
11 Emergency management

Emergency management aims to reduce the level of risk from emergencies to the community, reduce the adverse effects of emergencies, and improve the level and perception of safety in the community. This chapter reports only on some activities of State and Territory government fire and ambulance service providers. It excludes State and Territory emergency services and some land management agencies involved in the delivery of fire services.

A profile of emergency management appears in section 11.1, followed by a discussion of recent policy developments in section 11.2. Together, these provide a context for assessing the performance indicators presented later in the chapter. A framework of performance indicators is outlined in section 11.3. The data are discussed in sections 11.4 and 11.5, and future directions for performance reporting are discussed in section 11.6. Jurisdictions' comments are provided in section 11.7. Section 11.8 provides information on sample data. The chapter concludes with definitions in section 11.9.

Major changes in this year's Report include:

- the introduction of data on staff numbers;
- the introduction of additional effectiveness data for ambulance services;
- improvements in reporting fire injuries and fire services response times data; and
- improvements in reporting unit cost measures for both fire and ambulance services.

Supporting tables

Supporting tables for chapter 11 are provided on the CD-ROM enclosed with the Report. The files are provided in Microsoft Excel 97 format as `\Publications\Reports\2001\Attach11A.xls` and in Adobe PDF format as `\Publications\Reports\2001\Attach11A.pdf`.

Supporting tables are identified in references throughout this chapter by an 'A' suffix (for example, table 11A.3 is table 3 in the electronic files). They may be subject to revision. The most up-to-date versions of these files can be found on the Commission's Review web page (www.pc.gov.au/service/gsp/2001/). Users without

Internet access can contact the Secretariat to obtain up-to-date versions of the tables (the details can be found on the inside front cover of the Report).

11.1 Profile of emergency management

The emergency management sector includes a range of service providers engaged in activities of prevention, preparedness, response and post-emergency recovery. Emergency management providers address a range of events, including fires, medical transport and emergencies, rescues, other natural events (such as floods, earthquakes, landslides, heatwaves, cyclones and other storms), technological and hazardous material incidents (such as chemical spills, harmful gas leaks, radiological contamination, explosions and spills of petroleum and petroleum products) and quarantine and disease control.

Roles and responsibilities

The management of emergencies and disasters requires cooperation among Commonwealth, State and Territory and local governments, industry, community organisations and the community in general.

The primary role of the Commonwealth Government is to support and develop national emergency management capability by:

- coordinating the Commonwealth's material and technical assistance to States and Territories in the event of large scale emergencies;
- providing financial assistance to States, Territories and authorities for flood prevention/mitigation (through the Regional Flood Mitigation Program) and for bearing the costs of natural disasters (through the Natural Disaster Relief Arrangements);
- providing information, best practice materials and training programs; and
- supporting community awareness activities.

Commonwealth Government agencies also have specific emergency management responsibilities, such as: the control of exotic animal diseases; aviation and maritime search and rescue; the management of major marine pollution and meteorological and geological hazards; the provision of fire fighting services at airports and some defence installations; human quarantine; and research and development.

State and Territory governments are responsible for legislating regulatory arrangements and have the primary responsibility for delivering emergency services, including fire and ambulance services, directly to the community.

The Commonwealth, State and Territory governments are also jointly responsible for developing building fire safety codes, undertaking fire related research, formulating policies and providing advice on fire safety.

Local governments in most States and Territories are involved to varying degrees in emergency management. Their roles and responsibilities include:

- considering public safety in town planning and development to assist in preventing emergencies such as fires, floods and hazardous material incidents;
- improving community preparedness through local emergency and disaster plans;
- issuing hazard reduction notices to private land holders and clearing vegetation in high risk public areas;
- collecting statutory levies to fund fire services;
- allocating resources for response and recovery activities; and
- providing financial and operational assistance to rural fire brigades and/or emergency service units.

The Review does not yet report on the performance of Commonwealth or local government emergency management services or their agencies.

Fire services

State and Territory governments provide a range of emergency management activities through fire services, including prevention, preparedness, response and recovery (see section 11.3). Fire services across jurisdictions generally:

- respond to structural, bush and forest fires;
- develop building fire safety codes and inspect fire safety measures;
- provide rural land management advice on the role and use of fire;
- train and educate the community about fire safety and awareness and road safety issues;
- conduct road accident rescue;
- manage chemicals and hazardous material incidents; and
- administer legislation relating to fire safety, hazardous materials facilities and hazard mitigation.

The management structure and activities of fire services differ across jurisdictions (table 11.1). Separate urban and rural fire services deliver fire services in most jurisdictions. Land management departments also typically provide rural fire services. Jurisdictions with more than one fire authority may separate services in different ways; for example, NSW separates fire services on the basis of service function and geographic area, whereas Victoria separates fire services by only geographic area.

Ambulance services

Ambulance services provided across jurisdictions:

- provide emergency pre-hospital patient care and transport in response to sudden injury and illness;
- retrieve emergency patients;
- access emergency pre-hospital patients (for example, in confined spaces and hazardous environments);
- undertake inter-hospital patient transport;
- conduct road accident rescue; and
- plan and coordinate patient services in multicasualty events.

Some government ambulance services also provide first aid training courses, as do the non-government providers St John Ambulance Australia and the Australian Red Cross. The Royal Flying Doctor Service responds to medical emergencies in remote inland areas of Australia. It was contracted in 1999-2000, for example, by the Ambulance Service of NSW for routine and emergency work in the north-west sector of NSW.

State and Territory governments provide ambulance services in most jurisdictions. In WA and the NT, St John Ambulance is under contract to the respective State and Territory governments as the primary provider of ambulance services (table 11.2).

Funding

Fire services

The primary sources of funding across all jurisdictions in 1999-2000 were grants from State and Territory and local governments, levies on insurance companies and property owners, user charges, and fundraising and donations. Levies on insurance companies were the primary source of funding for NSW, Victoria and WA. Levies on property owners were the primary source of funding for Queensland, SA and Tasmania. Territory governments were the most important source of funds for the

ACT and NT (table 11A.1). In addition to normal funded resources, all States and Territories rely on volunteer fire fighters who make a significant contribution to the community.

Table 11.1 Delivery and scope of activity of primary fire services^a

	<i>Urban</i>	<i>Rural</i>
	Attend residential and commercial structural fires; incidents involving hazardous materials; and road accidents within major urban centres.	Attend local structural fires and other events outside major urban centres; rural non-structural fires (including crop, bushland and grassland fires on private property); and fires in national parks and State forests.
<i>NSW</i>	<i>NSW Fire Brigades</i> — the Brigades report to the Minister for Emergency Services directly.	<i>NSW Rural Fire Service</i> — day-to-day management of each brigade rests with the local councils, but each brigade is strategically and operationally responsible to the NSW Rural Fire Service, which reports to the Minister for Emergency Services.
<i>Vic</i>	<i>Metropolitan Fire and Emergency Services Board</i> — this statutory authority reports to the Minister for Police and Emergency Services and the Emergency Services Commissioner.	..
	<i>Country Fire Authority</i> — this statutory authority reports to the Minister for Police and Emergency Services and the Emergency Services Commissioner.	
<i>Qld</i>	<i>Queensland Fire and Rescue Authority</i> — this statutory authority, incorporating the Rural Fire Service, reports to the Minister for Emergency Services via the Director-General, Department of Emergency Services.	
<i>WA</i>	<i>Fire and Rescue Service of WA</i> — this umbrella statutory authority reports to the Minister for Police and Emergency Services directly and incorporates the Bush Fire Service, State Emergency Service and Fire and Rescue.	
<i>SA</i>	<i>Metropolitan Fire Service</i> — this statutory authority reports to the Minister for Emergency Services directly.	<i>Country Fire Service</i> — the board of this authority reports to the Minister for Emergency Services directly.
<i>Tas</i>	<i>Tasmania Fire Service</i> — this is the operational arm of the State Fire Commission, which reports to the Minister for Health and Human Services.	
<i>ACT</i>	<i>ACT Fire Brigade and ACT Bushfire Service</i> — these are agencies of the ACT Emergency Services Bureau, which reports to the ACT Minister for Police and Emergency Services.	
<i>NT</i>	<i>NT Fire and Rescue Service</i> — this is a branch of the larger Department of Police, Fire and Emergency Services. The Chief Fire Officer reports to the Commissioner for Police, who reports to the Minister for Police, Fire and Emergency Services.	<i>Bush Fires Council^b</i> — this is part of the Parks and Wildlife Commission of the NT, which is managed by a board of pastoralists which reports to the Minister for Parks and Wildlife.

^a Excludes brigades employed by large-scale public and private land managers; port, mining and other infrastructure brigades; and land management departments and brigades operating under Commonwealth jurisdiction (for example, airport and defence installations). ^b The NT Bush Fires Council is primarily a land management organisation and responds to only grass fires and bushfires on land outside the Fire and Rescue Service response areas. NT statistics in this chapter do not apply to the Bush Fires Council unless stated. .. Not applicable.

Table 11.2 Relationships of primary ambulance response and management agencies to government

<i>NSW</i>	<i>Ambulance Service of NSW</i> — a statutory authority reporting to the Minister for Health
<i>Vic</i>	<i>Metropolitan Ambulance Service, Rural Ambulance Victoria, and Alexandra and District Ambulance Service</i> — separate statutory bodies reporting to the Minister for Health
<i>Qld</i>	<i>Queensland Ambulance Service</i> — a statutory authority reporting to the Minister for Emergency Services through the Director-General
<i>WA</i>	<i>St John Ambulance</i> — an incorporated not-for-profit organisation under contract to the WA Government
<i>SA</i>	<i>SA Ambulance Service</i> — an incorporated joint venture between the State Minister for Health and St John Priory Australia
<i>Tas</i>	<i>Tasmanian Ambulance Service</i> — a statutory service of the Hospital and Ambulance Division of the Department of Health and Human Services
<i>ACT</i>	<i>ACT Ambulance Service</i> — an agency of the ACT Emergency Services Bureau reporting to the ACT Minister for Police and Emergency Services
<i>NT</i>	<i>St John Ambulance</i> — an incorporated not-for-profit organisation under contract to the NT Government

Total funding of fire services covered in this Report was around \$1.2 billion in 1999-2000. Total funding was highest in NSW (\$421 million) in 1999-2000 and lowest in the NT (\$19 million). Funding increased (when measured in current prices) in NSW, Victoria, Queensland WA and SA between 1998-99 and 1999-2000, and decreased in the NT (table 11.3). The ACT funding change for 1999-2000 reflects the revised method of attributing funds to the Emergency Services Bureau by event type.

Table 11.3 Funding of fire services (\$ million, current prices)

	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>	<i>Total</i>
1998-99	368	265	196	80	82	34	33	20	1078
1999-2000	421	273	220	97	105	34	21	19	1190

Source: table 11A.1.

Ambulance services

Nationally, ambulance services receive funding from different sources, including transport fees (from government hospitals, private citizens and insurance), subscriptions and levies, and government contributions. The distribution of funding sources varies across jurisdictions.

State and Territory governments were the largest contributors to ambulance services in all States and Territories except WA. The contribution from this level of government was highest in the ACT (86 per cent) and lowest in WA (22 per cent). The primary source of funds in WA was transport fees (59 per cent), whereas the ACT relied the least on transport fees (10 per cent). All jurisdictions except NSW

and Tasmania received funding from subscriptions. Queensland relied the most on this funding source (27 per cent) (table 11A.16). (NSW does have an ambulance subscription scheme, but funds are deposited to the consolidated revenue of NSW Treasury).

Total funding of ambulance services covered in this Report was approximately \$800 million in 1999-2000. Across jurisdictions, funding was highest in NSW (\$258 million) and lowest in the ACT and the NT (\$9 million). Funding increased in current prices across all jurisdictions between 1998-99 and 1999-2000 except the NT which remained the same (table 11.4). The ACT funding change for 1999-2000 reflects the revised method of attributing funds to the Emergency Services Bureau by event type.

Table 11.4 Funding of ambulance services (\$ million, current prices)

	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>	<i>Total</i>
1998-99	234	188	170	45	58	14	na	9	718
1999-2000	258	196	180	56	68	15	9	9	806

na Not available.

Source: table 11A.16.

Size and scope

Fire services

Incidents

Information on reported fires and other incidents was provided separately for fire agencies in each jurisdiction. (Data were not available for all fire services across jurisdictions.) Fire services are required by legislation to respond to all calls, and an incident is not deemed to be a false report until the fire service has responded and investigated the site. Nationally, one-third of reported incidents were fires or explosions in 1999-2000 (table 11A.2).

The proportions of incident types varied substantially across jurisdictions in 1999-2000. NSW fire services, for example, attended approximately 134 900 incidents, of which 29 per cent were fires and explosions, 33 per cent were fire alarm system notifications not involving fire, and 38 per cent were false alarms, false calls and other incidents. The NT fire brigades responded to approximately 5700 incidents, of which 49 per cent were fires and explosions, 46 per cent were fire alarm system notifications not involving fire, and 5 per cent were false alarms, false calls and other incidents (table 11A.2).

Staffing

Data on staffing are reported for fire services for the first time in this Report. These new data are reported by classification, to provide a detailed description of the human resources profile of fire agencies.

A staff member is any person delivering a firefighting or firefighting related service or managing the delivery of this service, including:

- firefighters (qualified paid and volunteer firefighters); and
- support staff (any paid and volunteer person directly supporting the operational provider, including technical and communications staff and personnel staff).

Nationally, around 11 800 full time equivalent paid staff were involved in the delivery of fire services in 1999-2000. Across jurisdictions, the number of paid staff ranged from around 3950 full time equivalent staff in NSW to 236 full time equivalent staff in the NT. The majority of paid staff were firefighters (82 per cent). This proportion was highest in NSW and SA (88 per cent) and lowest in Tasmania (60 per cent) (table 11A.3).

Approximately 222 100 volunteer firefighters participated in the delivery of fire services in 1999-2000. The number of volunteer firefighters varied across jurisdictions from around 68 900 in NSW to over 500 in ACT (table 11A.3).

Ambulance services

Incidents

Ambulance services attended almost 1.9 million incidents nationally in 1999-2000. Most of these were emergency incidents (45 per cent), followed by non-emergency incidents (33 per cent) and urgent incidents (20 per cent). Only Queensland and WA attended casualty/room incidents (2 per cent). The proportion of emergency incidents was highest in NSW (64 per cent) and lowest in WA (27 per cent) (table 11A.17).

Staffing

Data on staffing are also reported for ambulance services for the first time in this Report. These new data are reported by operational status to provide a detailed description of the human resources profile for ambulance agencies.

A staff member is any person involved in delivering an ambulance service or managing the delivery of this service, including:

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- ambulance operatives (including qualified ambulance officers, advanced life support officers, student ambulance officers, operational supervisors and community service operatives);
 - operational and business support staff (including management, corporate support staff, communications and technical staff, and training staff); and
 - volunteers and retained staff (any paid and volunteer staff providing ambulance services on an on-call basis).

Nationally, approximately 8500 full time equivalent salaried staff and about 6300 volunteers and retained staff were involved with the delivery of ambulance services. Across jurisdictions, the number of salaried ambulance staff ranged from approximately 2260 full time equivalent staff in NSW to almost 70 in the NT. The majority of salaried ambulance staff were ambulance operatives (80 per cent) in 1999-2000. Across jurisdictions, this proportion ranged from 92 per cent in Tasmania to 68 per cent in the NT (table 11A.18).

The number of volunteer and retained ambulance operatives varied across jurisdictions from around 3600 in WA to zero in NSW, and the ACT. Volunteer operational and business support staff were only used in SA (78) (table 11A.18).

11.2 Policy developments in emergency management

Fire and ambulance services are facing similar policy developments aimed at improving the effective and efficient delivery of emergency services. The most significant recent developments have been to:

- upgrade communication systems to improve responsiveness;
- implement risk management strategies to reduce the community's exposure to risk and improve community and agency preparedness; and
- prepare strategies to coordinate responses between fire, ambulance, police services and volunteer emergency services, to improve the delivery of emergency services.

Improved communications and dispatching systems

Most jurisdictions have sought to improve their communication systems through the implementation of a centralised computer aided dispatch (CAD) system for all emergency services (table 11A.25). Some jurisdictions are in the process of implementing a CAD system, with the aims of:

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- making the most efficient use of infrastructure, including personnel resources;
 - taking advantage of modern telecommunications, vehicle tracking and computer based decision-support systems; and
 - facilitating improved coordination between services.

The main benefit of improved communications and dispatching systems in terms of the performance indicators reported here is to improve response times and efficiency through the use of fewer resources.

Risk management

In addition to providing response and recovery activities in specific events, fire services are also committed to providing a range of risk assessment and mitigation strategies to reduce community vulnerability and to promote public safety (table 11A.26). Examples of these strategies include:

- community awareness and education programs;
- smoke alarm legislation;
- bushfire risk management strategies;
- providing advice on the fire safety of built environment; and
- conducting fire investigation research to identify causes of fires and factors contributing to the impact of fires.

The main benefit of risk management in terms of the reported performance indicators is to reduce the community's exposure to risk and improve community preparedness.

Multiservice coordination

To ensure the effective response of services to emergency events, all jurisdictions use multiservice coordination. This includes organisational restructuring, cooperation between fire and ambulance services, and collocation.

Administrative

Improving administrative coordination among emergency services has involved either the location of services within the one department or the establishment of coordination committees. The NSW Fire Brigades and the NSW Rural Fire Service have coordinated the delivery of services in both urban and rural communities under

the *Fire Services Joint Standing Committee Act 1998*. In Victoria, the position of Emergency Services Commissioner has been created to establish and monitor common performance standards across the Metropolitan Fire and Emergency Services Board and the Country Fire Authority. In Queensland, all emergency services were combined in a single portfolio in 1989 to enhance multiservice cooperation and coordination. The Fire and Emergency Services Authority of WA was established in 1998 to coordinate policy, planning and service delivery for fire and emergency services throughout the State. In SA, the Emergency Services Administration Unit was formed by amalgamating the non-operational components of the SA Metropolitan Fire Service and the Country Fire Service. The State Emergency Service became part of the unit. In Tasmania, both the Tasmanian Ambulance Services and the Tasmanian Fire Service operate under the umbrella of the Department of Health and Human Services. The ACT has four agencies (ambulance, bushfire, emergency service and fire brigade) operating as part of the Emergency Services Bureau.

Operational

To make better use of the resources of emergency service organisations, collocation and multiskilling have been adopted in specific instances. Fire and ambulance services are working closely together in Victoria and the NT in responding to suspected cardiac arrests. Victoria is piloting a program to test the effectiveness of an emergency medical response role for the Metropolitan Fire and Emergency Services Board in support of the Metropolitan Ambulance Service. The pilot program is aimed at reducing the time taken to respond to life threatening emergencies involving cardiac arrest by simultaneously dispatching suitably trained firefighters and ambulance paramedics. The NT Fire and Rescue Service has developed a fire service-specific first aid course. This project was undertaken in cooperation with St John Ambulance, which assisted with the training of the NT Fire and Rescue Service first aid trainers.

Collocation is a trend among jurisdictions to share common facilities that incorporate ambulance and fire vehicles, equipment and staff. Collocation can also mean stationing ambulances at hospitals, particularly in rural areas. The aim of collocation is to lower infrastructure costs without compromising responsiveness, and to improve the level of coordination and cooperation between the services. Queensland currently has six collocated fire and ambulance stations and three collocated communication centres. Throughout rural Queensland, several collocated fire, ambulance and State Emergency Services stations are shared with police and hospital services. South Australia currently has 12 collocated stations in country areas incorporating rural fire brigades, State Emergency Service units, and the ambulance service. A further 9 collocated units are planned for the next two years in

both metropolitan (7) and regional areas (2). Tasmania has nine collocated fire and ambulance stations. In 1998, the ACT commissioned a Joint Emergency Services Centre in the new area of Gungahlin, incorporating the police, ambulance, bushfire, fire and emergency service stations in one complex. In smaller communities and rural and remote areas, rural fire brigades and State emergency service groups have collocated. In some instances, rural fire brigades have collocated with ambulance, and in some remote locations, combined emergency services groups have been formed. In Victoria the rural ambulance service has completed several collocations with hospitals, community health providers and other emergency services.

Queensland has developed a policy framework to improve coordination of the Queensland Emergency Medical System. The Fire and Emergency Services Authority has drafted a Collocation Planning and Implementation Policy to clarify direction on the collocation of emergency services in WA.

Multiservice coordination extends beyond the provision of fire and ambulance services to include other services such as police, State and Territory emergency services, local government bodies and potentially other volunteer organisations.

Whole of government

High level coordination among all branches of government, including emergency services, can be improved through the establishment of multi-agency committees. The NSW State Emergency and Rescue Management Act provides for the multi-agency coordination role of the State Disasters Council. In Victoria, for instance, the Central Government Response Committee, with membership of all Government departments, the Police and the Emergency Services Commissioner, provides high level coordination in any extreme emergency or crisis. It reports to the Major Incidents Committee of Cabinet. In Queensland, the State Disaster Coordination Group includes representation from all government agencies and coordinates all State Government resources in the event of an emergency or crisis. The Group reports to the whole of Government State Disaster Mitigation Committee comprising representatives from the Local Government Association of Queensland, Local Government and ten State Government agencies to improve awareness and understanding of strategies focussing on disaster mitigation and planning.

In December 1999 the ACT passed a new Emergency Management Act providing appropriate legislative cover for coordinating aspects of emergency management. It also provided legislated roles for the ACT Ambulance Service and the ACT Territory Emergency Service.

The benefits of multiagency coordination in terms of the reported performance indicators in this chapter do not consider the benefits to non-emergency management agencies.

11.3 Framework of performance indicators

The broad aim of emergency management is to reduce the level of risk to the community from emergencies. The framework of performance indicators in this chapter is based on the objectives for emergency management which are common to all Australian emergency management agencies (box 11.1).

Box 11.1 Objectives for emergency management

Emergency management services aim to provide highly effective, efficient and accessible services that:

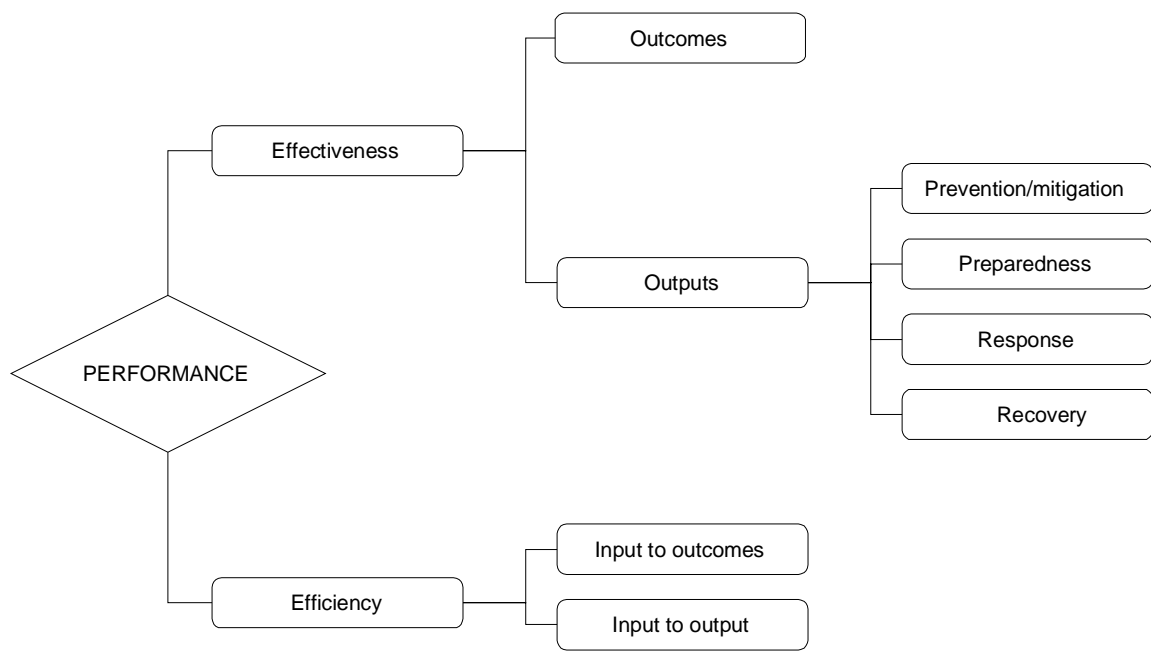
- reduce the adverse effects of emergencies and disasters on the Australian community (including people, property, infrastructure, economy and environment);
- contribute to the management of risks to the Australian community; and
- enhance public safety.

The general framework has been applied to both fire and ambulance services (figure 11.1). The framework uses the widely accepted ‘comprehensive approach’ (prevention/mitigation, preparedness, response and recovery) to classify the key functions common to emergency agencies. The Review uses a somewhat similar approach to examine health management (see chapter 7). Plans to develop a performance indicator framework for emergency rescues in the 2002 Report are discussed in section 11.6.

The aim of the indicator framework is to provide information on the efficiency and effectiveness of government funded emergency management services. Indicators are reported for both outcomes and outputs.

Outcomes are defined to include overarching measures of the effect of a service on the community, economy and environment. The effects may show the degree of service success. Outcomes indicators include: fire death rate; fire injury rate; the value of property lost and saved from fire incidents; the number of fire incidents relative to the population; and survival rate from out-of-hospital cardiac arrest.

Figure 11.1 **General performance indicators framework for emergency management**



Performance indicators are potentially available for the major output groups of prevention and mitigation, preparedness, response, and recovery (both emergency agency and community):

- *Prevention and mitigation* — the results of strategies and services to prevent or reduce the frequency of emergency events or to lessen their effects. Activities that contribute to outputs of prevention and mitigation include: advice on rural land management practice for hazard reduction and fire prevention; the inspection of property and buildings for fire hazards, fire standards compliance and levels of safe fire practices; the preparation of risk assessment and emergency management plans; hazard categorisation for public information campaigns; and public information campaigns to promote safe practices by the community;
- *Preparedness* — the results of strategies and services to position providers and the community to respond to emergency events quickly and effectively. Activities that contribute to outputs of preparedness include: public education and training; emergency detection and response planning (including the installation of smoke alarms and/or sprinklers); hazardous chemicals and material certification, and inspection of storage and handling arrangements; the exercising, training and testing of emergency service personnel; and standby and resource deployment and maintenance. Preparedness also involves establishing equipment standards and monitoring adherence to these standards;

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- *Response* — the results of strategies and services to control, limit or modify the emergency to reduce the consequences. Activities that contribute to outputs of response include: the implementation of emergency plans and procedures; the issuing of emergency warnings; the mobilisation of resources in response to emergency incidents; the suppression of hazards (for example, fire containment); the provision of immediate medical assistance and relief; and search and rescue;
 - *Recovery (emergency services)* — the results of strategies and services to return agencies to a state of preparedness after emergency situations. Activities that contribute to outputs of emergency services recovery include: critical incident stress debriefing; and salvage and restoration of the emergency site to a safe state; and
 - *Recovery (community)* — the results of strategies and services to support affected communities in their reconstruction of physical infrastructure and restoration of emotional, social, economic and physical wellbeing. Activities that contribute to outputs of community recovery include: the restoration of essential services; counselling programs; temporary housing; long term medical care; and public health and safety information.

Effective prevention activities reduce the requirement to respond to and recover from emergency events. Efficient resource use reduce the risk to the community by improving a combination of all output measures. Greater emphasis is being placed on preventative activities in every jurisdiction.

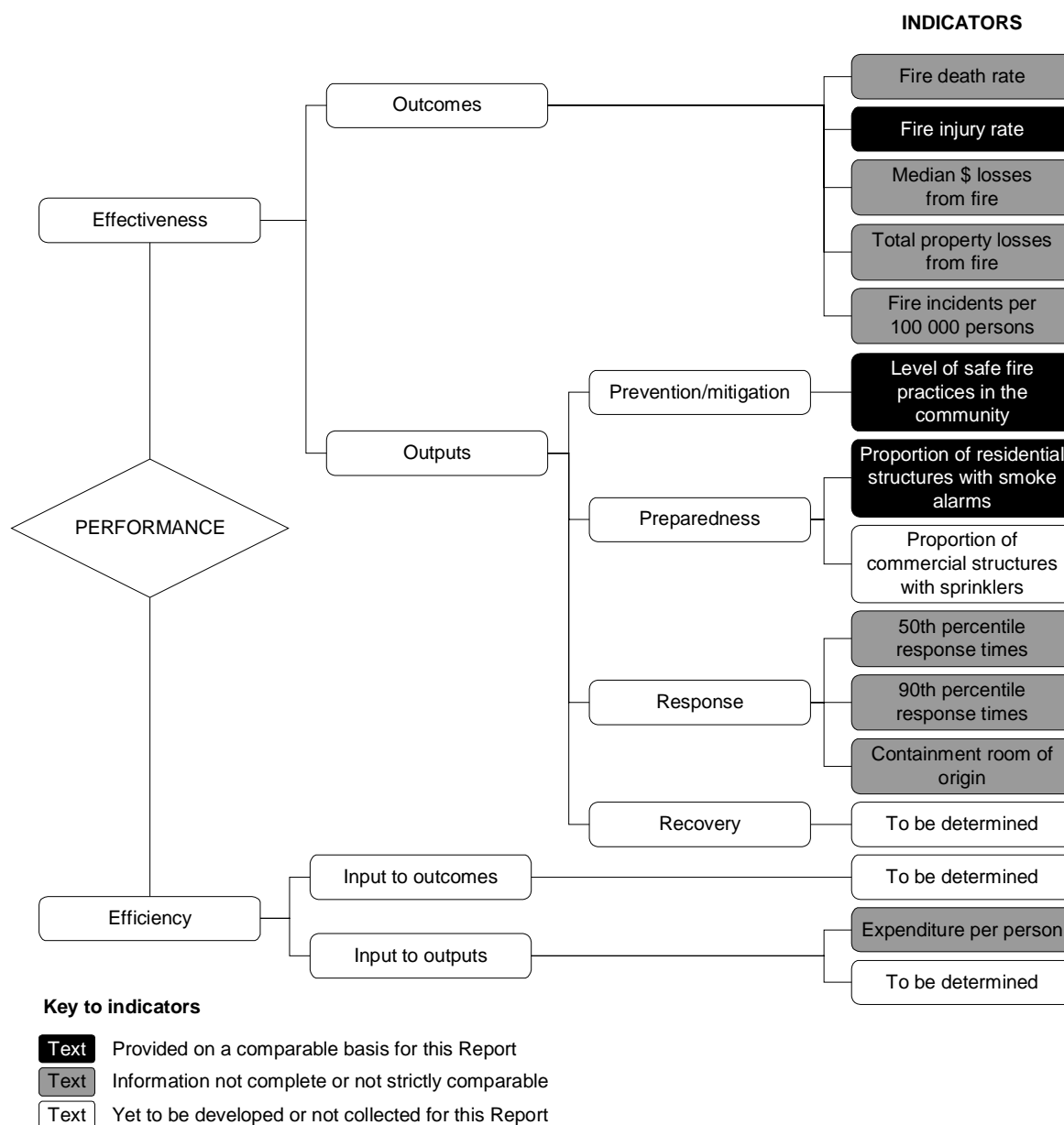
Efficiency indicators report on the unit cost of service delivery. Calculation of unit costs requires the specification of outputs. For fire services, this is a difficult task, given the diversity of activities undertaken. The fire and ambulance sectors have considered a range of options for specified outputs. Expenditure per person is employed as a proxy for efficiency. Expenditure per fire is not used as a proxy for fire services efficiency because a fire service that devotes more resources to the prevention and preparedness components to reduce the number of fire incidents would appear to be less efficient.

Descriptor information is also provided in this chapter and appendix A to assist in the interpretation of reported performance.

11.4 Key performance indicator results — fire services

A performance indicator framework for fire services (figure 11.2) has been developed from the framework described in figure 11.1. Definitions of all indicators are provided in table 11.6.

Figure 11.2 Performance indicators for fire services



Performance information has been reported for a number of indicators. These results may have been influenced by factors such as differences in climatic and weather conditions, the socio-demographic and topographic composition of jurisdictions, property values and dwelling construction types. See appendix A for detailed statistics and short profiles on each State and Territory, which may assist in interpreting the performance indicators presented in this chapter. Importantly, jurisdictions have diverse legislative fire protection requirements.

There has been significant progress in the reporting of data, but the results should be treated with caution because data either were derived from small samples (as in the case of the Population Survey Monitor) or are highly variable as a result of the relatively small populations in Tasmania, the ACT and the NT. The role of volunteers, particularly for country and rural fire brigades, should be considered in the interpretation of indicators (for example, fire expenditure per person). Further, information was not reported for all fire agencies in each jurisdiction: rural fire services are sometimes excluded from reported results. Partly for this reason, performance data are not always strictly comparable across jurisdictions. Fire services are cooperating to improve and enhance the standards for the collection of fire data. Differences in counting rules are expected to be minimised for future Reports.

Population data in several jurisdictions for 1998-99 and 1999-2000 have been adjusted to reflect population coverage by fire services that have provided data in this Report. Thus, efficiency and some effectiveness data for 1998-99 and 1999-2000 are not strictly comparable with 1997-98 data.

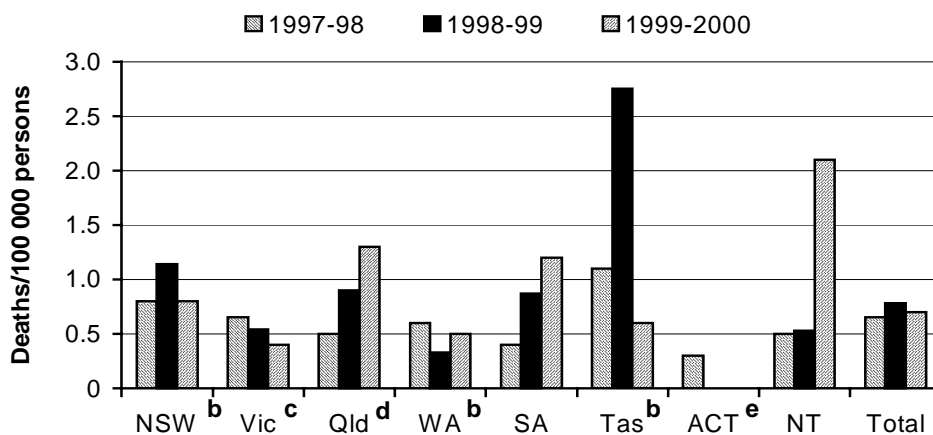
Effectiveness

Outcomes

The indicators of outcomes reported here relate to the objective of fire services to minimise the effect of fire on life, property and the environment. The fire death rate and the fire injury rate are indicators of outcomes in terms of the effect of fire on life. However, caution in interpreting data must be exercised, given the relatively small numbers of deaths and significant fluctuations from year to year, particularly for jurisdictions with relatively smaller populations.

The fire death rate in 1999-2000 was highest in the NT (with 2.1 deaths per 100 000 persons) and lowest in the ACT (with no deaths) (figure 11.3). The definitions used to count fire deaths varied across jurisdictions. Fire deaths reported in some jurisdictions were verified by the respective State Coroner's findings, while in other jurisdictions fire deaths were estimated by fire agencies. Future Reports are expected to use more uniform reporting methods.

Figure 11.3 Fire death rate^a



^a The small number of deaths should be considered when interpreting fluctuations in the data. State and Territory coroners validated data for 1999-2000 and 1998-99 for NSW, Victoria, Queensland, Tasmania and the NT. State and Territory coroners validated data for 1997-98 for NSW, Victoria, Queensland, Tasmania and the NT. ^b Include fire deaths to civilians and operational staff. ^c 1999-2000 data includes fire deaths to civilians and operational staff. ^d Excludes murders and suicides before a fire occurring. ^e The ACT had no fire deaths in 1998-99 or 1999-2000.

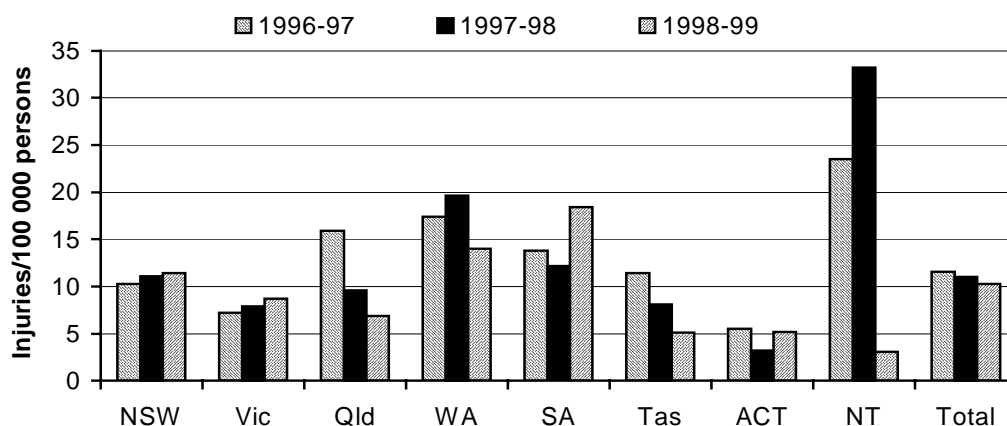
Source: table 11A.4.

Fire injuries data describe the number of hospital admissions (excluding emergency department non-admitted casualties) and are only available until 1998-99. Fire injuries data have been improved this year by removing hospital fire deaths from 1996-97 and 1997-98 data (as fire deaths are reported above). However, hospital fire deaths data could not be obtained for 1998-99. This improves the quality of 1996-97 and 1997-98 data substantially; however, caution should be used when comparing 1998-99 data with previous years' data.

Nationally, the fire injury rate was 10.3 per 100 000 persons in 1998-99. The rate was highest in SA, with 18.4 fire injuries per 100 000 persons, and lowest in the NT, with 3.1 per 100 000 persons (figure 11.4).

The median dollar loss per structural fire and the total property loss from structural fire are indicators of outcomes in terms of the effect of fire on property. Structural fires are those fires contained in housing and other buildings. The data have not been adjusted for jurisdictional differences in the costs and values of various types of building. Information for some jurisdictions includes only urban fire services, so the results across jurisdictions are not strictly comparable. Further, the method of valuing property loss from fire varies across jurisdictions.

Figure 11.4 Fire injury rate^a



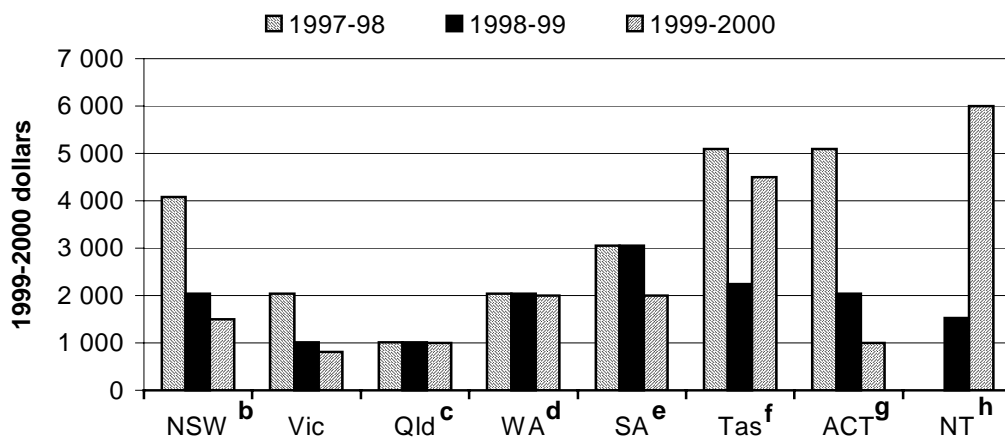
^a Includes admitted patients to public and private hospitals. Excludes emergency department non-admitted casualties. 1998-99 data includes public and private hospital deaths from fire injuries.

Source: table 11A.5.

The median dollar loss in 1999-2000 was highest in NT (\$6000 per structural fire) and lowest in Victoria (\$800 per structural fire) (figure 11.5). Across jurisdictions, the median dollar loss (in real terms) decreased between 1998-99 and 1999-2000 in all jurisdictions except Tasmania and the NT. The increase was largest in the NT, where it increased from just over \$1500 to \$6000 per structural fire. However, data for the relatively smaller jurisdictions can be subject to high volatility. The apparent decline in the ACT between 1997-98 and 1998-99 was due to the inconsistency of reported data in 1997-98.

Nationally, the total property loss from structural fire in 1999-2000 was \$19 per person (not including NSW). It was highest in Tasmania (\$28 per person) and lowest in SA (\$10 per person) (figure 11.6) (although for Tasmania, data for both rural and urban fire brigades was included in this estimate). Across jurisdictions, the total property loss (in real terms) increased between 1998-99 and 1999-2000 in Queensland, WA and the NT. The increase was largest in the NT, where the loss rose from \$9 per person to \$26 per person.

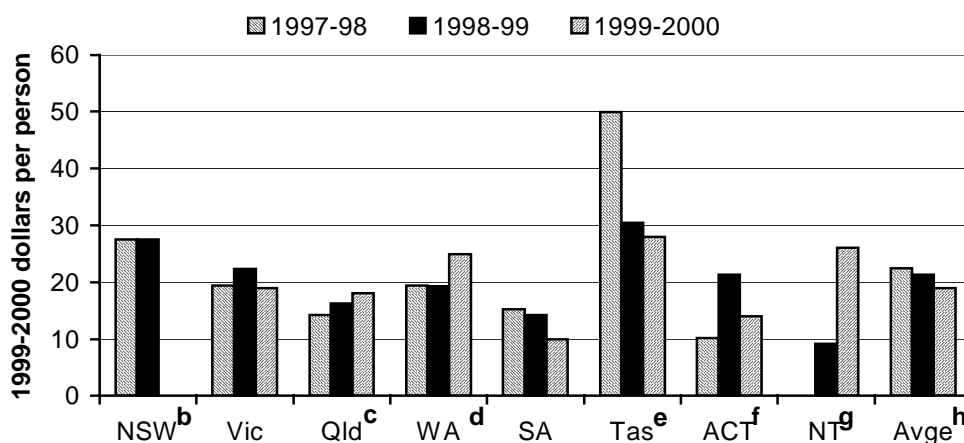
Figure 11.5 Median dollar loss from structural fires^a



^a Estimates have not been validated by the insurance industry, or adjusted for interstate valuation differences. ^b 1997-98 data include both NSW Fire Brigades and the Rural Fire Service. 1998-99 and 1999-2000 data exclude Rural Fire Service data, but include responses to calls outside NSW Fire Brigades designated fire districts. Due to an industrial ban, 1999-2000 figures are derived from a sample representing 80 per cent of incident data. ^c Excludes Rural Fire Service data. ^d 1997-98 and 1998-99 data excludes Bush Fire Brigades. ^e 1997-98 and 1999-2000 data exclude the Country Fire Service. ^f Data includes both urban and rural fire services. ^g There is an inconsistency in the data reported for 1997-98. Industrial bans mean 1998-99 and 1999-2000 figures are based on extrapolated results. ^h 1997-98 data were not available.

Source: table 11A.6.

Figure 11.6 Total property losses from structural fires^a

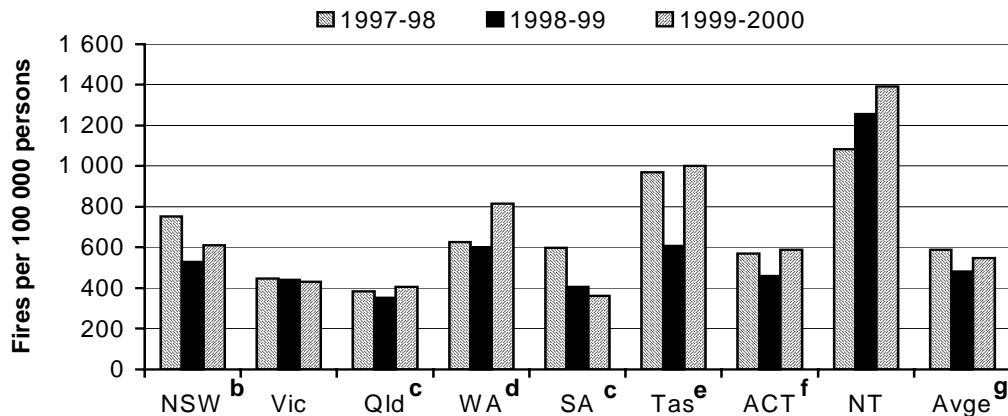


^a Estimates have not been validated by the insurance industry, or adjusted for interstate valuation differences. Rates for 1998-99 and 1999-2000 have been adjusted to reflect the population covered by the data. ^b 1997-98 data include both NSW Fire Brigades and the Rural Fire Service. 1998-99 data exclude rural Fire Service data, but include responses to calls outside NSW Fire Brigades designated fire districts. 1999-2000 data are not available. ^c Excludes Rural Fire Service. ^d 1997-98 and 1998-99 data excludes the Bush Fire Brigades. ^e Includes both rural and urban fire services. ^f Industrial bans mean 1998-99 and 1999-2000 figures are based on extrapolated results. ^g 1997-98 data are not available. ^h 1997-98 data exclude the NT and NSW for 1999-2000.

Source: table 11A.7.

The total number of fire incidents per 100 000 persons increased between 1998-99 and 1999-2000 in all jurisdictions except Victoria and SA (figure 11.7). The total number of fire incidents per 100 000 persons across jurisdictions in 1999-2000 was 548 per 100 000 persons. The total number of fire incidents per 100 000 persons in 1999-2000 was highest in the NT (1392) and lowest in SA (361).

Figure 11.7 Total fire incidents^a



^a Population figures used to calculate the rates have been adjusted to represent population coverage by fire agencies. ^b 1997-98 data include both NSW Fire Brigades and the Rural Fire Service. 1998-99 data exclude Rural Fire service data, but include responses to calls outside NSW Fire Brigades designated fire districts. 1999-2000 figure includes both Rural Fire Service and NSW Fire Brigades data. Due to an industrial ban, 1999-2000 figures are derived from a sample representing 80 per cent of incident data. ^c Excludes Queensland Rural Fire Service and SA Country Fire Service. ^d 1997-98 and 1998-99 data excludes Bush Fire Brigades. ^e Includes urban and rural fire services. ^f Industrial bans mean 1998-99 and 1999-2000 figures are based on extrapolated results. ^g Excludes NT Bushfire Council, WA Bush Fire Brigade for 1997-98 and 1998-99 and SA Country Fire Service data.

Source: table 11A.8.

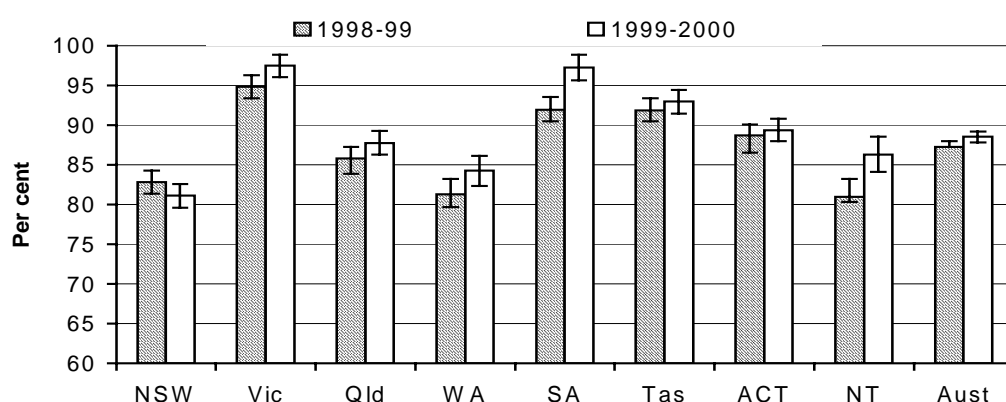
Outputs

Prevention

Indicators of fire prevention focus on the level of fire safety practices in the community. The Australian Bureau of Statistics Population Survey Monitor supplied data on household fire safety measures installed or followed at a national level for eight quarters from November 1998 to August 2000 (providing data for 1998-99 and 1999-2000). The precision of survey estimates depends on the survey sample size and the sample estimate. Larger sample sizes result in higher precision, while smaller sample sizes result in lower precision. Consequently, caution should be used when interpreting small differences in results (see section 11.8).

Household fire safety measures include operational smoke alarms or detectors, sprinkler systems, safety switches, fire extinguishers, fire blankets, fire evacuation plans, external water supplies, the removal of external fuel sources, and external sprinklers. Nationally, 89 per cent of total households had at least one fire safety measure installed from 1999-2000. This proportion was highest in Victoria (98 per cent) and lowest in NSW (81 per cent). It increased across all jurisdictions except NSW between 1998-99 and 1999-2000. The increase was largest in SA and the NT, where the proportion increased from 92 per cent to 97 per cent and 81 per cent to 86 per cent respectively (figure 11.8).

Figure 11.8 Households with at least one fire safety measure^a

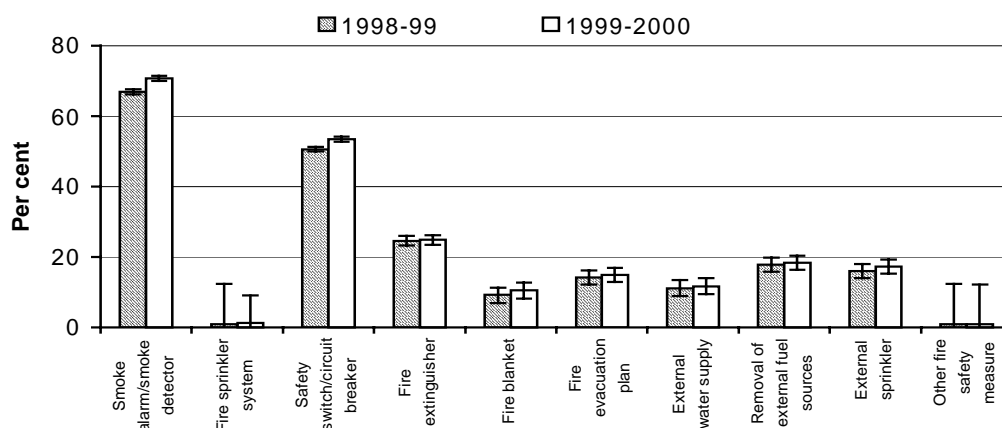


^a Standard errors have been indicated on bars in this figure. Caution should be used where there are small differences in the results, which are affected by sample and estimate size (see section 11A.2).

Source: table 11A.9.

Of those households with a fire safety measure installed from 1999-2000, 71 per cent had a smoke alarm or detector, 54 per cent had a safety switch or circuit breaker, and 25 per cent had a fire extinguisher. Only 15 per cent had a fire evacuation plan. Across all jurisdictions, the proportion of households with a fire safety measure increased for all safety measures except other fire safety measures between 1998-99 and 1999-2000 (figure 11.9).

Figure 11.9 Households with a fire safety measure, by fire safety measure installed or followed^a



^a Standard errors have been indicated on bars in this figure. Caution should be used where there are small differences in the results, which are affected by sample and estimate size (see section 11A.2).

Source: table 11A.10.

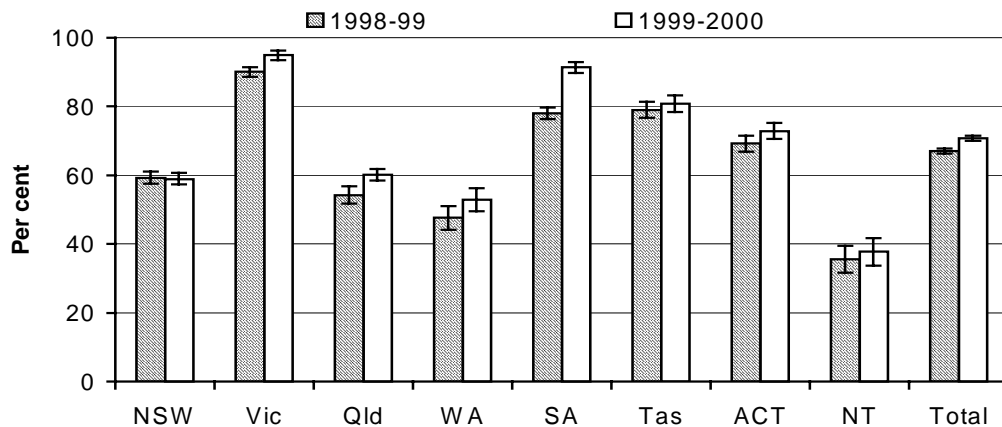
Preparedness

Preparedness relates to both the community and the fire service. Indicators used for the preparedness of the community are reported as the level of community training in fire responsiveness, and as the installation of fire safety equipment. The preparedness of the fire service relates to its level of contingent capacity (including the competency of personnel and the appropriateness of equipment), and the matching of resources with potential risks. Fire services also need to allow for seasonal influences (in drought years, for example) and population variations (in holiday destinations, for example).

This chapter focuses on the level of preparedness of the community in terms of the proportion of residential buildings and commercial buildings with fire safety equipment and systems. The Australian Bureau of Statistics Population Survey Monitor supplied data on the proportion of household dwellings with fire safety equipment at a national level for eight quarters from November 1998 to August 2000. These data provide information on the preparation of residential buildings only, and reflect the diverse legislative fire protection requirements across jurisdictions.

Nationally, 71 per cent of households had installed an operational smoke alarm or smoke detector in 1999-2000. This proportion was highest in Victoria (95 per cent) and lowest in the NT (38 per cent) (figure 11.10).

Figure 11.10 Households with an operational smoke alarm or smoke detector installed^a



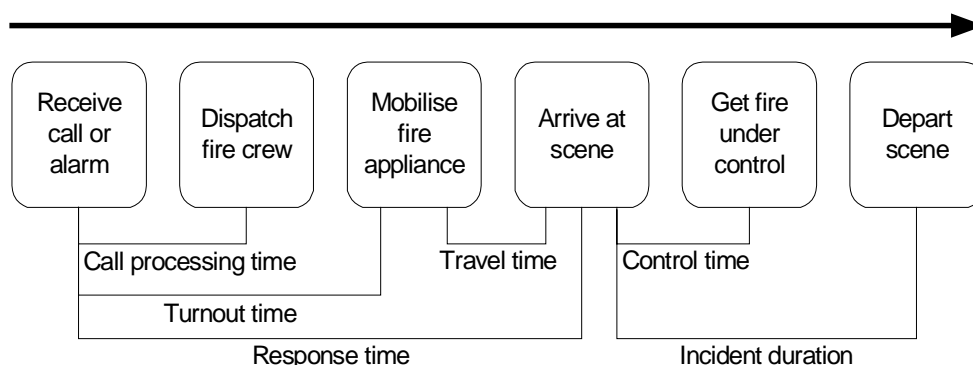
^a Standard errors have been indicated on bars in this figure. Caution should be used where there are small differences in the results, which are affected by sample and estimate size (see section 11A.2).

Source: table 11A.11.

Response

Response times and containment of structural fires (to the object or room of origin) are indicators of the effectiveness of fire services in terms of their ability to respond. The response time is defined as the interval between the receipt of the call at the dispatch centre and the arrival of the vehicle at the scene (that is, when the vehicle is stationary and the handbrake is applied). This and other intervals are illustrated in figure 11.11. Response times are provided on a jurisdictional basis, so they are not agency specific (which is consistent with information provided for other indicators in this chapter).

Figure 11.11 Response time points and indicators



The information provided for response times and containment of fires for NSW, Queensland, WA and SA are for urban services. Response time data for ACT are for urban fire services only, and containment data are for the entire jurisdiction. Queensland response times include responses by career firefighters and auxiliary/part-time firefighters. Therefore, the results indicate the performance of only the agency reported, not of all fire services within each jurisdiction. As a result, performance is not strictly comparable across jurisdictions, and the results should be treated with caution.

The 50th percentile response time refers to the time within which 50 per cent of the first fire resources arriving at the scene actually responded. The 50th percentile response time in 1999-2000 was highest in Tasmania (7.8 minutes) and lowest in SA (5.3 minutes) (figure 11.12), (although the estimate for Tasmania was calculated for both urban and rural fire services).

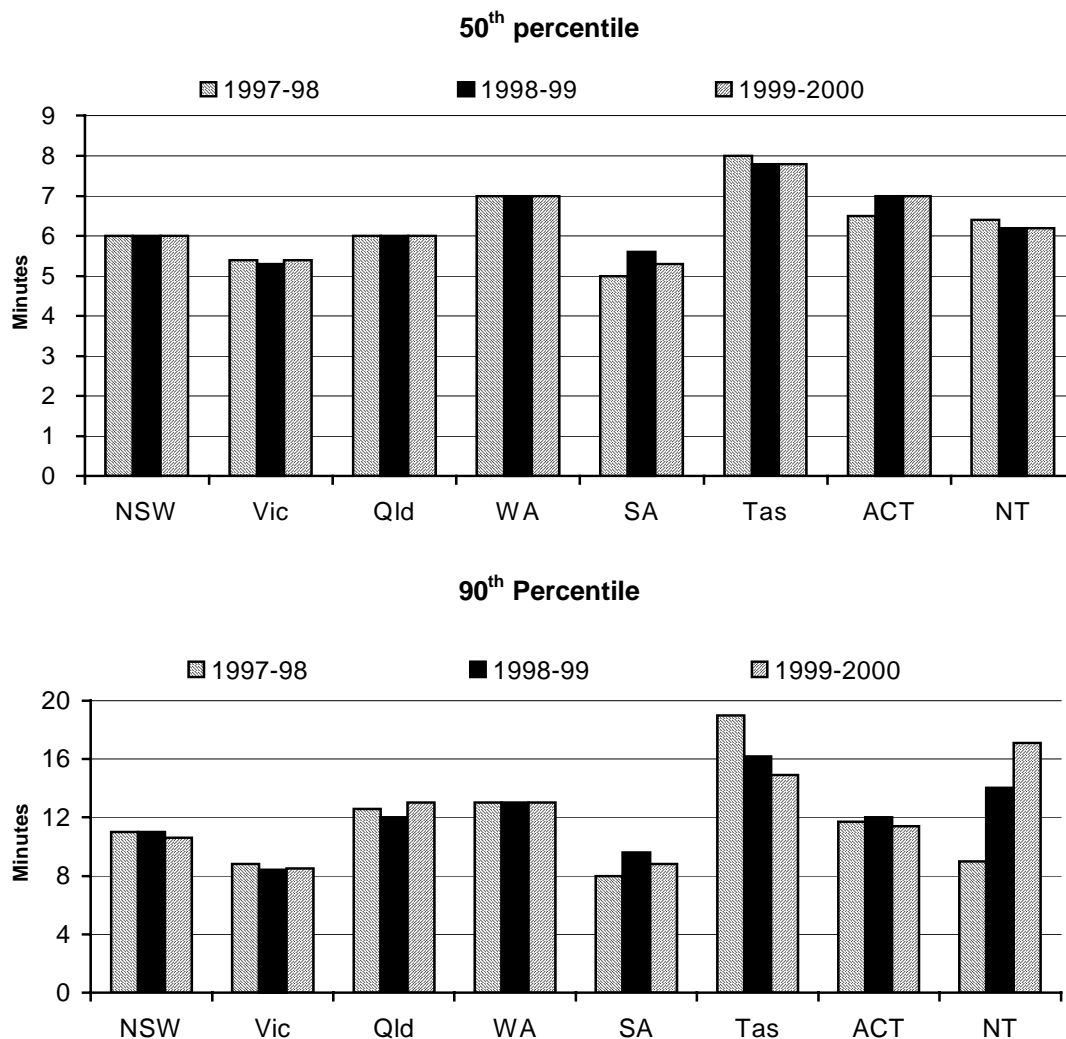
The 90th percentile response time refers to the time within which 90 per cent of the first fire resources arriving at the scene actually responded. The 90th percentile response time in 1999-2000 was also highest in Tasmania (14.9 minutes) and lowest in Victoria (8.5 minutes) (figure 11.12), (the estimates for Tasmania and Victoria were calculated to include both urban and rural fire services).

The response time is linked to the proportion of structural fires contained to the object or room of origin. The proportion of fires contained to the object or room of origin in 1999-2000 was highest in Victoria (90 per cent) and lowest in the NT (60 per cent) (figure 11.13).

Recovery

Recovery refers to the effectiveness of fire service strategies in both returning agencies to a state of preparedness after emergency situations, and supporting communities in their reconstruction of physical infrastructure and restoration of emotional, social, economic and physical wellbeing. These strategies include the restoration of essential services, counselling programs, temporary housing, long-term medical care, and public health and safety information. Indicators of effectiveness in terms of recovery are yet to be developed.

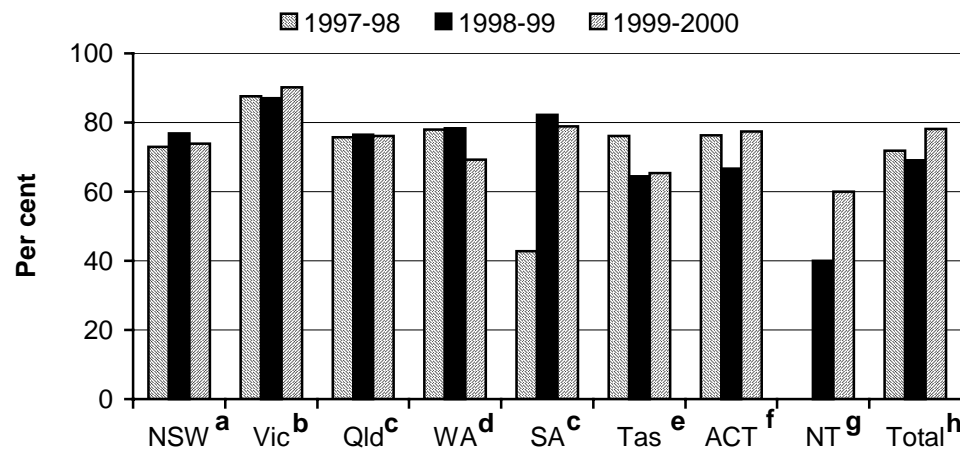
Figure 11.12 Fire response times^{a, b, c, d, e, f, g}



^a Definitions of response times may vary from jurisdiction to jurisdiction. Also, some agencies use a manual system to calculate response time figures while other services retrieve the data from computer aided dispatch systems. For comparability purposes, figures for 1999-2000 relate to structural fires only. ^b NSW data excludes rural fire service data, but includes responses to calls outside NSW Fire Brigades designated fire districts. Due to an industrial ban, 1999-2000 figures are derived from a sample representing 80 per cent of incident data. ^c Victorian data for 1997-98 and 1998-99 have been amended to relate to structure fires only for full comparability with 1999-2000 figures. The Victorian Country Fire Authority records response times from the time the brigade receives an emergency call. ^d Queensland data excludes Rural Fire Service. ^e WA data for 1997-98 and 1998-99 data excludes Bush Fire Brigades. ^f Tasmanian data includes urban and rural fire services. ^g Due to industrial bans, in the ACT 1998-99 and 1999-2000 figures are based on extrapolated results.

Source: table 11A.12.

Figure 11.13 Structural fires contained to the object/room of origin



^a 1998-99 and 1999-2000 data excludes Rural Fire Service data, but includes responses to calls outside NSW Fire Brigades designated fire districts. Due to an industrial ban, 1999-2000 figures are derived from a sample representing 80 per cent of incident data. ^b Includes Metropolitan Fire and emergency Services Board only. ^c Excludes the Queensland Rural Fire Service and SA Country Fire Service respectively. ^d 1997-98 and 1998-99 data excludes the Bush Fire Brigades. ^e Data includes urban and rural fire services. ^f As a result of industrial bans, data for 1998-99 and 1999-2000 are based on extrapolated results. ^g 1997-98 data are not available. ^h 1997-98 data excludes the NT.

Source: table 11A.13.

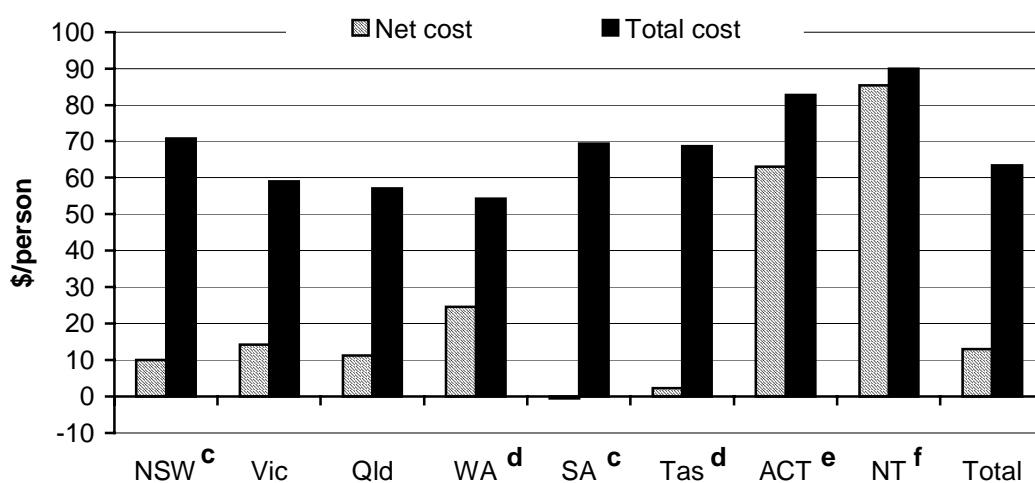
Efficiency

The indicator of efficiency is the level of inputs per person in the population. The quality of unit cost data has improved following the reporting the user cost of capital and payroll tax estimate for the first time this year. Despite the improvement in quality, the data is still not fully comparable because of differences in the reporting of payroll tax and asset-related costs.

Expenditure is reported as both the total cost (total expenditure) and net cost (expenditure less non-government revenue) to government of fire services. Total expenditure is a measure of efficiency for fire services and net cost a measure of the cost to government. Both are reported for the first time this year because non-government revenue is significant for a number of jurisdictions (see chapter 2, section 2.2).

Nationally, the net cost to government per person in 1999-2000 was \$13. The highest level of fire expenditure less non-government revenue per person in 1999-2000 was in the NT (\$85 per person) and the lowest level was in SA (-\$0.5 per person) (figure 11.14).

Figure 11.14 Total cost and net cost to government, 1999-2000^{a, b}



^a Revenue from non-government sources includes levies on insurance companies and property owners, user charges and fundraising and donations. ^b Population figures have been adjusted to represent population coverage by fire agencies. ^c Negative item is due in part to the accounting treatment of the restructured entities. ^d Excludes the user cost of capital. ^e Does not include adjustment for payroll tax exempt status. ^f Excludes depreciation.

Source: table 11A.15.

11.5 Key performance indicator results — ambulance services

An indicator framework for ambulance services (figure 11.15) has also been developed from the generic framework for all emergency services.

Performance has been reported for a number of indicators, but different delivery contexts, locations and types of client may affect these indicators. Appendix A contains detailed statistics and short profiles on each State and Territory, which may assist in interpreting the performance indicators presented in this section.

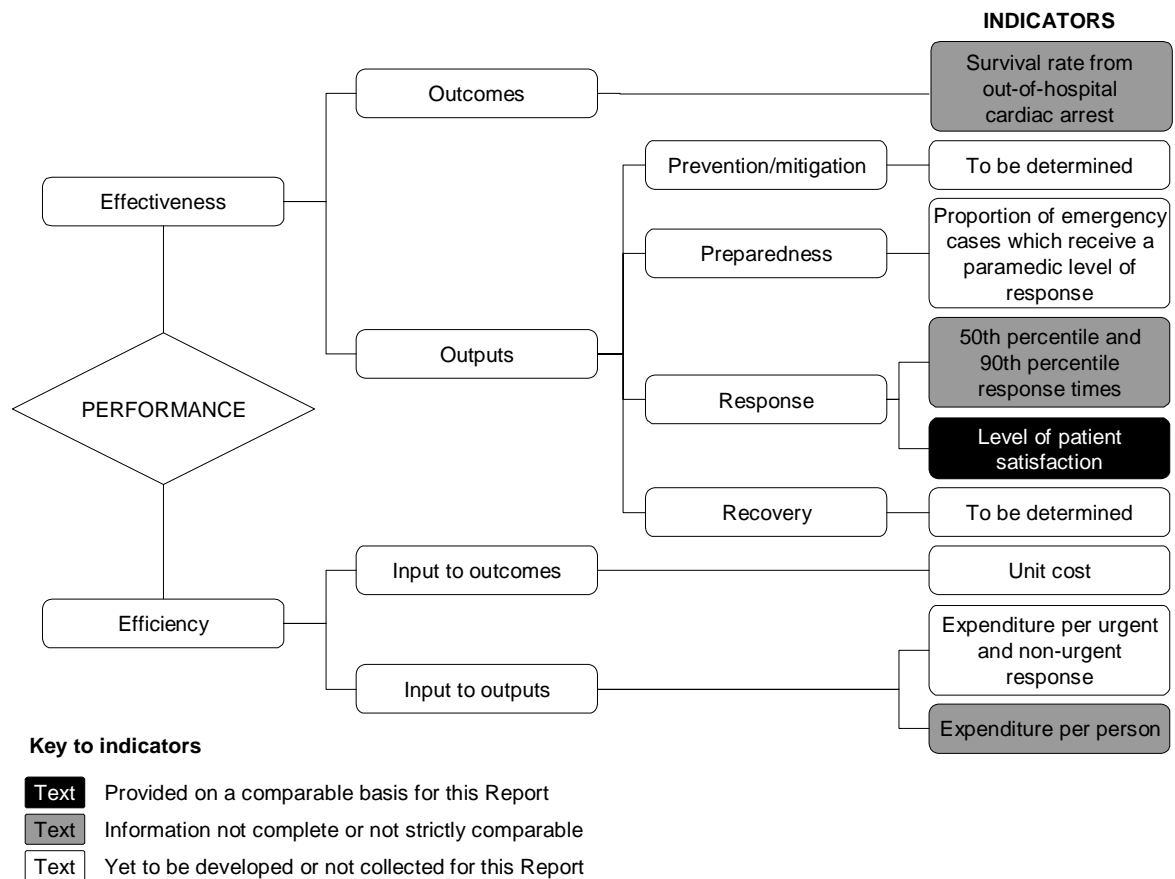
Effectiveness

Outcomes

The survival rate from out-of-hospital cardiac arrest is a measure of the outcomes achieved by ambulance services, and is reported for the first time this year. Queensland and WA were the only jurisdictions able to provide data for this indicator (16 per cent and 9 per cent respectively), which is reported for the first time in this Report (table 11A.19). The ACT was able to provide this data only as a

six year moving average to overcome the potential error from the ACT's small population, and so consequently has not been formally reported.

Figure 11.15 Performance indicators for ambulance services



Outputs

Prevention

Prevention focuses on the extent to which community education programs improve the health and safety in the community — for example, the effectiveness of first aid training courses. The role of ambulance services in the prevention of medical emergencies differs across jurisdictions, so indicators of effectiveness in terms of prevention are yet to be developed.

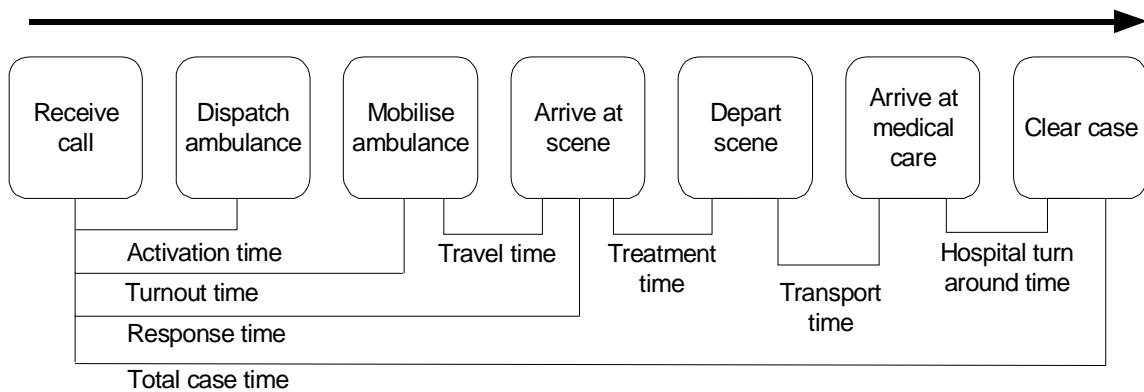
Preparedness

The ability of ambulance services to dispatch staff with a paramedic level of training quickly to a medical emergency requiring such a level of response is an indicator of their preparedness for such emergencies. No data were available for this indicator for this Report.

Response

The response time is defined as the time taken between the initial receipt of the call for an emergency ambulance to the ambulance's arrival at the scene of the emergency (figure 11.17).

Figure 11.16 Response time points and indicators

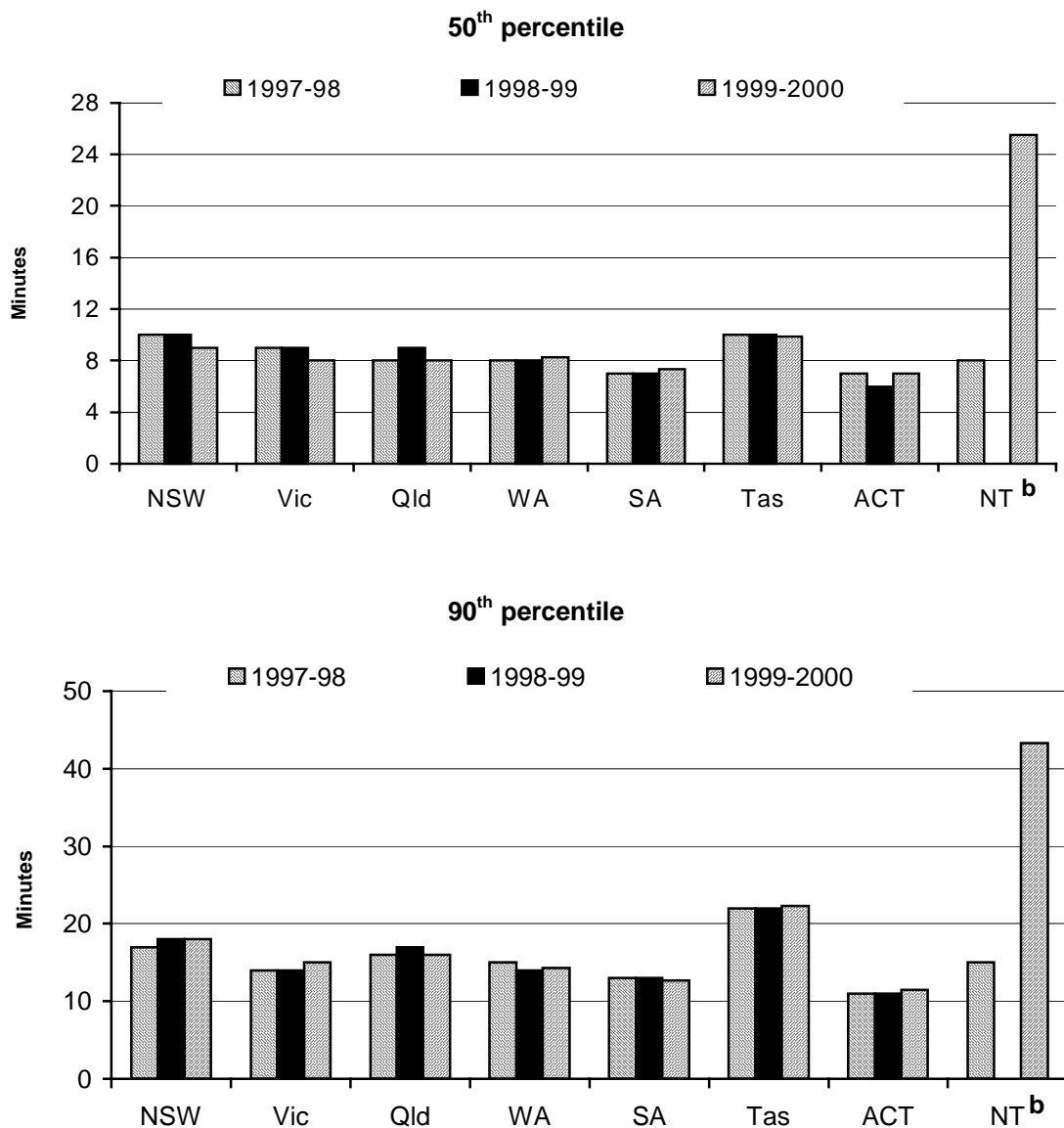


Emergency responses are categorised by an assessment of the severity of the medical problem. These categories are:

- code I — responses to potentially life threatening situations using warning devices; and
- code II — responses to acutely ill patients (not in life threatening situations) where attendance is necessary but no warning devices are used.

The level of responsiveness is reported as the times during which 50 per cent and 90 per cent of first responding ambulance resources actually respond in code I situations (figure 11.18). Data for WA include only metropolitan ambulance services. Response times can be affected by factors such as the dispersion of the population. Information is also reported on the national level of patient satisfaction and the national level of community satisfaction.

Figure 11.17 Response times^a



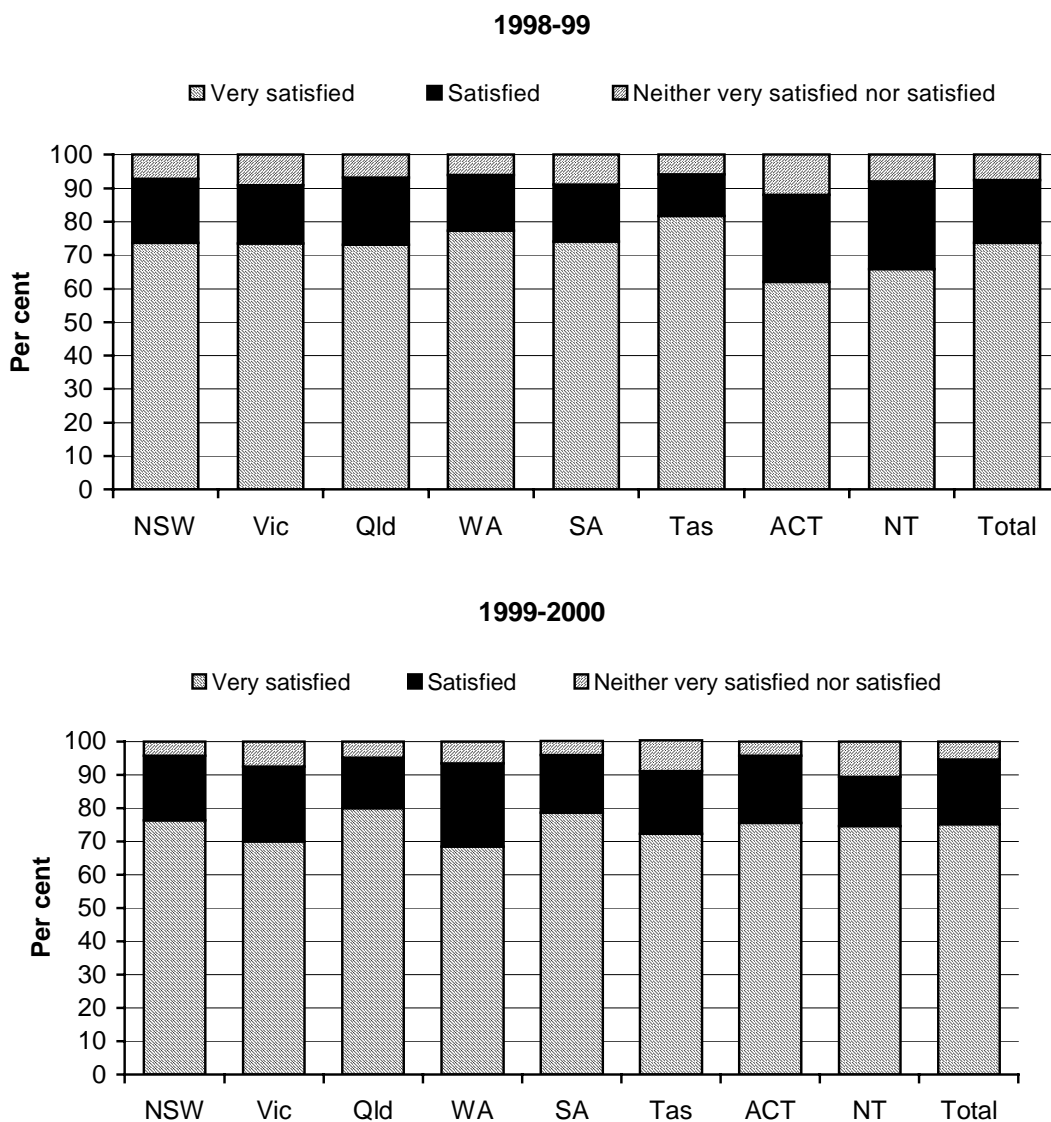
^a NSW 1997-98 and 1998-99 data include Metropolitan Ambulance Service only. ^b Data was not available for 1998-99.

Source: table 11A.20.

In 1999-2000, the 50th percentile response time — the time within which 50 per cent of first ambulance resources actually responded — was highest in the NT (26 minutes) and lowest in SA and the ACT (7 minutes). The 90th percentile response time in 1999-00 was highest in the NT (43 minutes) and lowest in the ACT (11 minutes) (figure 11.18).

The performance of ambulance services in providing response services can be measured in terms of the satisfaction of those persons who did and did not directly use the service (figure 11.19)

Figure 11.18 **Satisfaction with ambulance services, persons who had used ambulance service in the previous 12 months^a**



^a Data are obtained quarterly for persons aged 18 years and over. Caution should be used where there are small differences in the results, which are affected by sample and estimate size (see section 11.8).

Source: table 11A.21.

Nationally, 9 per cent of the population surveyed between November 1998 and August 2000 (providing data for 1998-99 and 1999-2000) had used an ambulance in the previous 12 months (ABS 2000). The proportion of persons who were either satisfied or very satisfied with ambulance services was higher in all jurisdictions for

those who had used an ambulance service in the previous 12 months compared with those who had not. The proportion of persons who had used an ambulance service who were either very satisfied or satisfied was highest in SA (96 per cent) and lowest in Tasmania (91 per cent) from 1999-2000 (figure 11.19).

Across jurisdictions, the proportion of ambulance users who were either very satisfied or satisfied increased in all jurisdictions except WA, Tasmania and the NT between 1998-99 and 1999-2000 (table 11A.21). However, of persons who had not used an ambulance service from 1999-2000, 80 per cent were either very satisfied or satisfied in Queensland, while 68 per cent were either very satisfied or satisfied in the ACT (table 11A.22).

Recovery

Indicators of effectiveness expressed in terms of recovery are yet to be developed.

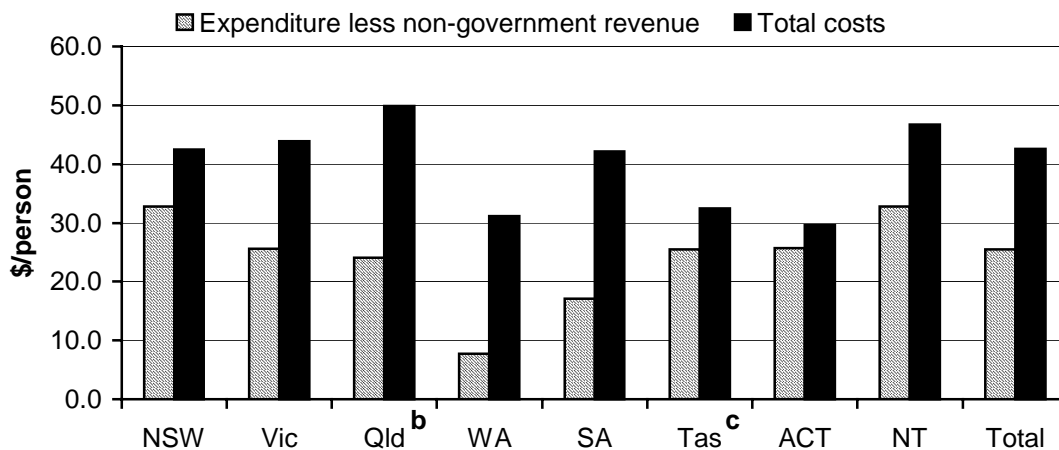
Efficiency

The main efficiency indicator is ambulance expenditure per person. As with fire services, the quality of unit cost data provided by ambulance services has improved following the reporting of the user cost of capital and payroll tax. However, the data is still not fully comparable because of differences in payroll tax exempt status and geography. Expenditure per urgent and non-urgent response will be reported in future Reports.

Expenditure is reported as both the total cost (total expenditure) and net cost (expenditure less non-government revenue) to government of ambulance services. Total expenditure is a more appropriate measure of efficiency for ambulance services, given that non-government revenue is significant for a number of jurisdictions (see chapter 2, section 2.2).

Across jurisdictions, ambulance expenditure less revenue from own sources per person was \$26 per person in 1999-2000. Expenditure less revenue from own sources per person was highest in NSW (\$33 per person) and lowest in WA (\$8 per person) (figure 11.20). Care needs to be taken when comparing data across jurisdictions, because of differences in the reporting of a range of cost items including payroll tax and the user cost of capital.

Figure 11.19 **Ambulance expenditure less revenue from own sources, 1999-2000^a**



^a Revenue from own sources includes subscription fees, transport fees and donations. ^b Includes expenditure on administration of ambulance subscription scheme, first aid training and clinic transport services. ^c Excludes expenditure on ambulance subscription, hospital based transports, independent ambulance services, first aid training, and clinic transport services.

Source: table 11A.24.

11.6 Future directions in performance reporting

Developing indicators and data

The Steering Committee is working with the emergency management sector to improve estimates of unit costs by introducing a more consistent treatment of superannuation costs (see SCRCSSP 1998), payroll tax (see SCRCSSP 1999), depreciation and the user cost of capital. Consistent treatment of these items should improve the comparability and accuracy of unit cost information in future Reports.

Descriptive performance indicators for fire and ambulance services are being improved with the assistance of the Australasian Fire Authorities Council and the Convention of Ambulance Authorities. This improvement is an iterative process, and will be monitored to facilitate a consistent approach by the two organisations. The Steering Committee expects to present these improvements in future Reports.

Increasing the scope of services covered

Other types of emergency for which performance reporting has yet to be developed include: rescues; natural events; technological and hazardous material incidents;

emergency relief and recovery; and quarantine and disease control. A recent Steering Committee survey of State and Territory Emergency Management Committee executive officers across jurisdictions identified which emergency management departments and agencies provide relevant services in these areas.

Information from this survey assisted in determining that the scope of the 2002 Report should be expanded to report separately on emergency rescues. State and Territory emergency services will also be included within the scope of the next Report. It is expected that a framework, indicators and data for emergency rescues will be included for the first time in the 2002 Report. The development of detailed indicators and data collection will be an iterative process extending over several years.

The survey also identified that land management agencies should be included in the scope of the 2002 Report to improve the coverage of data for fires.

11.7 Jurisdictions' comments

This section provides comments from each jurisdiction on the services covered in this chapter. Appendix A contains detailed statistics and short profiles on each State and Territory, which may assist in interpreting the performance indicators presented in this chapter. The information covers aspects such as age profile, geographic distribution of the population, income levels, education levels, tenure of dwellings and cultural heritage (such as aboriginality and ethnicity).

New South Wales Government comments

“ The NSW Government acknowledges the value of nationally comparable performance data and continues to actively participate in the development and collection of performance data for emergency management. Emergency incidents and risks are becoming increasingly complex because of emerging industrial technology and other changes. Performance information, such as presented in this report, contributes to greater understanding of key areas for improvement. In particular, it is used to identify trends and manage risks associated with emergencies; support the effective and efficient delivery of services by judicious use of resources; and to evaluate the effectiveness of strategies.

The data need to be interpreted within the reporting framework presented within the emergency management chapter. There are differences in data standards, collection, validation and reporting of performance information between States and Territories that limit the degree to which comparisons can be made. In many cases, other information will need to be accessed to complement the information given, and provide the reader with a clear and enhanced understanding of performance trends. Data from other sources will allow the reader to draw valid conclusions about performance trends and understand the interrelationships between socio-demographic, economic, geographic, environmental factors and emergencies.

The Government of NSW is committed to improving services to the community through a whole of Government approach to service delivery. One trend involves agencies collaborating in improving telecommunications and information sharing. The Government of New South Wales values information and communications technologies as a means for improving its government services, shaping its economy and connecting its citizens. In the emergency management domain, the use of computerised dispatch systems and improved incident and hazard data are enabling better deployment of emergency services to manage community risk. Another important trend involves NSW Government agencies collaborating to strengthen the capabilities of local communities to minimise the impact of emergencies on the people, commerce and the environment. This joint local risk management and planning, includes mutual aid agreements between emergency services and an increasing community education and community development role for emergency services. ”

Victorian Government comments

“

The Victorian Government is committed to contributing to the improved reporting and comparability of operational and financial information of services in emergency management. Comparative information in the chapter shows that Victorian fire and ambulance services continue to deliver efficient, effective services to the community.

In keeping with its commitment to maintain the separate identities of the fire services while ensuring maximum resource sharing and consistent service to the community, the Victorian Government has appointed an Emergency Services Commissioner, whose role includes:

- establishing and monitoring performance standards for the fire services, including the development of a standard model of fire cover for Victoria;
- overseeing more effective utilisation of the common resources of the fire services and VicSES;
- being Executive Officer for the Victoria Emergency Management Council.

Melbourne's Emergency Medical Response pilot program was expanded during the year to cover the whole metropolitan fire district. Evaluation of the program is assessing the extent to which it achieves improved response times to cases of suspected cardiac arrest through the simultaneous dispatch of ambulance and suitably trained and equipped fire units.

For the first time this year, Victorian ambulance response times are reported for the whole state; previously only metropolitan response times were reported.

A prevention strategy, titled 'Key to Survival', aimed at increasing the survival rate for 'out of hospital' cardiac arrest is continuing to train Victorians in cardio-pulmonary resuscitation with over 10,000 people trained in 1999-2000.

The Government is also continuing the major expansion of ambulance services in Melbourne, with two new MICA Paramedic teams and additional peak period units established in 1999-2000. Metropolitan ambulance resources are being increased by about 25% over a two year period to June 2001. This is aimed at improving response time performance in the face of continuing growth in demand.

Initiatives to improve ambulance services in Regional and Rural Victoria include providing additional resources including an additional helicopter, extension of two officer crewing, provision of intensive care paramedics and Advanced Life Support skills availability. Rural Ambulance Victoria is also developing a comprehensive Service Delivery Plan for future development of its services.

Ambulance services are progressing initial implementation of electronic data capture in the field through the Victorian Ambulance Clinical Information System (VACIS). This system will support the development of evidence-based approaches to clinical practice.

”

Queensland Government comments

“ The Department of Emergency Services is unique in Australia, with services relating to all phases of emergency and disaster management (prevention, preparedness, response and recovery) delivered by all emergency services (fire, ambulance and counter disaster and rescue) across a single Portfolio. This single portfolio approach provides significant advantages and benefits to the community from having a single point ministerial accountability through to the cooperation and teamwork of officers assisting members of the community in emergencies or disasters. In addition, the Department is represented in every community in Queensland regardless of size.

The Department works in partnership with over 85 000 volunteers from the Rural Fire Service, State Emergency Service, Queensland Ambulance Service and Volunteer Marine Rescue services who are fundamental to Queensland's system of service delivery, particularly to rural and remote communities. Comprehensive support, particularly training and essential equipment for volunteers, remains an important issue for the Department.

The past few years has demonstrated the value of employing preventative measures and mitigation strategies to minimise the likelihood and impact of emergencies and disasters. All operational services in Queensland will continue to focus on the delivery of effective prevention and community safety education programs such as the Queensland Fire and Rescue Authority's Safehome initiative and the Queensland Ambulance Service's CPR 2000 strategy and a continuing expansion in community education and first aid training.

Queensland is one of Australia's most decentralised States with high population densities and growth rates along the coast and in the South East of the State, geographically isolated communities, an ageing population and a large mobile population all create service delivery challenges. Managing and maintaining appropriate levels of resources to provide services that reflect demographic and demand profiles within communities will continue to be a key priority. For example, the Queensland Ambulance Service has established an Aboriginal and Torres Strait Islander Coordination Unit to develop and implement a comprehensive policy framework that aims to improve ambulance services to Aboriginal and Torres Strait Islander people and communities.

The tragic deaths of 15 young people as a result of a fire in the Palace Backpackers hostel in the township of Childers on 23 June 2000 contributed to an increase in Queensland's fire death rate in 1999-2000. This incident received national and International media attention and raised a number of issues in regard to fire safety in budget accommodation in Queensland. These issues are being progressively addressed though recommendations made by the cross-department Building Fire Safety Taskforce established as a result of the Childers incident.”

South Australian Government comments

“

The South Australian Government has committed to the following strategic priorities for emergency services to better achieve outcomes in Public Safety:

- Introducing a funding system that is equitable, transparent, accountable and integrated with strategic and risk-based management;
- Revising structural and governance arrangements to deliver services more effectively and efficiently;
- Increasing support for voluntarism and regional communities;
- Collocating emergency services as necessary for integrated service delivery;
- Introducing a strategic framework for allocating and managing resources;
- Adopting a strategic approach to providing emergency services;
- Achieving more cost effective delivery of emergency services; and
- Improving telecommunications facilities for emergency services and Police.

The creation of the Emergency Services Administrative Unit (ESAU) on 1 July 1999 followed the establishment of the Community Emergency Services Levy and the Community Emergency Services Fund (CESF) as a third critical element of the emergency services' reform agenda. ESAU was formed by amalgamating the non-operational components of the South Australian Metropolitan Fire Service (SAMFS) and the Country Fire Service (CFS). The State Emergency Service became part of ESAU. ESAU provides a range of support and strategic services to the SAMFS, CFS and SES and provides strategic advice to the CESF, which directly advises the Minister on the allocation of funding.

Within the Emergency Services Ministerial portfolio, the SA Ambulance Service (SAAS) is a stand-alone agency that is not funded by the CESF, except for that component of its activity specifically relating to rescue. SAAS continues to work closely with the Fire and Emergency Services to ensure effective management of incidents. SAAS continues to pursue co-location with these Services wherever feasible, conducts and is party to state disaster planning and regular exercises involving all emergency agencies and is heavily involved in a number of multi-agency projects. SAAS is represented on the State Disaster Committee.

Major emergency management initiatives for 2000/2001 include:

- Developing a Strategic Directions Framework for all emergency services to provide a context for agency planning and performance measurement;
- Collaboratively developing Emergency Services Resourcing Standards for optimal resource allocation and management;
- Revising and upgrading all Service Level Agreements and ESAU's Strategic Plan; and
- Listing Emergency Management Risks and an associated work plan for consideration by the Emergency Management Council.

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Tasmanian Government comments

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Tasmania has a number of key issues which impact on the provision of both fire and ambulance services throughout the State. These issues include:

- the small population and subsequent lack of economies of scale;
- the widely dispersed population which affects response times and hence the number of fires extending beyond the room of origin (Tasmania has the largest proportion of rural population of all jurisdictions);
- the reliance on volunteers in rural and remote areas affecting turnout times; and
- rugged topography, which impacts on response times and infrastructure costs.

Fire Services: Notwithstanding these issues Tasmania is the only jurisdiction that includes data for both rural and urban incidents for all performance indicators. The State's performance is competitive in comparison to other jurisdictions, however, if rural data were omitted, as is the case for many other jurisdictions, the State's relative performance would be considerably higher in comparison.

Tasmania Fire Service (TFS) is comprised of four career brigades and 235 volunteer brigades. All incidents attended by TFS brigades are reported on, and the TFS bears the full cost of funding both the operating and capital costs of these brigades.

The 1999-2000 fire season began early and continued through to late autumn 2000. Near record low rainfall across Tasmania during autumn and winter 1999 resulted in high levels of combustible fuels present throughout the State. These conditions contributed to the TFS attending more than twice the number of bush and scrub fires in comparison to the previous year.

In 1999-2000 TFS increased its commitment to fire prevention and the fostering of greater fire safety in the community. *Project Wake Up!* was launched in the winter of 1999 with the objective of improving the safety of elderly and disabled householders. The program offers free home fire safety checks and smoke alarms and will reach many of the 20 per cent of households that do not currently have a smoke alarm fitted.

Ambulance Services: Tasmanian is the only State which provides free ambulance services to the general public and as a consequence there is a far greater reliance on government funding to supplement reduced income.

Expenditure on ambulance service provision in Tasmania does not include expenditure on operating an ambulance subscription scheme as do most other States; nor does it include expenditure on first aid education.

Tasmania continues to train a far greater proportion of its salaried ambulance personnel to ALS or paramedic level than most jurisdictions, with up to 70 per cent of all emergencies in Tasmania responded to at the paramedic level.

Australian Capital Territory Government comments

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The ACT is unique and fundamentally different to other jurisdictions in a number of aspects relevant to Emergency Management. The relatively small geographic size of the Territory; the fact that the ACT has city/state functions; and a high proportion of urban area, all impact on the provision of emergency services. There are no other counterparts in Australia that provide both territorial (state) and municipal functions in the one government structure. In addition the revenue raising capabilities of some other jurisdictions are greater and more flexible than those of the ACT.

In the ACT the focus in Emergency Management is on the delivery of outputs by cooperation of all emergency agencies in partnership with a prepared community. Output classes for the ACT Emergency Services Bureau are based on the national emergency management principles of Prevention/Mitigation, Preparedness, Response and Recovery and are not individually identified against the specific emergency agency. The Emergency Management arrangements in the ACT reflect both territorial (state) and municipal funding arrangements in the budget of the ACT Emergency Services Bureau. The Bureau's Standards of Emergency Response are time and risk based and the positioning of resources reflect the impact of the multiple town centres, "greenbelts" and Commonwealth assets of National importance.

The expenditure per person result for the ACT reflects the full accrual cost (including a capital charge) of the provision of emergency management activities, not just fire and ambulance services. As such, it incorporates costs associated with the provision of the Territory Emergency Service and broader Emergency Management activities which are not reported by other jurisdictions. Similarly, some municipal (local government) costs associated with the provision of rural fire services are not reported by other jurisdictions but are included in the ACT figure. In addition expenditure in the ACT does not include expenditure on operating an ambulance subscription scheme as do most other States nor does it include expenditure on community first aid education as is the case in some other jurisdictions. In summary there are ACT costings not included in other jurisdictions expenditure making cost comparisons between jurisdictions invalid.

All of the ACT's emergency service agencies continue to focus on preventative programs. Significant activities were completed to manage and minimise the effects of any potential emergencies that were likely to emerge from Y2K. The ACT Fire Brigade introduced a program to help educate children and adolescents who may light fires so as to prevent them from becoming habitual fire lighters. The Fire Brigade also provided a station officer to be part of the UN Disaster Assessment and Coordination team at the Taiwan earthquake site. The ACT Ambulance Service continued to provide the operational capability for the Snowy Scheme Southcare aero-medical rescue service. The Bureau fire agencies, in conjunction with the Land Management Agencies undertook a 2 yearly update of the Bushfire Fuel Management plans.

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Northern Territory Government comments

“ As with previous reports, the Ambulance Service in the Northern Territory (NT) has not commented on in this chapter. St John Ambulance is an incorporated non-profit organisation and work under a contract arrangement with Territory Health Services, an agency of the Northern Territory Government.

The Northern Territory Fire and Rescue Service (NTFRS) is an agency of Government and operates through Police, Fire and Emergency Services (PFES) under the command of the Chief Executive Officer, the Commissioner of Police.

During the past 12 months, the NTFRS have been primarily focused on improving outcomes in relation to Prevention, Preparedness, Response and Recovery (PPRR). Positive outcomes associated with PPRR in 1999/2000 are once again reflected in the low cost of fire damage attributed to structure fires throughout the NT. Grass and scrub fires were significantly down on figures from last year, as were hazardous materials incidents and rescues from motor vehicle accidents.

Prevention strategies such as hazard reduction planning, hazard reduction burning on Crown land, a more stringent approach to the enforcement of legislation regarding fire breaks and uncleared blocks has had a dramatic affect on the number of grass and scrub fires throughout the Territory.

To enhance response capabilities, PFES are now working in a combined communications centre, which incorporates all areas of emergency response including Police, Fire, St John Ambulance and Emergency Services. The facility also houses the Emergency Operations Centre, which has already seen extensive use during the East Timorese Refugee Operation, the Y2K situation and the floods due to Tropical Cyclone Steve in March 2000. NTFRS communications have further been enhanced now that the NTFAST fire alarm monitoring system has been installed in all of the major centres throughout the NT.

A new fire station was built at Yulara which was completed during 1999 at a cost of \$1M. A new Freightliner pumping appliance was purchased for Darwin and a 3000 litre pumper/tanker was also purchased for the township of Nhulunbuy. Government also approved an increase to the staffing level of the NTFRS with an injection of \$0.488M to increase the number of career firefighters from 133 to 141. The new firefighters will be located in Alice Springs and Darwin and along with the fire station and the new vehicles, will enhance the response capabilities in each of the affected Emergency Response Areas.

Volunteer resources have been improved with the purchase of a three thousand-litre tanker for the community of Nguuiu on Bathurst Island. A further three tankers will be purchased in the coming months to further improve volunteer resources.

School based education continues to play an important part in the Public Education program and school children continue to be the major focus of the NTFRS in this area.”

11.8 Information on sample data

Some of the results reported are estimates obtained by conducting surveys of samples of the group or population in question. Results are therefore subject to *sampling error*. The data obtained from a sample may be different from the ‘true’ data that would have been obtained from the entire group or population — not just a sample — using the same methods. Consequently, when using survey results, it is necessary to be cautious (see section A, appendix A, for further details).

The *standard error* is a measure of sampling error. It indicates the extent to which the estimate may differ by chance from the ‘true value’ because only a sample was taken. If the survey is performed repeatedly, the difference between the sample estimate and the population value will be less than one standard error about 68 per cent of the time. The difference will be less than two standard errors 95 per cent of the time. It will be less than three standard errors 99 per cent of the time. Another way of expressing this is to say that in 68 (95, 99) of every hundred samples, the estimate obtained from a single survey will be within one (two, three) standard errors of the ‘true’ value.

The chance that an estimate falls within a certain range of the true value is known as the confidence of the estimate. For any particular survey, there is a tradeoff between the confidence of the estimate (68 per cent, 95 per cent or 99 per cent) and the acceptable range of error (in terms of standard errors) attached to the estimate. The appropriate level of confidence chosen depends on the purpose of obtaining the estimate.

The *relative standard error* is the standard error expressed as a percentage of the estimate to which it relates. It indicates the margin of error that should be attached to the estimate. The smaller the estimate, the higher is the relative standard error.

Table 11.10 presents the relative standard errors associated with Population Survey Monitor estimates by jurisdiction. The Population Survey Monitor estimated, for example, that over the four quarters from November 1999 to August 2000, 95 per cent of households in Victoria (or 1 643 000) installed an operational smoke alarm or smoke detector (table 11A.11). Table 11A.11 shows that the associated relative standard error is 1.4 per cent. There is a 68 per cent probability that the proportion of the population having the device installed is within one relative standard error of the estimated proportion. We can be 68 per cent confident that the true value lies between 95 per cent plus or minus 1.4 per cent of 95 per cent — that is, 93.7 per cent to 96.3 per cent. (*Note*: this is not equivalent to 94 per cent plus or minus 1.4 per cent.) We can be 95 per cent confident that the true value lies within

two relative standard errors — that is, between 92.3 per cent and 97.7 per cent. The higher the level of confidence, the less precise the estimate is likely to be.

Table 11.5 Relative standard error of estimates for four quarters of the Population Survey Monitor (per cent)^a

<i>Estimate</i>	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>	<i>Aust</i>
1 000	110.0	120.0	90.0	70.0	80.0	50.0	40.0	40.0	80.0
2 000	85.0	85.0	75.0	55.0	60.0	35.0	25.0	30.0	65.0
5 000	58.0	58.0	52.0	38.0	40.0	22.0	14.0	18.0	46.0
10 000	43.0	43.0	38.0	27.0	28.0	16.0	9.0	12.0	36.0
20 000	31.0	30.5	27.5	19.0	20.0	10.5	6.0	8.0	26.5
50 000	19.2	18.8	17.0	11.2	12.2	6.2	3.2	4.6	17.0
100 000	13.0	12.7	11.4	7.3	8.2	4.0	1.9	2.9	11.9
200 000	8.6	8.4	7.4	4.6	5.5	2.5	1.1	1.8	8.1
500 000	4.7	4.7	4.0	2.3	3.1	1.3	..	..	4.7
800 000	3.4	3.4	2.9	1.6	2.3	..	..	..	3.5
1 000 000	2.9	2.9	2.4	1.4	2.0	..	..	..	3.0
1 500 000	2.2	2.2	1.8	1.0	1.5	..	..	..	2.3
2 000 000	1.8	1.8	1.4	0.8	1.2	..	..	..	1.8
5 000 000	0.9	0.9	0.7	0.3	0.6	..	..	..	0.9

^a The Australian Bureau of Statistics considers that only estimates with relative standard errors of 25 per cent or less are sufficiently reliable for most purposes. Estimates greater than 25 per cent are subject to sampling variability too high for most practical purposes; they should be treated with caution and viewed as merely indicative of the magnitude involved. .. Not applicable.

Source: ABS (2000).

11.9 Definitions

Table 11.6 Terms

<i>Term</i>	<i>Definition</i>
Alarm notification not involving fire	Fire alarm notification due to the accidental operation of an alarm, the failure to notify fire services of an incorrect test by service personnel or a storm induced voltage surge.
Ambulance expenditure	Includes salaries and payments in the nature of salaries to ambulance staff, capital expenditure (such as depreciation and user cost of capital) and other operating expenditure (such as running expenditure, contract expenditure, provision for losses and other recurrent expenditure). Excludes interest on borrowings.
Ambulance non-government revenue	Includes revenue from subscription fees, transport fees, donations and other non-government revenue. Excludes funding revenue from Commonwealth, State and local governments.
Ambulance staff	Any person employed by the ambulance service provider who delivers an ambulance service, manages the delivery of this service or provides support for the delivery of this service. This includes salaried, volunteer and retained ambulance staff.
Emergency ambulance response	An emergency ambulance response to a pre-hospital medical incident or accident which necessitates the use of ambulance warning devices.
False report	An incident in which the fire service responds to and investigates a site, and may restore a detection system.
Fire death	A fatality that the reporting officer deems as directly attributable to the incident or the action of handling the fire incident. Excludes fatalities where a fire conceals a death that occurred before the fire incident. This information may be verified by coronial information.
Fire expenditure	Includes salaries and payments in the nature of salaries to fire staff, capital expenditure (such as depreciation and user cost of capital) and other operating expenditure (such as running expenditure, training expenditure, maintenance expenditure, communications expenditure, provision for losses and other recurrent expenditure). Excludes interest on borrowings.
Fire non-government revenue	Includes revenue from levies on insurance companies and property owners, user charges (such as subscriptions and other fees) and other non-government revenue (such as sale of plant and equipment, donations and industry contributions). Excludes funding revenue from Commonwealth, State and local governments.
Fire incident	A fire that is reported to a fire service and requires a response.
Fire injury	An injury resulting from a fire or flames, requiring admission to a hospital. Excludes emergency department outpatients.
Fire safety measure	<ul style="list-style-type: none"> • Operational smoke alarm or detector • Fire sprinkler system • Safety switch or circuit breaker • Fire extinguisher • Fire blanket • Fire evacuation plan • External water supply • The removal of an external fuel source

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Table 11.6 (Continued)

<i>Term</i>	<i>Definition</i>
Fire staff	<ul style="list-style-type: none"> • External sprinkler • Other fire safety measure Any person employed by the fire service provider who delivers a firefighting or firefighting related service or manages the delivery of this service. This includes paid and volunteer firefighters and support staff.
Non-emergency ambulance response	A non-emergency ambulance response which does not necessitate the use of ambulance warning devices.
Non-structural fire	A fire outside a building or structure including a fire involving mobile properties (such as vehicles), a rubbish fire, a bush or grass fire, and an explosion.
Other incident	An incident other than fire that is reported to a fire service and requires a response. This may include: <ul style="list-style-type: none"> • an overpressure rupture (for example, steam or gas), explosion or excess heat (no combustion); • a rescue (for example, industrial accidents or vehicle accidents); • a hazardous condition (for example, escape of hazardous materials); • salvage; and • a storm or extreme weather.
Paramedic response	A level of emergency care categorised as advanced life support
Response time	The interval between the receipt of the call at the dispatch centre and the arrival of the vehicle at the scene (that is, when the vehicle is stationary and the handbrake is applied).
Structural fire	A fire inside a building or structure, whether or not there is damage to the structure.
Urgent ambulance response	An urgent ambulance response to a pre-hospital medical incident or accident which does not necessitate the use of ambulance warning devices.
User cost of capital	Calculated as eight per cent of the current value of non-current physical assets (including land, plant and equipment).

Table 11.7 Indicators

<i>Indicator</i>	<i>Definition</i>
50th percentile ambulance service response times	The time at which 50 per cent of first ambulance resources actually respond.
50th percentile fire service response times	The time at which 50 per cent of first fire resources actually respond.
Fire death rate	The number of fire deaths per 100 000 persons in the total population.

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Table 11.8 (Continued)

<i>Indicator</i>	<i>Definition</i>
Fire injury rate	The number of fire injuries per 100 000 persons in the total population.
90th percentile ambulance service response times	The time at which 90 per cent of first ambulance resources actually respond.
Median dollar loss per structural fire	The median (middle number in a given sequence) of the structural loss in \$'000 per structural fire incident.
90th percentile fire service response times	The time at which 90 per cent of first fire resources actually respond.
Structural fire contained to object or room of origin	A fire where direct fire/flame is contained to the room of origin (that is, excludes wildfires and vehicle fires in unconfined spaces). A room is an enclosed space, regardless of its dimensions or configuration. This category includes fires in residential and non-residential structures.
