the Secretariat in consultation with the Council of Ambulance Authorities (CAA), with additional Steering Committee comments.

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| **Indicator definition and description** | | |
| **Element** | Ambulance events performance indicator framework – Equity – Access | |
| **Indicator** | Urban centre response times | |
| **Measure (computation)** | Response times is defined as the time taken between the arrival of the first responding ambulance resource at the scene of an emergency in code 1 incidents and the initial receipt of the call for an emergency ambulance at the communications centre.  Urban centre response times are response times applied for each jurisdiction’s capital city — boundaries are based on the ABS Urban Centres Localities structure.   * Capital cities – Sydney, Melbourne, Brisbane, Perth, Adelaide, Hobart, Canberra and Darwin. * Code 1 incident – incident requiring at least one immediate response under lights and sirens.   Measures are provided for:   * The 50th percentile (or median) — the time within which 50 per cent of first ambulance resources actually arrive on scene. * The 90th percentile — the time within which 90 per cent of first ambulance resources actually arrive on scene. | |
| **Data source** | *Consolidated Returns*,Council of Ambulance Authorities (CAA) | |
| **Data Quality Framework Dimensions** | | |
| **Institutional environment** | The CAA is the peak body representing the principal statutory providers of ambulance services in Australia.  The CAA collects administrative data annually from all statutory ambulance services, using the same core questionnaire and instructions — the *CAA Consolidated Returns*.  The ambulance service organisations send their data to the CAA. The CAA then collates all data to be provided to the Productivity Commission for use in the RoGS. | |
| **Relevance** | The indicator is available for all statutory ambulance services in Australia, by State and Territory.  The *CAA Consolidated Returns* collects data for each of the urban centre response times categories, as defined in the measure.  The Urban centre response times represents one aspect of equity — indicating the equal opportunities of access to essential government services to the population of the capital cities. | |
| **Timeliness** | Urban centre response times data is published annually for the latest financial year preceding the January release of each ROGS Report. | |
| **Accuracy** | The *CAA Consolidated Returns* compile administrative data from all statutory providers of ambulance services in Australia.  They are collected according to agreed definitions provided in the CAA data dictionary. | |
| **Coherence** | All data (numerators and denominators) are sourced from the CAA *Consolidated Returns.*  Estimates from the CAA *Consolidated Returns* are comparable over time and between jurisdictions, subject to caveats provided by services.  The collection, instructions, definitions and analysis are prepared and overseen by the CAA and are the same for all state and territory services. | |
| **Accessibility** | Urban centre response times data is made publicly available as part of the CAA Annual Report on the CAA website annually (www.caa.net.au). | |
| **Interpretability** | Urban centre response times data is publicly available and includes definitions of the collected data. | |
| **Data Gaps/Issues Analysis** | | |
| **Key data gaps/issues** | |  |

### State‑wide response times

Data quality information for this indicator has been drafted by the Secretariat in consultation with the Council of Ambulance Authorities (CAA), with additional Steering Committee comments.

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| **Indicator definition and description** | | |
| **Element** | Ambulance events performance indicator framework – Effectiveness – Access | |
| **Indicator** | State‑wide response times | |
| **Measure (computation)** | Response times is defined as the time taken between the arrival of the first responding ambulance resource at the scene of an emergency in code 1 incidents and the initial receipt of the call for an emergency ambulance at the communications centre.  State‑wide response times are response times applied for state‑wide ambulance service responses.  Code 1 incident – incident requiring at least one immediate response under lights and sirens.  Measures are provided for:   * The 50th percentile (or median) — the time within which 50 per cent of first ambulance resources actually arrive on scene. * The 90th percentile — the time within which 90 per cent of first ambulance resources actually arrive on scene. | |
| **Data source** | *Consolidated Returns*,Council of Ambulance Authorities (CAA) | |
| **Data Quality Framework Dimensions** | | |
| **Institutional environment** | The CAA is the peak body representing the principal statutory providers of ambulance services in Australia.  The CAA collects administrative data annually from all statutory ambulance services, using the same core questionnaire and instructions — the *CAA Consolidated Returns*.  The ambulance service organisations send their data to the CAA. The CAA then collates all data to be provided to the Productivity Commission for use in the RoGS. | |
| **Relevance** | The indicator is available for all statutory ambulance services in Australia, by State and Territory.  The *CAA Consolidated Returns* collects data for each of the state‑wide response times categories, as defined in the measure.  State‑wide response times represents one aspect of effectiveness — indicating access of the population to essential/lifesaving government provided services. | |
| **Timeliness** | State‑wide response times data is published annually for the latest financial year preceding the January release of each ROGS Report. | |
| **Accuracy** | The *CAA Consolidated Returns* compile administrative data from all statutory providers of ambulance services in Australia.  They are collected according to agreed definitions provided in the CAA data dictionary. | |
| **Coherence** | All data (numerators and denominators) are sourced from the CAA *Consolidated Returns.*  Estimates from the CAA *Consolidated Returns* are comparable over time and between jurisdictions, subject to caveats provided by services.  The collection, instructions, definitions and analysis are prepared and overseen by the CAA and are the same for all state and territory services. | |
| **Accessibility** | State‑wide response times data is made publicly available as part of the CAA Annual Report on the CAA website annually (www.caa.net.au). | |
| **Interpret­ability** | State‑wide response times data is publicly available and includes definitions of the collected data. | |
| **Data Gaps/Issues Analysis** | | |
| **Key data gaps/issues** | |  |

### Triple zero call answer time

Data quality information for this indicator has been drafted by the Secretariat in consultation with the Council of Ambulance Authorities (CAA), with additional Steering Committee comments.

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| --- | --- |
| **Indicator definition and description** | |
| **Element** | Ambulance events performance indicator framework – Effectiveness – Access |
| **Indicator** | Triple Zero Call Answer Time |
| **Measure (computation)** | Ambulance Service triple zero call answering time is defined as the time interval commencing when the Telstra Emergency Call Person (ECP) has answered the 000 call and selected the desired Emergency Service Organisation (ESO) to when the ESO has answered the call.  *Note:* data sourced from Telstra may include additional time as the Telstra Emergency Call Person ensures the call has been answered which may involve some three way conversation.  The indicator measures percentage of triple zero calls that were answered by the ambulance service communication centre staff in equal or less than 10 seconds.   * Numerator – total number of triple zero calls received by the ambulance service in a given financial year * Denominator – number of triple zero calls answered in equal or less than 10 seconds |
| **Data source** | *Consolidated Returns*,Council of Ambulance Authorities (CAA) |
| **Data Quality Framework Dimensions** | |
| **Institutional environment** | The CAA is the peak body representing the principal statutory providers of ambulance services in Australia.  The CAA collects administrative data annually from all statutory ambulance services, using the same core questionnaire and instructions — the *CAA Consolidated Returns*.  The ambulance service organisations send their data to the CAA. The CAA then collates all data to be provided to the Productivity Commission for use in the RoGS. |
| **Relevance** | The indicator is available for all statutory ambulance services in Australia, by State and Territory.  The *CAA Consolidated Returns* collects data for each of segments – total number of 000 calls and number of calls answered in equal or less that 10 seconds.  The triple zero call answer time of the ambulance service represents one aspect of effectiveness — indicating access of the population to the essential/lifesaving government services. |
| **Timeliness** | The Triple zero call answer time data is published annually for the latest financial year preceding the January release of each ROGS Report. |
| **Accuracy** | The *CAA Consolidated Returns* compile administrative data from all statutory providers of ambulance services in Australia.  They are collected according to agreed definitions provided in the CAA data dictionary. |
| **Coherence** | All data (numerators and denominators) are sourced from the CAA *Consolidated Returns.*  Estimates from the CAA *Consolidated Returns* are comparable over time and between jurisdictions, subject to caveats provided by services.  The collection, instructions, definitions and analysis are prepared and overseen by the CAA and are the same for all state and territory services. |
| **Accessibility** | The Triple zero call answer time data is made publicly available as part of the CAA Annual Report on the CAA website annually (www.caa.net.au). |
| **Interpretability** | The Triple zero call answer time data is publicly available and includes definitions of the collected data. |
| **Data Gaps/Issues Analysis** | |
| **Key data gaps/issues** |  |

### Workforce by Age Group

Data quality information for this indicator has been drafted by the Emergency Management Working Group in consultation with the Council of Ambulance Authorities (CAA), with additional Steering Committee comments.

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| --- | --- |
| **Indicator definition and description** | |
| **Element** | Effectiveness — sustainability |
| **Indicator** | Workforce by age group |
| **Measure (computation)** | ‘Workforce by age group’ is defined as the age profile of the workforce, measured by the proportion of the operational workforce in 10 year age brackets (under 30, 30–39, 40–49, 50–59 and 60 and over).  Operational workforce  Number of ambulance services personnel who fall into the following categories.   * Patient transport officers * Student ambulance officers * Qualified ambulance officers * Clinical other * Communication operatives * Management — operational managers and clinical support   Age group  Ambulance services personnel who fall into the following age groups:   * under 30 year old, * 30‑39 year old, * 40‑49 year old, * 50‑59 year old * 60 and over year old. |
| **Data source** | *Consolidated Returns*,Council of Ambulance Authorities (CAA) |
| **Data Quality Framework dimensions** | |
| **Institutional environment** | The CAA is the peak body representing the principal statutory providers of ambulance services in Australia.  The CAA collects administrative data annually from all statutory ambulance services, using the same core questionnaire and instructions — the *CAA Consolidated Returns*.  The ambulance service organisations send their data to the CAA. The CAA then collates all data to be provided to the Productivity Commission use in the RoGS. |
| **Relevance** | The indicator is available for all statutory ambulance services in Australia, by State and Territory.  The *CAA Consolidated Returns* collects data for each of the operational workforce categories and age group, as defined in the measure.  The age profile of the ambulance service workforce represents one aspect of sustainability — indicating the proportion of the workforce closer to retirement. |
| **Timeliness** | Workforce by age group data is published annually for the latest financial year preceding the January release of each ROGS Report. |
| **Accuracy** | The *CAA Consolidated Returns* compile administrative data from all statutory providers of ambulance services in Australia.  They are collected according to agreed definitions provided in the CAA data dictionary. |
| **Coherence** | All data (numerators and denominators) are sourced from the CAA *Consolidated Returns.*  Estimates from the CAA *Consolidated Returns* are comparable over time and between jurisdictions, subject to caveats provided by services.  The collection, instructions, definitions and analysis are prepared and overseen by the CAA and are the same for all state and territory services. |
| **Accessibility** | The workforce by age group data is made publicly available as part of the CAA Annual Report on the CAA website annually (www.caa.net.au). |
| **Interpretability** | The workforce by age group data is publicly available and includes definitions of the collected data. |
| **Data Gaps/Issues Analysis** | |
| **Key data gaps/issues** | The Steering Committee notes the following issue:   * The age profile is only one aspect of workforce sustainability. Further research into understanding and measuring the profile of the ambulance workforce is required. |

### Ambulance service expenditure per person

Data quality information for this indicator has been drafted by the Secretariat in consultation with the Council of Ambulance Authorities (CAA), with additional Steering Committee comments.

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| **Indicator definition and description** | |
| **Element** | Ambulance events performance indicator framework – Efficiency |
| **Indicator** | Ambulance service expenditure per person |
| **Measure (computation)** | Ambulance service organisations expenditure per person’ is defined as total ambulance service organisation expenditure per person in the population.  Ambulance service expenditure includes salaries and payments in the nature of salaries, capital costs and other operating costs that are essential to providing ambulance services. For more detail refer to the CAA Data Dictionary. |
| **Data source** | *Consolidated Returns*,Council of Ambulance Authorities (CAA) |
| **Data Quality Framework Dimensions** | |
| **Institutional environment** | The CAA is the peak body representing the principal statutory providers of ambulance services in Australia.  The CAA collects administrative data annually from all statutory ambulance services, using the same core questionnaire and instructions — the *CAA Consolidated Returns*.  The ambulance service organisations send their data to the CAA. The CAA then collates all data to be provided to the Productivity Commission use in the RoGS. |
| **Relevance** | The indicator is available for all statutory ambulance services in Australia, by State and Territory.  The *CAA Consolidated Returns* collects data for each of the ambulance service organisations expenditures categories, as defined in the measure.  All else being equal, lower expenditure per person represents greater efficiency. However, efficiency data are difficult to interpret. While high or increasing expenditure per person may reflect deteriorating efficiency, it may also reflect changes in aspects of the service (such as improved response) or the characteristics of events requiring ambulance service response (such as more serious para medical challenges). Similarly, low or declining expenditure per person may reflect improving efficiency or lower quality responses or less challenging cases.  Expenditure per person is employed as a proxy for efficiency. Expenditure per ambulance event is not used as a proxy for ambulance service organisation efficiency because an organisation that applies more resources to the prevention and preparedness components of community safety to reduce the demand for ambulance services could erroneously appear to be less efficient. |
| **Timeliness** | The Ambulance service expenditure per person data is published annually for the latest financial year preceding the January release of each ROGS Report. |
| **Accuracy** | The *CAA Consolidated Returns* compile administrative data from all statutory providers of ambulance services in Australia.  They are collected according to agreed definitions provided in the CAA data dictionary. |
| **Coherence** | All data (numerators and denominators) are sourced from the CAA *Consolidated Returns.*  Estimates from the CAA *Consolidated Returns* are comparable over time and between jurisdictions, subject to caveats provided by services.  The collection, instructions, definitions and analysis are prepared and overseen by the CAA and are the same for all state and territory services. |
| **Accessibility** | Ambulance service expenditure per person data is made publicly available as part of the CAA Annual Report on the CAA website annually (www.caa.net.au). |
| **Interpretability** | Ambulance service expenditure per person data is publicly available and includes definitions of the collected data. |
| **Data Gaps/Issues Analysis** | |
| **Key data gaps/issues** |  |

### Pain management

Data quality information for this indicator has been drafted by the Secretariat in consultation with the Council of Ambulance Authorities (CAA), with additional Steering Committee comments.

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| **Indicator definition and description** | |
| **Element** | Ambulance events performance indicator framework – Effectiveness – Quality – Clinical – Clinical Interventions and Treatment |
| **Indicator** | Pain Management |
| **Measure (computation)** | ‘Pain management’ is defined as the percentage of patients who report a clinically meaningful pain reduction.  Numerator  In scope patients (see denominator) who reported a minimum 2 point reduction in pain score from first to final recorded measurement.  Denominator  Patients who:   * are aged 16 years and over and received care from the ambulance service * recorded at least 2 pain scores (pre‑ and post‑treatment) on a Numeric Rating Scale * recorded an initial pain score of 7 or above on the Numeric Rating Scale of 1–10.   Excluded are patients who refuse pain medication for whatever reason.   * Numerator ‑ total number of patients where at least two pain values were recorded. * Denominator – number of patients with a higher/lower/same last pain value as first pain value. |
| **Data source** | *Consolidated Returns*,Council of Ambulance Authorities (CAA) |
| **Data Quality Framework Dimensions** | |
| **Institutional environment** | The CAA is the peak body representing the principal statutory providers of ambulance services in Australia.  The CAA collects administrative data annually from all statutory ambulance services, using the same core questionnaire and instructions — the *CAA Consolidated Returns*.  The ambulance service organisations send their data to the CAA. The CAA then collates all data to be provided to the Productivity Commission use in the RoGS. |
| **Relevance** | The indicator is available for all statutory ambulance services in Australia, by State and Territory.  The *CAA Consolidated Returns* collects data for all paint management categories, as defined in the measure.  The pain management indicator represents one aspect of effectiveness — indicating the proportion of patients with relieved/same/worse pain value on completion of ambulance service involvement compared to the start of ambulance service involvement. |
| **Timeliness** | The pain management data is published annually for the latest financial year preceding the January release of each ROGS Report. |
| **Accuracy** | The *CAA Consolidated Returns* compile administrative data from all statutory providers of ambulance services in Australia.  They are collected according to agreed definitions provided in the CAA data dictionary. |
| **Coherence** | All data (numerators and denominators) are sourced from the CAA *Consolidated Returns.*  Estimates from the CAA *Consolidated Returns* are comparable over time and between jurisdictions, subject to caveats provided by services.  The collection, instructions, definitions and analysis are prepared and overseen by the CAA and are the same for all state and territory services. |
| **Accessibility** | The pain management data is made publicly available as part of the CAA Annual Report on the CAA website annually (www.caa.net.au). |
| **Interpretability** | The pain management data is publicly available and includes definitions of the collected data. |
| **Data Gaps/Issues Analysis** | |
| **Key data gaps/issues** |  |

### Level of patient satisfaction

Data quality information for this indicator has been drafted by the Emergency Management Working Group in consultation with the Council of Ambulance Authorities (CAA), with additional Steering Committee comments.

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| **Indicator definition and description** | | |
| **Element** | Ambulance events performance indicator framework ‑ Outcome | |
| **Indicator** | Proportion of ambulance users who were satisfied or very satisfied with the ambulance service | |
| **Measure (computation)** | Level of Patient Satisfaction definition  The total number of patients who were either ‘satisfied’ or ‘very satisfied’ with ambulance services they had received divided by the total number of patients.  **Patients —** people who were transported under an emergency event classified as code 1 (an emergency event requiring one or more immediate ambulance responses under light 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 thirty minutes).  **Satisfaction —** descriptive statistics were used to uncover the proportion of people who were *very* *dissatisfied or dissatisfied*, *neither satisfied nor dissatisfied*, and *satisfied or very satisfied* for the various satisfaction and service quality attributes. *Unsure* and *not applicable* responses are not included as the number of these responses is generally low. | |
| **Data source** | *Patient Satisfaction Survey*,Council of Ambulance Authorities (CAA) | |
| **Data Quality Framework dimensions** | | |
| **Institutional environment** | The CAA is the peak body representing the principal statutory providers of ambulance services in Australia.  The CAA provides the survey and instructions. The data are collected by each ambulance service, using the same core questionnaire. The individual service providers then send the data to the CAA.  The Ehrenberg‑Bass Institute, as an independent research body then prepares the analysis and final report of the survey. The report is sent to member services for review and sign off.  The key purpose of the *Patient Satisfaction Survey* is to track perceived service quality and customer satisfaction across Australian states and territories. | |
| **Relevance** | The indicator is available for all ambulance services in Australia.  The sample population represents the total population that used ambulance services in the last year.  The *Patient Satisfaction Survey* collects the level of patient satisfaction against three service areas:   * *Call response time* — the time taken to answer their emergency call. * *Communication staff assistance* — the operator they spoke to when their emergency phone call was answered. * *Ambulance response time* — the time the ambulance took to arrive.   They survey collects the level of patient satisfaction against five paramedic satisfaction areas:   * *Paramedics care* — the care the ambulance paramedics took when attending them * *Treatment satisfaction* — the standard of treatment they received from the ambulance paramedics. * *Ambulance paramedics* — explanations given by the ambulance paramedics about what was happening to them and why. * *Trip/ride satisfaction* — the conditions of the trip when being transported by an ambulance. * *Overall satisfaction* — their overall satisfaction using the ambulance service | |
| **Timeliness** | Level of Patient Satisfaction data is published annually for the latest financial year preceding the January release of each ROGS Report. | |
| **Accuracy** | The data are collected by survey form, which is mailed to a randomly selected sample of ambulance services users in the past year. The sample size is 1300 users with an average 35 per cent return rate.  The standard errors for 95 per cent confidence interval for each member service are included in the ROGS report.  In some cases differences in scores between states/territories are not statistically significant (ie they arose from random sampling fluctuation) which means that all states/territories can be considered equal in performance.  There are also demographic factors that could drive the differences in proportions. For example, patients are more likely to provide higher scores for call response time and ambulance arrival time than carers or relatives (when they complete the questionnaire on behalf of patients). This pattern is because many patients are unable to judge the response time accurately when they need urgent medical help. | |
| **Coherence** | All data (numerators and denominators) are sourced from the CAA *Patient Satisfaction Survey*.  Estimates from the CAA *Patient Satisfaction Survey* are comparable over time and between jurisdictions, subject to sampling variability. Over time the sample sizes have increased in smaller jurisdictions to reduce sampling error.  The survey questionnaire, instructions, definitions and analysis are prepared and overseen by the CAA and are the same for all state and territory services. | |
| **Accessibility** | The CAA *Patient Satisfaction Survey* report is publicly available and includes information to thoroughly explain the methods, definitions and results of the data collection. | |
| **Interpret­ability** | The CAA *Patient Satisfaction Survey* report is made publicly available on the CAA website annually (www.caa.net.au). | |
| **Data Gaps/Issues Analysis** | | |
| **Key data gaps/issues** | | The measurement of the current structure is not sensitive enough to readily identify improvements and declines in ambulance performance. For instance, for ‘communication staff assistance’, Tasmania scored 100% of satisfied or very satisfied respondents in 2011. This is an indication that the measurement has reached the ceiling. |