Australian Disaster Resilience Handbook Collection

HANDBOOK 15

Safe and Healthy Crowded Places

Australian Institute for Disaster Resilience

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AUSTRALIAN DISASTER RESILIENCE HANDBOOK COLLECTION

Safe and Healthy Crowded Places

Handbook 15

Australian Government
Department of Home Affairs

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The Handbook Collection:

- provides an authoritative, trusted and freely available source of knowledge about disaster resilience principles in Australia
- aligns national disaster resilience strategy and policy with practice, by guiding and supporting jurisdictions, agencies and other organisations and individuals in their implementation and adoption
- highlights and promotes the adoption of good practice in building disaster resilience in Australia
- builds interoperability between jurisdictions, agencies, the private sector, local businesses and community groups by promoting use of a common language and coordinated, nationally agreed principles.

The Handbook Collection is developed and reviewed by national consultative committees representing a range of state and territory agencies, governments, organisations and individuals involved in disaster resilience. The collection is sponsored by the Australian Government Department of Home Affairs.

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Handbook 1 Disaster Health

Handbook 2 Community Recovery

- **Toolkit 2-1** Community recovery checklists
- **Toolkit 2-2** Further resources for community recovery
- **Toolkit 2-3** Community recovery case studies

Handbook 3 Managing Exercises

Handbook 4 Evacuation Planning

Handbook 5 Communicating with People with a Disability: National Guidelines for Emergency Managers

Handbook 6 National Strategy for Disaster Resilience: Community Engagement Framework

Handbook 7 Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia

- **Guideline 7-1** Using the National Generic Brief for Flood Investigations to Develop Project Specific Specifications
- **Guideline 7-2** Flood Emergency Response Classification of the Floodplain
- **Guideline 7-3** Flood Hazard
- **Template 7-4** Technical Project Brief Template
- **Guideline 7-5** Flood Information to Support Land-use Planning

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Handbook 12 Communities Responding to Disasters: Planning for Spontaneous Volunteers

Handbook 14 Incident Management in Australia

Handbook 15 Safe and Healthy Crowded Places

Guideline 1 Crowded Places Checklists

Reference Crowded Places Further Resources

Handbook 16 Public Information and Warnings

Australian Emergency Management Manual Series

Publications in the Australian Emergency Management Manual Series have not been reviewed since 2011 or earlier. The Manual Series is undergoing a review which will see relevant manuals either moved into the Handbook Collection or other collections or archived. Current and past manual editions will remain available on the Knowledge Hub.

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Preface

Context

In 1999, the *Safe & Healthy Mass Gatherings* manual was developed to provide guidance to organisers and regulators on staging public events. Since, there has been significant growth in the quantity, size and impact of events, affecting standards, codes, regulations, legislation and community expectations. During the last twenty years, the focus for management of crowded places has been refined to address risks in event planning, delivery, security, health and community impact.

In 2017 an extensive revision and industry workshopping process began (see Acknowledgements), resulting in the publication of this *Safe and Healthy Crowded Places Handbook* (hereafter referred to as the 'handbook'). This coincided with the launch of *Australia's Strategy for Protecting Crowded Places from Terrorism* which was published in 2017.

Scope

This handbook outlines nationally agreed principles for safe and healthy crowded places, and draws from national and international strategies, policies, guidelines, standards and doctrine. This handbook is multidisciplinary in nature and addresses wide-ranging, applicable topics. Its expanded scope covers issues presented by crowded places and mass gatherings at events and reflects changes in contemporary terminology and heightened focus in Australia and internationally. The handbook now covers places that have predicted crowds some or all of the time – airports, beaches, shopping centres – and places attracting a one-off crowd like a festival or concert.

The principles in the handbook are to be used to provide guidance for planning in relation to safe and healthy crowded places and should not be viewed as binding or mandating an activity. The handbook should be read in conjunction with *Australia's Strategy for Protecting Crowded Places from Terrorism*. You should also consult relevant legislation, regulations, laws and standards which may provide enforceable requirements regarding crowded places.

Who is this handbook for?

This handbook is for professionals responsible for organising events, managing venues, enacting health and safety protocols, representing local governments, businesses, industry suppliers and emergency services. They may comprise small and large community groups, not-for-profit organisations, corporate entities, professional event management companies and non-government organisations.

This handbook can also be used by site managers that experience crowds which should have existing standard operating procedures (SOPs) and work health and safety policies. The handbook provides an opportunity to consider existing procedures and plan for major changes in crowd size or dynamic.

Local governments that develop policy for safe and healthy events and provide crowded place approvals should use this handbook. Specifically, this includes officers working in event organisation, site operation, risk and emergency management, construction, public health, police matters, legal compliance and environmental protection.

Emergency services, commercial suppliers and sponsors will also find this handbook valuable. Academics, researchers and industry educators who collect and provide information necessary for the industry to reinforce risk resilience will also be interested.

Finally, people who are considering working in the events sector, including students, will find useful information in the handbook.

Using this handbook

This handbook is not intended to offer exhaustive guidance on planning and managing safe and healthy crowded places. However, it is a well-informed and professionally examined starting point. The events management sector and crowded place controls are dynamic; the increasing density and diversity of populations living in urban and regional areas, the proliferation of risk-taking recreational activities, and

advances in available technology all have an impact on a crowded place.

The handbook should be used to prepare plans before an incident or emergency in a crowded place arises, and to maximise the efficiency and effectiveness of any responsive and recovery action. It incorporates principles and guidelines for developing crowded place and site plans applicable to a range of potential hazards that may have an impact on attendees.

Risk management and communication issues have been aggregated to form independent chapters; however, they have implications for all topics of crowded place management. Vignettes are included to help illustrate concepts and demonstrate principles in action. Support materials for this handbook are available online at the Australian Disaster Resilience Knowledge Hub (hereafter referred to as the 'Knowledge Hub'; https://www.knowledge.aidr.org.au/handbooks).

Plans advised herein may be specific to an event, venue, or specific hazard or risk, or be more generic in nature. Plans should be flexible to accommodate variables of time, place and circumstance of an incident or emergency.

This handbook should be read in its entirety, but you are also encouraged to use it as a reference for consulting on specific topics.

The responsibility for managing a crowded place or an event is large, and attendees will rely on the expertise and knowledge of those involved for the maintenance of a safe environment.

CHAPTER OUTLINE

Information across the nine chapters has been kept as simple and locatable as possible, with references to more complex information available for further detail in the supporting *Guideline 1: Crowded Places Checklists* and other companion documents, and on the Knowledge Hub.

Chapters 1–3 should be read first, as they form the fundamental thinking, approach and processes to all chapters. They are guided by the principles, framework and risk management process outlined in ISO 31000, *Risk management – Guidelines*.

Chapter 1: Crowds and risk management

Chapter 2: Communication

Chapter 3: Incident and emergency planning

Chapters 4–9 cover topics relevant to crowds, security, health, first aid and hostile acts. Where practicable, these chapters show the processes involved and plans required in each area; most are variations of the risk management process. The inputs, outputs, heuristics and guidance provided in each chapter form a complete systematic approach.

Chapter 4: Event and venue planning

Chapter 5: Site safety

Chapter 6: Crowd management and security measures

Chapter 7: Public health

Chapter 8: First aid and medical services

Chapter 9: Hostile acts

While the handbook avoids technical or specialist terminology, there are instances where terminology is exact, and no clear, common substitute exists.

Regularly visiting the Knowledge Hub for current resources is recommended.

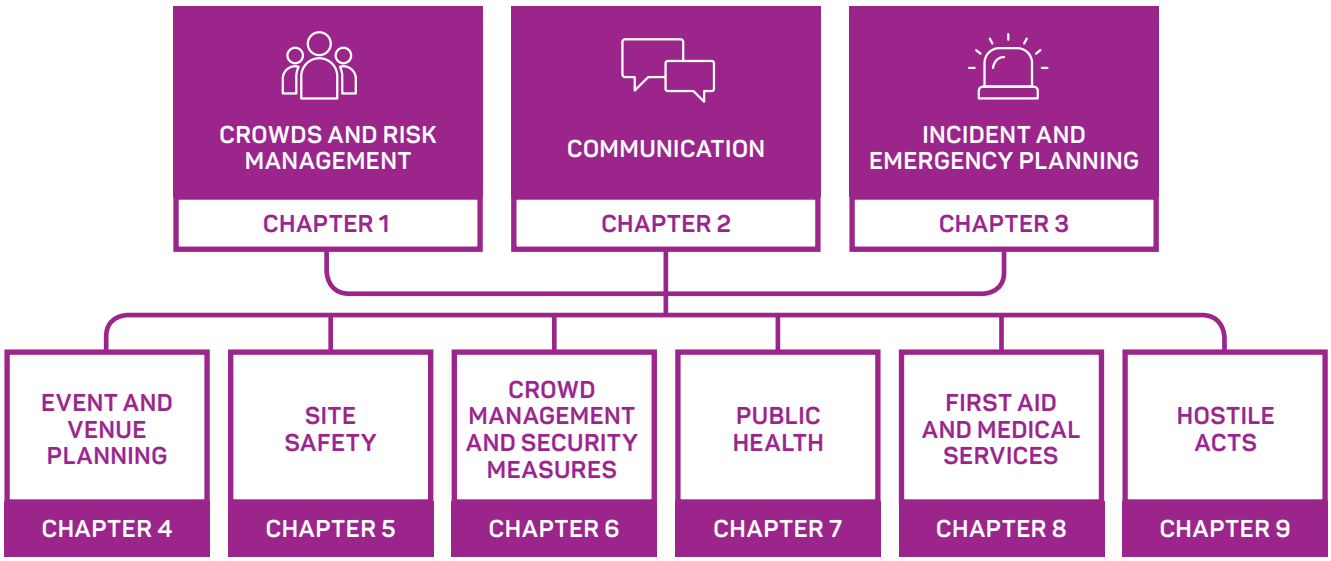


Figure 1 Handbook chapter outline

KEY PRINCIPLES AND ENABLERS FOR SAFE AND HEALTHY CROWDED PLACES

Figure 2 illustrates key principles to guide you in this handbook's approach to planning and managing crowded places. These principles were workshopped and agreed on by the handbook working group.

Place community at the centre

Represents a national shift towards 'community at the centre' that is also part of current national disaster resilience strategy.

Highlights the importance of community cohesion and engagement facilitated by safe and healthy crowded places.

Includes elements such as accessibility of crowded places.

Consider all possibilities

Recognises the identification of all types of hazards and other threats, and thinking through likely risks, as the starting point for all subsequent planning.

Plan early and proportionately to need and risk

Proportional planning recognises the impact of the size, scope, scale and context of the crowded place for planning considerations.

Highlights the importance of taking a needs-based approach to planning and managing crowded places, informed by the identification of risks and consequences in the context of the crowded place.

Engage early, develop partnerships and relationships

Emphasises collaborative, multi-agency approaches to planning and decision making across broad stakeholder groups.

Communicate clearly using common language

Acknowledges the broad audiences that will use the handbook, including those who may not be familiar with planning and emergency and risk management language.

Emphasises the intent of the handbook to provide user-friendly and accessible guidance.

Ensure role clarity and shared responsibility

Reflects shared or collective responsibility outlined in the National Strategy for Disaster Resilience, and highlights the importance of clear accountabilities.

Recognises that shared responsibility does not represent an abrogation of responsibility; rather it acknowledges that everyone has accountability for ensuring crowded places are safe and healthy.

Ensure situational awareness

Reflects the need to be mindful of emerging risks and issues locally and nationally.

Includes awareness within the crowded place and outside in the community.

Encourage safe behaviour and self care

Includes prevention, education and harm minimisation approaches.

Reinforces the concept of shared responsibility including encouraging attendees of crowded places to take personal responsibility for their own wellbeing.

Continually learn and improve

Includes application of lessons learned in the moment and from previous experiences across many crowded places.

Flexible, agile and adaptive approaches.

Figure 2 Safe and healthy crowded places key principles

Figure 3 lists enabling themes that should be considered in each chapter. For example, when considering crowd management, you should ask the following questions:

- How will you manage stakeholder engagement?
- How will you monitor and evaluate the plan?
- What technology will you use?
- What processes will be in place?
- What will the governance structure be?

Figure 3 Enabling themes

TERMS USED IN THIS HANDBOOK

Crowded place – see definition in the *Crowded places* section below.

Attendees is used as a proxy for the various names used for people in all different types of crowded places – for example, patrons, spectators, audience members, worshippers, shoppers and guests. This reflects the culturally diverse nature of crowded places. A crowded place could be a ballet, soccer match, academic conference, music festival, central business district (CBD) peak hour, religious gathering or a shopping centre, to name a few. This handbook is applicable to all.

Management or **managers** is used to refer to the organisation(s) with responsibility for the venue and attendees.

Emergency services is used in this handbook to include police, fire, ambulance and state emergency service organisations.

The *Disaster Resilience Glossary* found on the Knowledge Hub provides further detail on terms and definitions used in emergency and disaster management.

Executive summary

Crowded places are locations easily accessible by large numbers of people. Events create temporary crowded places, and are subject to regulations, standards, codes and acts. A growth in law and policy over the last twenty years has significantly changed how managing crowded places is approached. Years of research and data about crowded places has been translated into meaningful and practicable guidance to promote health and safety.

Clear communication is a critical requirement in managing crowded places, ranging as they do from a handful to millions of people. Although a major incident or emergency may not occur in a crowded place, an assumption that one might should be embedded and communicated in the primary and supporting plans this handbook strongly encourages.

Underlying all chapters is an assumption that management teams shoulder responsibility to interpret the information and seek additional resources where necessary. Management should be able to develop and document all plans, disseminate them to necessary stakeholders and enact them to produce a safe and healthy crowded place.

The responsibility of management to protect their crowd is enormous. The model *Workplace Health and Safety Act* adopted by states and territories places responsibility on the duty holder – the management team of a crowded place. This handbook collects diverse resources to provide the best information at the time of publication. Again, it is not exhaustive or prescriptive.

Finally, it is important to keep in mind that bringing people together to enjoy themselves in a public place is an important and positive influence on society.

Table 1 Key considerations by chapter

Crowded places and risk management	Communication	Incident and emergency planning	Event and venue planning	Site safety	Crowd management and security measures	Public health	First aid, ambulance and medical services	Hostile acts
What you should know	Stakeholder management plan	Preparation and planning	Event plan	Risk management	Crowd planning and the site map	Public health management process	Health planning	Nature of threat
Managing risk	Consultation	Response	Governance requirements	Work health and safety	Site design	Health promotion	Early consultation and engagement	Responsibility
Crowd context	External communication	Recovery and resilience	Venue	Site map	Ingress and egress	Identification of health risks	Coverage	Guidelines
Risk assessment	Internal communication	Debriefing	Staff	Structures	Ticketing	Monitoring health risks	On-site services	Building a national approach
Risk analysis	Response phase	Exercises	The crowd	Communication	Signage and on-site communication	Maintaining compliance		Active Armed Offender (AAO) attacks
Risk evaluation	Documentation	Lessons management	During the event	Environment	Alcohol, drugs and potential weapons	Public health contingency arrangements		
Risk treatment	Briefings		Access and egress	Protestors	Crowd dynamics	On-site staffing		
Responsibilities			Evaluation and debriefs	Information centre	Security personnel	Weather		
Monitoring and review				Maintenance staff	Recruitment and briefing	Food and water		
				Briefings	Deployment	Toilets		
				Specific high-risk areas	Police	Waste management		
						Animals and vegetation		
						Water areas		
						Infection and personal hygiene		
						Off-site impacts		
						Evaluation		

Crowded places

Australia's Strategy for Protecting Crowded Places from Terrorism (the 'Crowded Places Strategy'), 2017, defines crowded places as follows:

> **Crowded places are locations which are easily accessible by large numbers of people on a predictable basis.**

Crowded places include, but are not limited to, sports stadia, transport infrastructure, shopping centres, pubs, clubs, hotels, places of worship, tourist attractions, movie theatres, and civic spaces. Crowded places do not have to be buildings and can include open spaces such as parks and pedestrian malls.

A crowded place will not necessarily be crowded at all times: crowd densities may vary between day and night, by season, and may be temporary, as in the case of sporting events, festivals, or one-off events.

Three different crowd types are given particular consideration in this handbook:

- planned events, such as sporting and music events, festivals and displays
- predicted crowds – places likely to be crowded some or all the time such as airports, shopping centres, CBDs, beaches, schools, universities and transport hubs
- spontaneous crowds, such as gatherings at an incident, spontaneous protests or rallies.

Locations with predicted crowds consider crowd management and safety as part of their SOPs. Management should:

- comply with relevant legislation and codes, such as emergency and evacuation plans
- monitor compliance
- keep up-to-date with changes
- carry out surveillance of the space
- arrange ongoing staff training
- maintain relevant licences, certificates and permissions.

Organised events will likely be affiliated with industry associations, where learnings and experience can be shared.

This handbook might also be used in crowded places when:

- a sudden change in size and demographic of the crowd occurs; during religious celebrations for example, when people travel en masse
- construction or other disruptive physical changes to the space occur
- the crowd number surges beyond the normal capacity of the space
- events such as concerts and product promotions not part of ordinary daily business are staged
- unplanned crowding occurs, such as a protest march
- a place is co-opted as a refuge or emergency triage.

In these situations, crowd management considerations may resemble those for planned events, but there will be a capacity strain to handle new risks. Efficient, time-critical planning is vital in these situations where uncertainty and complexity is common. New resources may be required to manage the alteration to normal practice, and in only *some* cases will management have time to plan for the disruption.

Planning for one type of disruption – for example, construction of a new footpath or the cancellation of transit services – assists in planning for others. Large international sporting organisations like FIFA and the Olympic Games expect detailed legacy impacts on crowded places and surrounding communities as part of their bidding process.

Chapter 1: Crowded places and risk management

SUMMARY OF KEY POINTS

Risk management draws together all areas of managing and operating a crowded place. Each of the chapters that follow builds on this process and information. For example, health and safety requirements have implications for crowd management, and this may also affect the security required to minimise the risk of hostile actions.

The risk management process – context, identification, analysis, evaluation, treatment (see Figure 4) – applies in all contexts and constant communication (before, during and after an event), monitoring and updating is required. Stakeholders are consulted at all levels, and risks emerge from the complexity of the whole situation. The response to each risk is documented so management can learn and improve to build resilience.

The risk management framework represents the best practice employed by all agencies involved in crowded places, including emergency services, local councils, major sponsors and suppliers. Its approach and terminology are universal.

KEY CONSIDERATIONS

- A crowded place creates risk.
- The standard used for the management of risk is ISO 31000, *Risk management – Guidelines*.
- Reference should also be made to the *National Emergency Risk Assessment Guidelines Handbook* (NERAG Handbook; AIDR, 2015).
- The risk management process is found throughout this handbook.
- Management should understand the processes and the terminology used in risk assessment and mitigation.
- The outcome of the risk assessment process is the risk management plan, used to generate supporting plans.
- Emergencies in a crowded place present a special case where results can be catastrophic, and time is critical.
- Stakeholder consultation is an important foundation to the risk plan.

INTRODUCTION

Risk is the likelihood that an incident will happen, and the consequence if one does. Essentially, risks are possible problems. The acronym 'ALARP' (as low as reasonably practicable) is frequently used in risk management.

In a crowded place, a seemingly small hazard like a cable lying on the ground can create a major risk. A person walking over that cable might trip and cause a domino effect on other people. One way to contextualise this danger is that the incident is multiplied by the number of attendees. Crowds amplify certain problems.

If you are managing a crowded place, no matter how small, it is your responsibility to understand the basic risk management principles underpinning this handbook.

What should you know about risk?

- It will help keep attendees safe – managers have a moral and ethical responsibility to manage risk.
- It is the way the modern world works – banks, governments, insurance, travel and other sectors understand that risks exist and how to minimise them.
- It will help you understand and use this handbook effectively.
- It is part of legal, insurance and law enforcement language.
- You may be required to produce a risk management plan in legal proceedings.
- Managing risk is doing what most people do when planning – looking for problems and minimising the likelihood and consequence.

An important part of managing problems is to recognise that they are risks. Some risks are small and easily corrected; some require enormous effort, and possibly financial resources, to manage. Other risks may never occur. And then there are risks that were never considered. Experienced managers know what can go wrong and are aware that unpleasant surprises may occur.

The nature of crowded places means there is always change, such as numbers of attendees, new suppliers and new event information. This also includes external changes, for example in relation to transport, health and rules and regulations.

Risk management is an ongoing process. Its output forms the risk management plan. This plan is the basis of associated plans such as safety and emergency management plans. As with the event plans shown in Chapter 4, the risk management plan is unique to a specific crowded place. It will be continually updated, improved and referred to, and covers every area of planning, including setup and shutdown.

Safety and emergency management plans should be developed by managers to identify hazards, assess risks and decide on measures to mitigate or eliminate them.

Plans should be developed from when you assume control of a crowded place, and continue throughout all stages of planning, delivery and evaluation. Plans should be event-specific, comprehensive, systematic in nature and involve all stakeholders.

WHAT YOU SHOULD KNOW

The global standard for risk management is ISO 31000, *Risk management – Guidelines*. Figure 4 illustrates the framework used in the standard.

Here, the definition of risk is 'the effect of uncertainty on objectives': a broad statement, and one that demonstrates the importance of deciding on objectives. Regarding health and safety, the obvious goal is to provide a safe site for attendees. For a music festival, for example, objectives include attendees' enjoyment and ensuring all production costs are covered. The breadth of your objectives – including the risks in achieving them and the problems that may arise – should be found in the event plan.

Chapter 4 provides more information on event and venue planning. Further information about risk assessment can be found in the NERAG Handbook (AIDR, 2015).

TERMINOLOGY USED IN RISK MANAGEMENT

In many cases – especially in emergencies when time is critical – efficient communication is crucial.

Correct usage of terminology underpins the effective communication of risk to stakeholders and is vital to risk management. Language should be precise, and terminology universal.

Terms must be common to managers and staff and should clearly and unambiguously describe problems to stakeholders, such as emergency services.

ISO 31000 provides a common language for risk management, which has been adopted by governments, emergency services and health services.

Chapter 2 provides more information on communication.

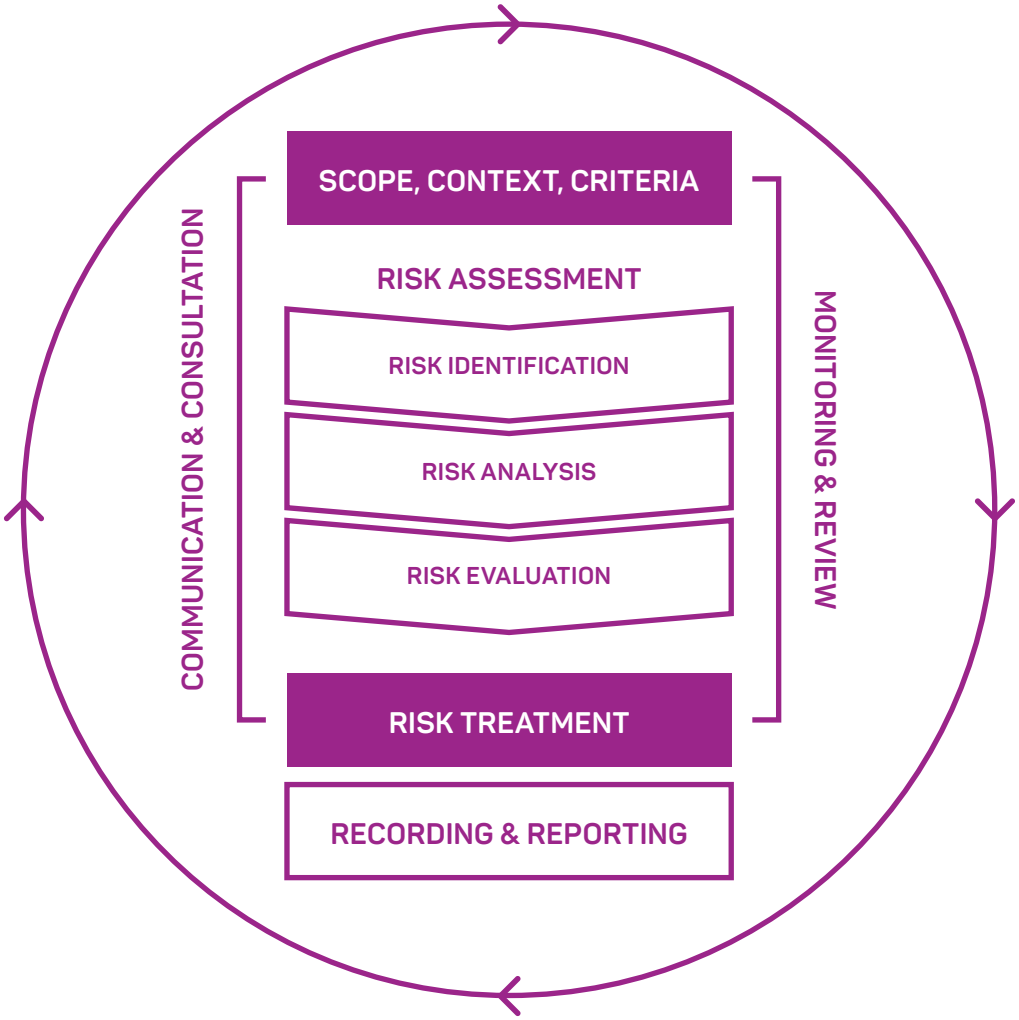


Figure 4 Adapted from the ISO 31000, *Risk management – Guidelines* process

Table 2 Key terms used in risk management

Key terms used in risk management (adapted from ISO 31000)	
Risk	The effect of uncertainty on objectives; can be positive, negative or both, and may address, create or result in both opportunities and threats. Risk is usually expressed in terms of risk sources: potential events, their consequences and their likelihood.
Risk management	Coordinated activities to direct and control an organisation regarding risk.
Stakeholder	A person or organisation that can affect, be affected by or perceive themselves to be affected by a decision or activity.
Event	The occurrence or change of a unique set of circumstances. An event can have one or more occurrences, causes and consequences. An event can also be an expected occurrence that does not happen, or something unexpected that does.
Consequence	The outcome of an event that affects objectives; that is, the result if the incident happens. A consequence can be certain or uncertain, positive or negative, direct or indirect. Categories commonly used to describe consequences include 'insignificant', 'minor', 'moderate', 'major' and 'catastrophic.'
Likelihood	The chance of something happening, whether defined, measured or determined objectively or subjectively, qualitatively or quantitatively and described using general terms or mathematically (such as probability or a frequency over a given time). The probability that an incident will occur may be described as 'rare', 'unlikely', 'possible', 'likely' and 'almost certain.'
Control	A measure that maintains or modifies risk; for example, controls for security risk could include alarms, fencing, lighting and accreditation zones. Controls include any process, policy, device, practice or other conditions and actions that modify risk.
Other terms used in risk management	
Hazard	A process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation. Hazards may be multi-hazard, biological, environmental, geological, meteorological or technological (UNISDR 2017).
Vulnerability	The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard. The extent to which a community, structure, service or geographic area is likely to be damaged or disrupted by the impact of a unique hazard, regarding its nature, construction and proximity to hazardous terrain or a disaster-prone area (*NERAG Handbook*, AIDR 2015).
Mitigation	The lessening or minimising of the adverse impacts of a hazardous event. The adverse impacts of hazards, especially natural hazards, often cannot be fully prevented, but their severity can be substantially lessened by various strategies. Mitigation measures include engineering techniques and hazard-resistant construction, as well as improved environmental and social policies and public awareness (UNISDR 2017).

The *Disaster Resilience Glossary* found on the Knowledge Hub provides further information.

Managing emergency risk

Emergency risk management is the application of the international standard in Figure 4 in planning for safe and healthy crowded places.

The following approach will assist you to manage risks and improve outcomes:

- Establish a decision-making process.
- Focus on opportunities to reduce or manage risk rather than on response to emergencies that may result from risk.
- Engage a wide range of individuals and communities.
- Promote partnerships and enhancement of relationships.
- Foster resource sharing and mutual aid arrangements.
- Provide auditable and credible means of reducing risk.
- Use language common to decision making in public and private sectors.

Relevant agencies have developed processes and terminology corresponding to risk management.

Risk treatments, or controls, include mitigation and preparedness, as well as providing for response and recovery should an emergency occur.

Documentation occurs throughout the process, and results in the formation of the risk management plan. Even where emergency services are involved, the risk management plan remains the manager's responsibility. For events, the risk management plan is part of the overall event plan and should be updated whenever changes occur.

Checklists are useful tools for comprehensive planning *if* they are used by managers or staff who understand the process of review – checklists do not inherently monitor or update themselves. Sample checklists are provided in the *Guideline 1: Crowded Places Checklists*, available on the Knowledge Hub.

It is easy to overlook a small risk. However, a small risk can grow rapidly and result in secondary risks. For example, a change in the publicity of an event may have dramatic effects on crowd demographics which can result in crowd management issues.

Other organisations will have their own risk management plans that may inform the broader event risk management plan.

Crowd context

Understanding the demographics of a crowd is essential to understanding the context of its risk. A crowd with a younger demographic may have a very different risk profile to a crowd with an older demographic. For this reason, experience in staging events and controlling crowds is essential to risk management and includes understanding details like the numbers of attendees per square metre and identifying congestion points. Knowledge stems from stakeholder consultation and from engaging the community.

Many crowded places have existing controls for risk regarding the attendees they attract or expect. For planned events, however, the context may be a unique combination of weather, time of year, types of activities, suppliers and location. The more customised the event, the higher the uncertainty and the likelihood that existing controls may be less effective.

The context of risk includes the surrounding economic and political environment. For example, a hostile act at a previous event will be covered by media, and this influences crowd response.

> The link between risk and demographics is well documented in relation to drug use at events. At music concerts, drug use can lead to serious health issues. However, the reverse occurred at the Edinburgh Military Tattoo, an event which attracts an older demographic; several people had forgotten to bring their medication, so it was the lack of drugs that caused the health risk.

Risk assessment process

Risk assessment is a process that includes risk identification, risk analysis and risk evaluation. It should be conducted systematically, iteratively and collaboratively, drawing on the knowledge and views of stakeholders. It should use the best available information, supplemented by further enquiry as necessary.

IDENTIFYING THE PROBLEMS

Managers should invest time to find and analyse what can go wrong. Predicting future problems is not easy, but it should be done, and there should be proof that it has been carried out. Identifying on-site hazards is one of the many ways to prepare for risk management. Hazards that may be of little importance in some places can become a disaster when a crowd is present. It is important that information is collected and used so that a crowded place is assessed for vulnerabilities.

The following actions can help identify possible problems:

- Engage staff with experience in similar events.
- Consult with suppliers and vendors.
- Employ qualified or experienced risk experts to assess the site.
- Monitor the crowd before, during and after the event.
- Identify triggers or warning signs before, during and after the event.
- Engage with the community to identify risks.

Many more techniques can be found in ISO 31000, ISO 31010 and in the online resources that support the handbook (available on the Knowledge Hub). Management can also develop relevant, contextualised risk tools.

The event plan is a valuable tool for identifying risks; the event and risk plans work in tandem. Risks may surface when reviewing the plan and discovering how all the elements fit together. The event plan assists in recognising any 'flow-on risks', where one incident causes others to occur. The risk assessment process may uncover opportunities as well.

Repeat events and regularly filled venues will have a risk library containing a risk history of previous incidents or risks and how they were dealt with. Up-to-date and relevant information is essential to the identification of risk. Chapter 4 provides more information on event and venue planning.

RISK MANAGEMENT MEETINGS AND TRAINING

Risk management meetings can vary from structured, formal meetings with an agenda and templates, to informal on-site briefings. The goal is to identify and assess risks and assist stakeholders in understanding the risk management process and terminology. A meeting can establish the preferred communication methods, discuss potential and past risks and allow people to voice their concerns and observations. The likelihood/consequence approach keeps the meeting focused on the most important risks, so that risks with the highest likelihood/consequence rating are given the highest priority in the treatment plan.

ASSESSING EXISTING CONTROLS AND FINDING THE GAPS

Existing risk controls in a crowded place are part of the information required for risk identification.

Existing controls are the current processes and procedures in place to manage any risk, and include staff safety inductions, on-site medical staff and contractual clauses with commercial providers regarding work health and safety compliance. Plans should be updated with any changes, including:

- different demographics
- an increase in crowd numbers
- construction work
- changes in legislation and regulations.

Data and debriefs from similar events can be used to inform the risk plan on the necessary controls. Most venues will have emergency evacuation plans, and these will inform emergency planning. Hazard vulnerability assessment (HVA) is used to examine existing controls to find any gaps.

ON-THE-DAY IDENTIFICATION

Crowded places are dynamic, and risks may surface on the day that had not been thought of in the risk management planning. Management should ensure that all the risks that have been analysed are taken care of and employ effective means to recognise and communicate any new risks. Staff must be able to report anything they believe could cause trouble. As a group, volunteers and staff have extensive experience that is very helpful.

> At major events, such as the Olympic Games, there are specialist teams whose single task is to walk the sites, monitor the risk management and look for new or emergent hazards and risks.

Management should consider processes for managing risk that encourage reporting and live sharing of minor issues – such as cleanliness of toilets – across sectors and agencies, as this can indicate issues before they arise and facilitate identification by allowing consideration from a multi-agency perspective.

There are many ways to read a crowd and sense trouble. Staff and volunteers must maintain 'situational awareness' in a crowd – remaining alert at all times.

Chapter 6 provides more information on crowd management and security measures.

> In the surprise and emotion of a dramatic incident, staff often lose their grasp on situational awareness. At an Elvis impersonators' festival, strong wind suddenly came up and dislodged a piece of Elvis memorabilia from the stage. An attendee sitting on the side of the stage was knocked out. All staff were completely focused on the accident and forgot to monitor other risks.

TRIGGERS

Whilst a warning provides information about a hazard that is impacting or is expected to impact a situation, a trigger indicates the beginning of a problem. Being able to recognise the trigger and respond appropriately may address the problem before it increases in severity. A risk can amplify quickly in a crowded place.

For example, a sudden change of wind direction may indicate a coming storm. A trigger might then commence an action plan for staff to cover outdoor equipment, check the electrical components of the event and check that marquees are correctly secured. A trigger may also mean an event is cancelled and the evacuation plan put into action. Triggers are identified during the risk management process, and the plans to minimise the risk are then drawn up.

Risk analysis

There is a formal risk analysis system used in assessing risk and when looking at existing controls and evaluation. It is important that this system is used across all plans. The term 'possible risks' shows the two fundamental dimensions of this system:

1. likelihood – will it happen?
2. consequence – how bad is it?

Risk can be easily exaggerated or dismissed. One of the reasons to use the likelihood/consequence analysis model is to identify real risk and describe it accurately. Bad weather, for example, is not a good description of risk; what is bad for some attendees, such as a rain, may be a welcome relief to others. Discussing if the risk is genuinely a disruptive one is important.

Risk evaluation

Risk evaluation means comparing identified risks to the current plans, controls and objectives, and deciding what action, if any, is required. Part of this process is assessing management's capability to deal with risk.

Managing risk implies that adequate resources, staff and capital exists to deal with the risk, and the ability to make allowance for extra resources in times of uncertainty.

Again, consultation with experienced stakeholders is essential in risk assessment. Their expertise must be ascertained and incorporated into the risk plan.

Risk treatment

Risk treatment examines how to minimise – through a hierarchy of control – the possibility that a risk might occur, and then minimising the consequence if it does. Figure 5 illustrates the levels of control common in work safety.

In health and safety, the risk treatment process combines prevention, likelihood that the incident will occur, preparation and minimising the consequence of the risk – together, these elements comprise risk mitigation.

It is important to document the risk treatment process (often done in table format) with subject areas that may include:

- risk category
- risk assessment
- description
- risk evaluation
- risk source and cause
- risk mitigation
- impact objectives
- actions and control measures
- risk owner
- cost
- risk analysis
- target date for implementation
- assigned owner
- completion status (%).

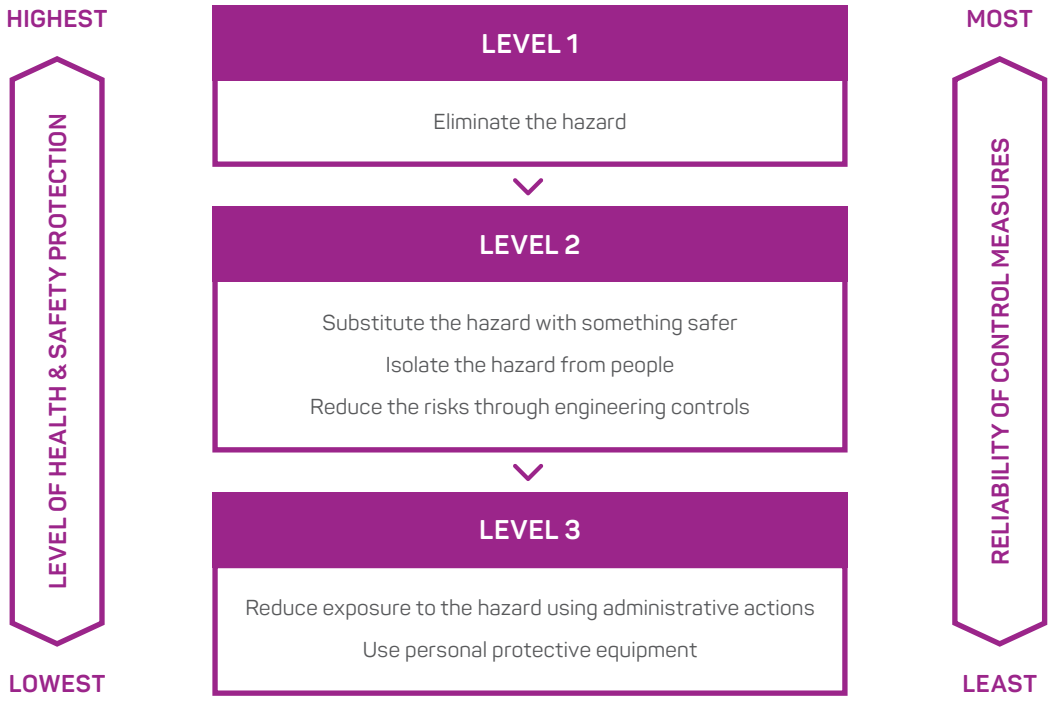


Figure 5 The hierarchy of risk control (adapted from source: SafeWork Australia)

The table may be called a risk register. It is a living document, as new risks will be found and added. As mitigating actions occur, risks may be assigned a lower likelihood or consequence rating.

Responsibilities

An outcome of risk management planning is the assignment of responsibilities and an understanding of what resources are necessary, including:

- organisational – legislation and interagency agreements
- human – staff and volunteers
- contractual – subcontractors, insurance, duty of care, safe work practice.

The risk management plan will have an impact on the existing capacity of a crowded place and have implications for required competency or abilities of staff and volunteers. For example, an evacuation plan should include resources and training. For a general event plan, this may include extra resources and further staff training which must then be put into the planning schedule and the budget.

Community groups are often not trained in risk management, although individual members may have received training through their employment or other roles.

In many cases, there will be an approving authority for the risk management plan, such as a local council, or special police requirements.

> In some Australian jurisdictions it is a requirement to discuss an advertised public event with police and other relevant stakeholders. In these cases, you are instructed to talk to police after completing the event plan and reaching a certain attendee threshold.

INSURANCE

Insurance provides for the passing on of certain financial risks to a specialist company. An insurer is then financially liable if an incident happens. Specialised event risk management experts may be available to advise management. In some jurisdictions, insurance is part of the state or local government requirements, and can be divided into three categories:

- legal or regulatory – insurance required for example by local government such as public liability insurance
- contractual – such as insurance required by the venue as a condition of hire
- insurance taken out as a management decision made by the owner and operator, such as loss of income insurance.

The type of insurance required should be identified during the stakeholder management and risk management process.

Monitoring and review

Unforeseen risks may affect areas of management far removed from the risk source. Monitoring a situation is essential to the process, and part of the risk plan is to describe how it is to be done.

The risk management framework includes post-event evaluation. This is more than evaluating the risks and how they were handled – it looks at the process, meetings and documentation to improve upon them. Assessing the risk management process is one way that managers can develop their resilience and ability to handle uncertainty and manage unexpected risks.

Questions to consider when monitoring and reviewing include:

- Was the planned response to one type of risk helpful in mitigating other risks?
- Were there any near misses or incidents that almost happened?
- What were the unrecognised risks?
- For each risk that occurred, what factors contributed to the resilience of the crowded place?

Chapter 2:
Communication

SUMMARY OF KEY POINTS

Effective communication with crowds and stakeholders depends on trust.

Communication includes the flow of information regarding the what, where, who and when. There are many possible communication channels in a crowded place, and all should be included in the communication plan. As with all plans, this should be tested, monitored and evaluated. The incident or emergency is the stress test for communications – when all decisions and messages are time-critical – and all channels of communications should have a rapid response capability. Communication during and after an emergency should be embedded in communication planning for a crowded place.

KEY CONSIDERATIONS

- Communication is required in all areas affecting a crowded place and event management.
- A stakeholder management plan is central to effective communication in crowded places.
- Consultation is an important part of communication.
- Communication comprises both external communication to stakeholders and internal communication between management and staff, before, during and after the event.
- Early external communication can inform attendees of health and safety issues and minimise the use of resources at the event or site.
- The communication plan is part of the overall event plan.
- Communication includes use of a documentation and knowledge management system.

INTRODUCTION

Like risk management, the principles of communication cut across all areas affecting a crowded place or event. The multiple channels of communication, and our reliance on quick information, makes communication a vital part of maintaining health and safety in crowded places. Parts of the communication system, training and planning all come together when a risk becomes reality.

External communication flows to and comes from outside of the crowded place. Internal communication occurs from within. There are time considerations; communication before, during and after an event, and a variety of methods or channels of communication.

Pre-scripted communications can be part of the communications plan.

Risks may be identified in the process of collecting, analysing and evaluating data for a crowded place and documenting this information for the communication plan.

The event planning and documentation process can easily overlook important personal contact with various stakeholders, and at different levels – local, regional and jurisdictional. Crowded place planning is dynamic, and susceptible to changes and subtleties that may not always be identified in the documentation. Communicating by way of formal and informal meetings is necessary. Ending a meeting with 'Are there any other issues or risks?' may uncover many last-minute problems.

Stakeholder management plan

Good managers of crowded places and events know which stakeholders, emergency services and related authorities they need to engage with and consult. Stakeholders include any organisations or individuals with an interest in a crowded place. Overlooking a key stakeholder can stop an event from proceeding.

In addition to management, stakeholders of a crowded place include all organisations and individuals with a vested interest, such as emergency services, neighbouring communities, insurance companies and commercial providers. A stakeholder may be affected directly or indirectly by the crowd, the noise or the infrastructure of a crowded place. They may be affected directly, such as through interruptions to transport systems, or indirectly, for example, by an emergency impact on a nearby venue. This may be before or after the event. Sometimes an event can have an impact on a community long after its conclusion, such as a gastroenteritis outbreak.

Local communities are stakeholders, and they are directly affected by crowded places within them, for example, with regard to traffic flow, car parks, use of facilities, strain on local services, noise and an increase in trade for local businesses. As discussed in Chapter 3, a local community may be significantly disrupted if there is an emergency evacuation; hospitals may be inundated with patients, and emergency services may have to focus on the crowded place instead of elsewhere. Local communities also have valuable knowledge and insight for identifying local risk.

Some stakeholders may want to partner with management, such as corporate sponsors. This is particularly important at events with a fixed deadline.

Identifying, understanding and communicating with stakeholders is a core function in every chapter of this handbook. It is a constant activity. Stakeholders come into and out of the event management process at various points, and any changes may introduce new stakeholders. Each stakeholder can be a supporter when an incident occurs.

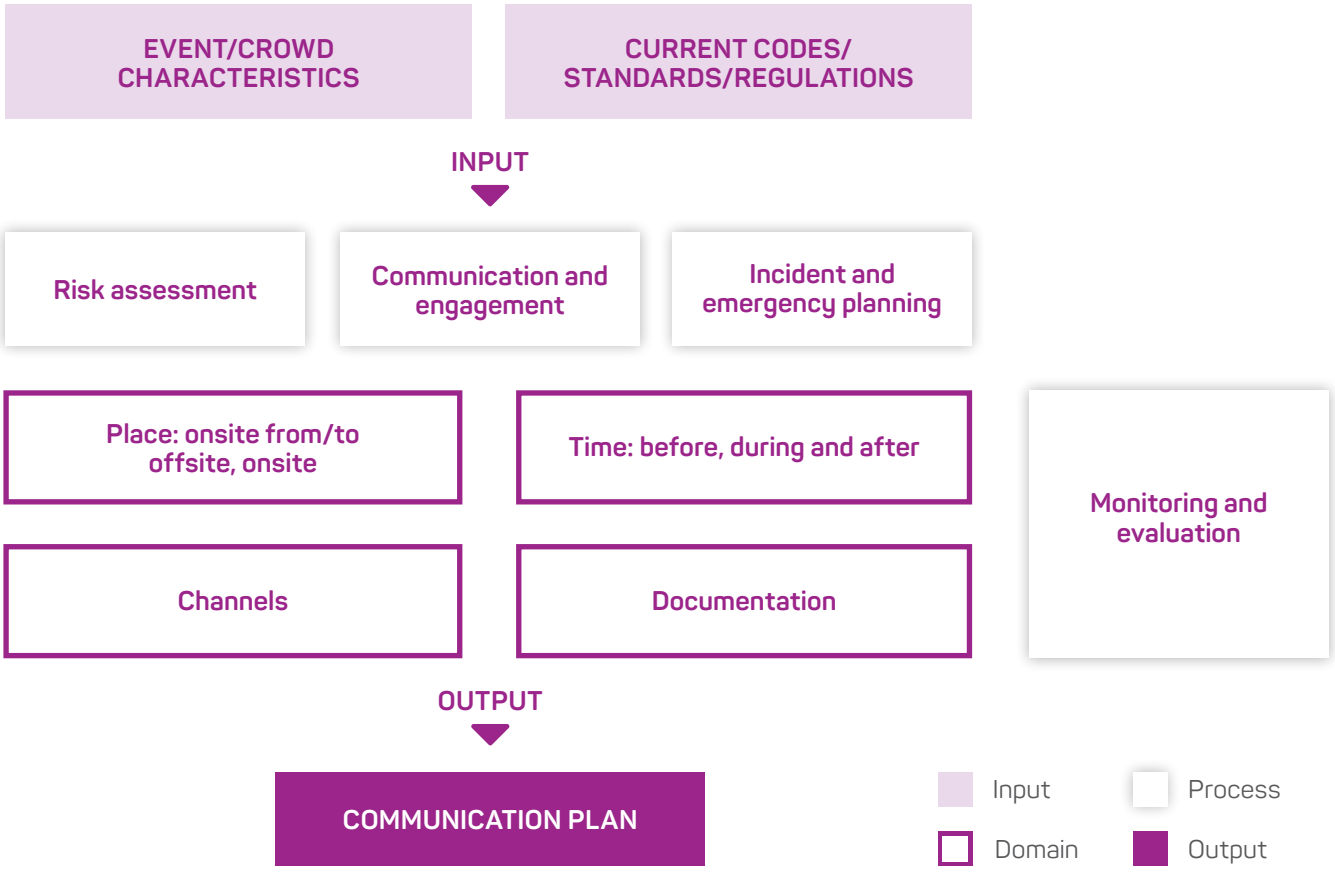


Figure 6 Process for developing a communication plan

Part of the stakeholder management process is to produce a stakeholder management plan. Even small events should consider going through this process, as it assists with developing the risk management plan.

First, stakeholders should be identified and classified. Are they deemed critical to the project and therefore classified as primary? Or are they contacted occasionally and therefore classified as secondary? Will they contribute to the event? Or attempt to stop it?

Next, their expectations, requirements and impact on the crowded place must be understood. From this, the decision to inform, consult, control or partner with them is made, and those choices directly inform the stakeholder management plan's tasks and schedule of communication.

The stakeholder management plan should identify all the directly related requirements and expectations, such as permissions, licences and reports. These are placed on the planning schedule, so they are done on time. Some stakeholders require only an occasional meeting or permission request, while others should be regularly consulted.

For large public events, the stakeholder management plan can be a complex document with over 200 different stakeholders. Figure 7 illustrates a stakeholder management process and the output of a stakeholder management plan.

Another useful tool for the stakeholder management process is the International Association for Public Participation (IAP2) Public Participation Spectrum, 2014. This tool helps define the public's role in any public participation process.

Risk communication to stakeholders, including attendees, should also be considered before and during events.

> At some motorsports events, a waiver is used as a condition of entry, advising attendees of the risks involved in attending motorsports events as they arrive.

Consultation

Consulting with stakeholders allows all parties to understand the situation and terminology used and is a key component of communication.

Early consultation with stakeholders is stressed; not only will this facilitate smoother planning, it will prevent many last-minute problems. Risk management meetings are based on consultation, as risks may be uncovered by people with opposing or different experiences.

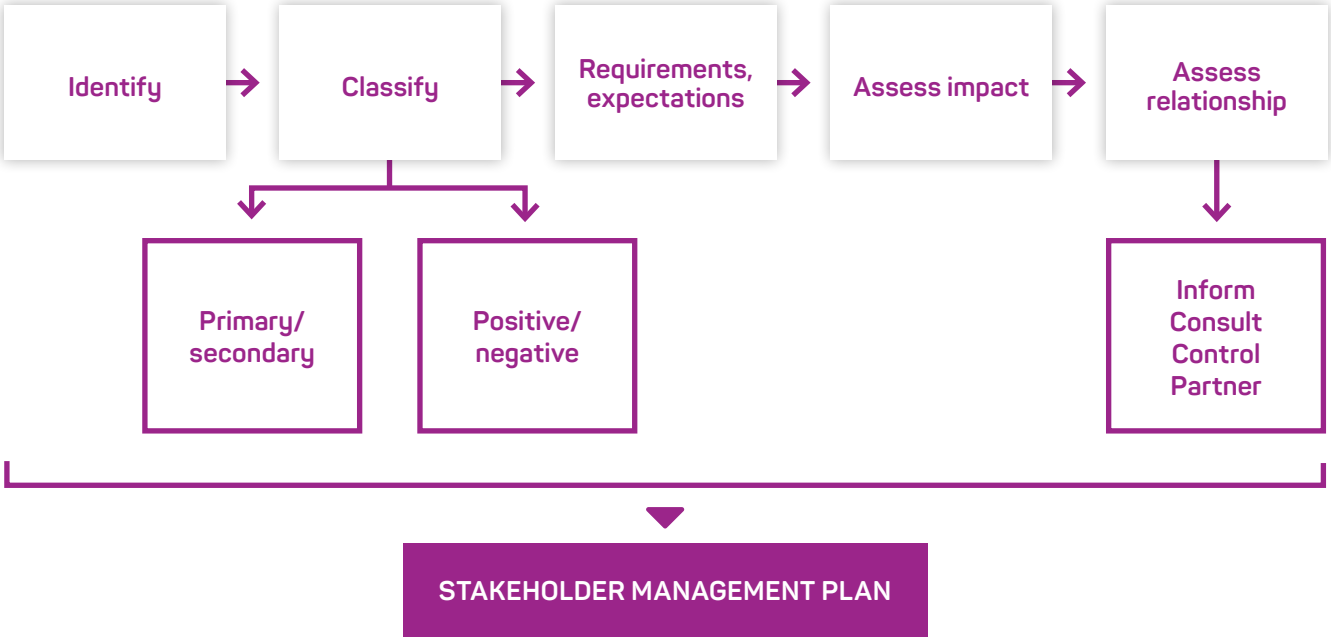


Figure 7 Process for developing a stakeholder management plan

During an event, staff and volunteers can see that the planned response to a risk is not working, or that there is a better way to manage it. How can they communicate their concerns and have their suggestions heard?

Consultation enables advised professionals to give their view, and the opportunity for these views to be taken into consideration in any subsequent action or decision.

Consultation on work health and safety risks, and how to manage them, should start at the first planning meeting and continue through planning, the event and afterwards. There should be a system to report risks and, more importantly, to suggest ways to manage risk.

"Consultation is a legal requirement and an essential part of managing health and safety risks" (Source: SafeWork SA)

"This duty to consult is based on the recognition that worker input and participation improves decision making about health and safety matters and assists in reducing work-related injuries and disease." (Source: SafeWork NSW)

External communication

Communications going out from an event or a crowded place can provide information before attendees arrive, sometimes well in advance, including:

- weather warnings
- crowd numbers
- parking information
- health suggestions, such as 'wear sunscreen', 'drink plenty of water', 'bring your medication'
- optimum arrival times
- directions and 'way finding'
- 'no glass' and 'no alcohol' restrictions.

External communication fosters a two-way flow of information. The type and frequency of messages will depend on crowd demographics, location, time and season. Social media and networks are used for promotion – such as access and dietary requirements – and can be used for health and safety information and to contact attendees before, during and after an event.

The key to planning external communication rests in the stakeholder management plan. As described above, this plan sets out the requirements for stakeholders that are then placed on a planning schedule. Stakeholders should be informed, consulted or engaged as partners. All of this implies a communication method, time and task.

First aid providers, emergency services, local council and sponsors may require plans, reports, meetings, or just a phone call; all of this takes time and staff to do it. The communication methods preferred by stakeholders – such as forms, email using a preferred attachments type,

mobile phone or other methods – should be discovered early in planning.

The media may be a stakeholder – it certainly will be if there is an incident of interest or an emergency. Dealing with media is part of the risk plan. For events, the media becomes a key stakeholder as they attract additional attendees. Competitive media timelines may lead to misinterpretation and exaggeration. Timely, concise and correct information to the media and clear lines of authority for communicating with the media is essential to allow responsible reporting. Knowing media and communications partners and their contacts will be important.

The communication plan should account for all these issues. The various plans – event, risk, operations, health and others – are also communication tools, and many will be passed to external stakeholders.

The communication system for health and safety in a crowded place should contain embedded arrangements for scaling up in an emergency, using common terminology, backups, levels of redundancy, complete integration and testing of the system's authority levels and timeliness.

Internal communication

Internal communication is within the control of management. For events, this will be temporary, and should be scalable according to the timeline. It involves meetings, documentation, recording decisions and much more. Management should agree on the communication protocols and terminology; for example, common acronyms used across many agencies might be provided on a list and made available to staff. For large events, there may be a multi-agency event operations centre or event management centre.

ON-SITE

Crowded places with predicted crowds, such as airports, fixed stadia and train stations, generally have an existing and sophisticated communication system. Events coming into that space should dovetail their communication system into the venue's existing capability.

A crowded place has many options for communications. On-site communication systems may consist of radios, screens, maps, mobile phones and devices, SMS broadcasts, apps, signage, announcements over a sound system, visual cues, runners, flags, visual prompts and sound systems. Some of these will require and interface with first aid, ambulance, medical services, security and entrance and exit personnel. On-site signage may include direction to exits, maps, first aid, assembly areas and lost children areas. Signage should be monitored and adjusted accordingly in case a change occurs – an incorrect sign may invalidate all other signage and introduce unnecessary risk.

All methods of communication must be tested for an emergency.

The bigger the event, the more complex the communication system should be to manage the volume, diversity and spread of attendees.

Communication systems provided for crowd management and information flow should be independent from performers' sound systems and police, security and emergency services communications. This will enable communications used for crowd management to support any parallel system established by the managers or emergency services for response to a significant emergency incident.

The communication system should be able to be incorporated with and communicate to any pre-existing emergency communication system. For example, where an emergency coordination centre is convened remotely from the site, the two systems should be linked.

Management should include (and be part of) communications planning conducted by the emergency services present during the event. Experience has shown that different services must also be able to:

- communicate with each other
- communicate between staff inside and outside the venue to get a proper overview of the total situation
- communicate with senior event organisers, including security, who may be the first to identify an emerging problem.

A central communications area – this may be a room or trailer – with a representative from stakeholder agencies may facilitate the provision of vital information by centralised monitoring of relevant radio communications. External emergency service communication centres should be provided with contact details for this facility, as many Triple Zero (000) calls for assistance by attendees will be made via mobiles. These calls will be taken externally and should be referred to the on-site emergency service providers.

Management should ensure staff, volunteers and other stakeholders have a clear understanding of who has the authority to broadcast during an emergency – this should be planned.

The communication system should be multi-modal (not reliant on a single system) and should have its own backup power supply. In a major emergency, mobile networks may become jammed; reliance on these systems for vital communications should be avoided. It is also important to identify 'blackspots' for radio and mobile.

A means of communicating with the crowd is essential at all events and crowded places. Ideally, multiple systems should be established to enable messages to be directed at different sections of the crowd, including crowds massed outside the site.

If a separate sound system is to be used, a means of muting or silencing the stage sound system is required.

Public announcements are an important element of the safety plan, and consideration should be given to the style and content of announcements, including:

- What volume is required for announcements to be heard over crowd noise?
- Will announcements be easily understood by the crowd?
- Are multilingual announcements required?
- What wording will lend credibility to the instructions?
- What pre-planned messages are required?

Management should consider options available to provide visual information to attendees, such as closed-circuit television and large screens.

Effective communication assists all staff and volunteers working on-site to understand the significance of health and safety objectives. By predetermined and preferred channels – such as social media or email – contractors, subcontractors and other stakeholders should be kept informed of safety matters and procedures to be followed on-site. A good example is on-site messaging about weather conditions via video screens where audio messages may not be heard.

The crowd drawn to an Olympic torch relay surprised many councils when more attendees turned up than expected. Management did not realise that a news broadcast the night before had piqued community interest. The result was a dangerous crowd control situation. Management was too busy at the site to notice the last-minute promotion and news broadcast.

A store opening in a major city became a crowd crush, killing one person in the ensuing stampede to purchase bargains. The communication was a one-way promotion of the opening. The owner of the store did not have any means of mutual communication with potential customers and had no idea how many attendees would turn up on the day.

In 2009, the Sydney Festival opening event proved so popular that the Sydney CBD was considered at capacity by police. Management was tasked with communicating the message to attendees on their way into the CBD to turn around and go home, requiring careful coordination with the media and transport agencies.

A concert in a remote area became flooded out. Attendees had yet to arrive, and there was a possibility that, even when they did get to the site, they would be unable to leave as river levels rose. Management's solution was to transfer the site to a nearby large sports shed and inform attendees of the change by signage on the turn-off road to the original site. A tautliner truck, parked at the turn-off, was used with the change of venue painted on the curtained side of the truck.

A decision was made to cancel the Perth Australia Day Skyworks following two deaths caused by a plane crash in front of the crowd. At the time of cancellation, 100,000 people were already in the city and another 200,000 were on their way. Management had to communicate the cancellation to all attendees.

Communication during the response phase

During an emergency, attendees can lose control, noise levels can increase, staff may become emotional and communication systems might be swamped or altogether fail. Management should be able to account for a range of communication elements in planning for incidents and emergencies in crowded places.

- Embed time-critical importance in the overall communication planning.
- Assess the capacity of communication systems during an emergency and the possibility of having to use different types of mediums.
- Provide location information to guide responders on where they need to go in an emergency.
- Constantly monitor and check communication systems.
- Create pre-planned messages.
- Verify all information.
- Ensure consistent advice and information is provided to the public – 'one source, one message.'

In the event of an emergency, management should be prepared to:

- communicate during evacuation or invacuation (when the attendees stay in sheltered areas on the site) and with the surrounding areas
- communicate with a returning crowd after an emergency
- provide location information to guide responders on where they need to go

- communicate with the various agencies and hospitals during and after an emergency; where possible, providing incident coordinates, types of injury and the number of attendees involved
- suppress or negate rumours and misinformation
- collect video and audio recording of any incident, with consideration to privacy concerns
- monitor media and social networks
- trigger pre-planned messages
- verify all information
- ensure consistent advice and information is provided to the public.

In many cases, time is of the essence and clear terminology is vital. After an incident, management should communicate follow-up information to stakeholders after the crowd has left. For example, this may be about infectious diseases which could have delayed and serious public health consequences.

Within on-site messaging, your plan should include last minute warnings; for example, a sudden change in weather.

> In 2014, a major storm front approached the Soundwave Festival at Sydney Showgrounds with 40,000 attendees, prompting meetings between management and emergency services. Given the severity of the approaching weather, police assumed control of the event and immediately requested all relevant emergency management documentation from management, such as the wind speed ratings of all on-site structures. Incident procedures should not just account for management's implementation, they should reflect command control transfer to emergency services and provide the information those stakeholders will need.

Documentation

Effective communication is primarily about information retrieval. In emergencies, finding the right information is time-critical.

Information arrives in many forms, and document protocol with version control should be established. As well as various plans, there will be licences, certificates, contracts, operating procedures, manuals, status reports, schedules, incident reports, checklists and contact lists to keep track of – materials that can also be used to evaluate the success, or otherwise, of your planning. Documentation may be used as proof of competent management; a risk register for a crowded place should be maintained over an event's duration and afterward. Documentation may also include a list of near misses as they occur.

A decision log provides clarity regarding risk decisions made across the operation of the crowded place. Central incident or event logs may also be required if risks eventuate, and these logs should be viewable by all agencies to support information sharing across sectors and so that stakeholders can access to up-to-date intelligence.

Documentation must balance the principles of privacy and open communication. Documents should be considered confidential and shared with stakeholders on a need-to-know basis, yet without disrupting open communication.

Health and safety communication and documentation must be embedded in the event plan. In many cases, this requires logical information filing, file name conventions, version control, categorisation, linking, backups and off-site copies.

Briefings

The event planning and documentation process can easily overlook important communication with key stakeholders at different levels – local, regional and jurisdictional – and at certain times. Event briefings and debriefs provide an important opportunity for external and internal communication. Chapter 3 provides more details on briefings for incident and emergency planning.

Chapter 3: Incident and emergency planning

SUMMARY OF KEY POINTS

The incident and emergency planning process outlined in this chapter is common to all aspects affecting a crowded place. Although an incident may result from a hostile act or an undiscovered hazard, the four actions of prevent, plan, respond and recover are central to dealing with it. Early consultation with stakeholders – such as health services, emergency services and managers of similar events – is essential.

KEY CONSIDERATIONS

- Planning for incidents and emergencies is part of the overall event planning process.
- Understanding the terminology is important to developing your plan and communicating with stakeholders, staff and attendees.
- The process includes prevention, planning, response and recovery, which together form the incident and emergency plan.
- There are tools and techniques that assist in developing the plan, such as the site map, pre-event briefing, scenarios and exercises, evacuation planning and identification of triggers.
- The recovery phase may involve psychosocial recovery for attendees and staff.
- Resilience includes the ability to learn from incidents and emergencies.
- Plans should be communicated to all site staff and emergency responders.

INTRODUCTION

Incidents and emergencies are often linked, but they are two separate concepts. An incident may not lead to an emergency. The preparation to deal with an emergency must be part of the event plan and site plan and are integral to the SOPs of any crowded place. The response, although adapted to a unique cause, is a standard process. In other words, you can regard incident and emergency planning – along with risk management and communication – as the third fundamental framework for safe and healthy crowded places.

Primary considerations in planning for incident and emergency response include:

- definitions
- incident analysis
- emergency analysis
- tools of emergency planning
- recovery and resilience
- evaluation and lessons learned.

More detailed checklists, state regulations, descriptions of specific incidents and templates are found in the online companion documents on the Knowledge Hub. Another important resource that management should be aware of is the Australasian Inter-service Incident Management System (AIIMS), a nationally adopted structure to formalise a coordinated approach to emergency incident management.

DEFINITIONS

Emergency: An event, actual or imminent, which endangers or threatens to endanger life, property or the environment, and which requires a significant and coordinated response (source: Disaster Resilience Glossary, AIDR, https://knowledge.aidr.org.au/glossary).

Incident: An event, accidentally or deliberately caused, which requires a response from one or more of the statutory emergency response agencies (source: Disaster Resilience Glossary, AIDR, https://knowledge.aidr.org.au/glossary)

Incidents can be divided according to:

- the level of response required, such as if the incident can be contained by a local team, or if it requires external agencies
- the extent of the effect on the operations at a crowded place.

Using these two factors, incidents may be classified into minor and major incidents and emergencies.

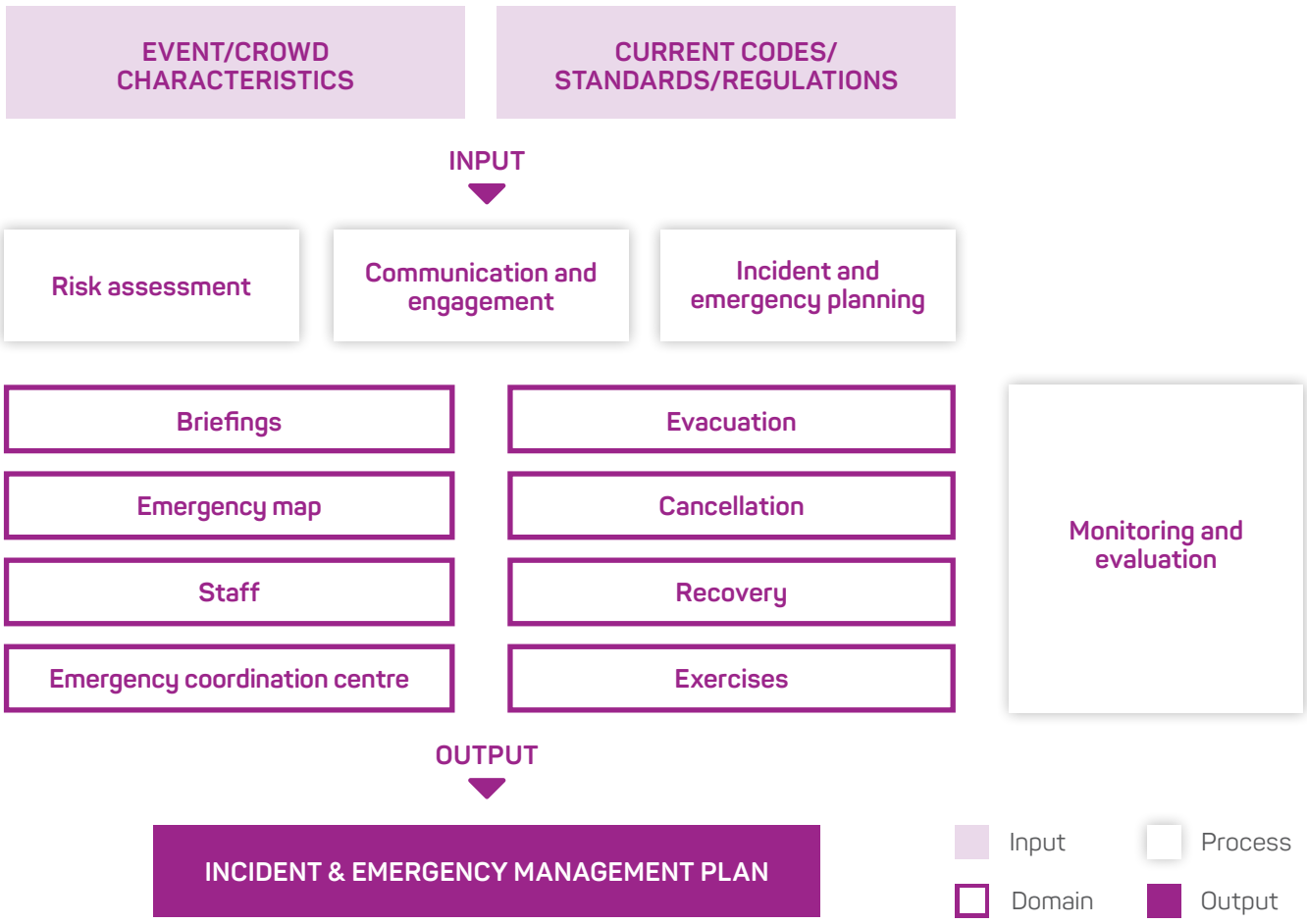


Figure 8 Process for developing an incident and emergency management plan

Table 3 Incident classifications

Minor	Any incident, potential or actual, that will not seriously affect event operations, and where the consequences of the incident are non-life threatening and considered small in nature, is deemed minor. The situation can be managed with on-site resources and through pre-planned response arrangements.
Major	Any incident, potential or actual, that significantly disrupts the event operations or program, requiring a concerted effort from multiple stakeholders, is deemed major. Consequences may be life-threatening, are critical in nature, and partial or full evacuation of the site may be required. External emergency services are required to manage and resolve the incident.
Medical emergency	Emergency response agencies tend to use custom definitions. A medical emergency may include a minor or major incident, including: • any incident that has taken place with consequences so severe that the event operations or program have been suspended or cancelled • where consequences of the incident are life-threatening, combined with significant damage to property • where an incident is unmanageable through local, pre-planned response arrangements and requires the involvement of external resources or activation of emergency plans.

A tea urn exploded at a food stall in a festival site. As there were no serious injuries, it was deemed a minor incident and was handled by the on-site first aid service.

A burst water main caused the loss of water to food stalls and nearby toilets. The immediate area became waterlogged. The water loss did not affect the whole site, and the concert continued. However, this was categorised as a major incident.

A concert stage collapsed due to sudden, high winds. Police and emergency services were called immediately and arrived to handle the situation. The event was cancelled, and attendees left the venue. This was categorised as an emergency.

A mnemonic used by emergency services for passing information is (M)ETHANE:

- **M**ajor incident declared
- **E**xact location of the incident
- **T**ype of incident
- **H**azards
- **A**ccess to area, such as best route in and out of site
- **N**umber of injured and their condition
- **E**mergency services required or at the location.

(M)ETHANE is a UK model of multi-agency response developed by joint emergency services interoperability principles (JESIP, 2017). In the UK, some emergency services put the (M)ETHANE template on the back of staff ID cards, making it easier for them to complete an appropriate incident report.

Preparation and planning

The step-by-step risk management method outlined in Chapter 1 forms the basis for incident and emergency management planning.

Figure 9 uses a 'bowtie' approach to explain the process. The centre of the bowtie represents an incident. The left side represents activity before the incident – preparation and planning – and the right side represents response and recovery.

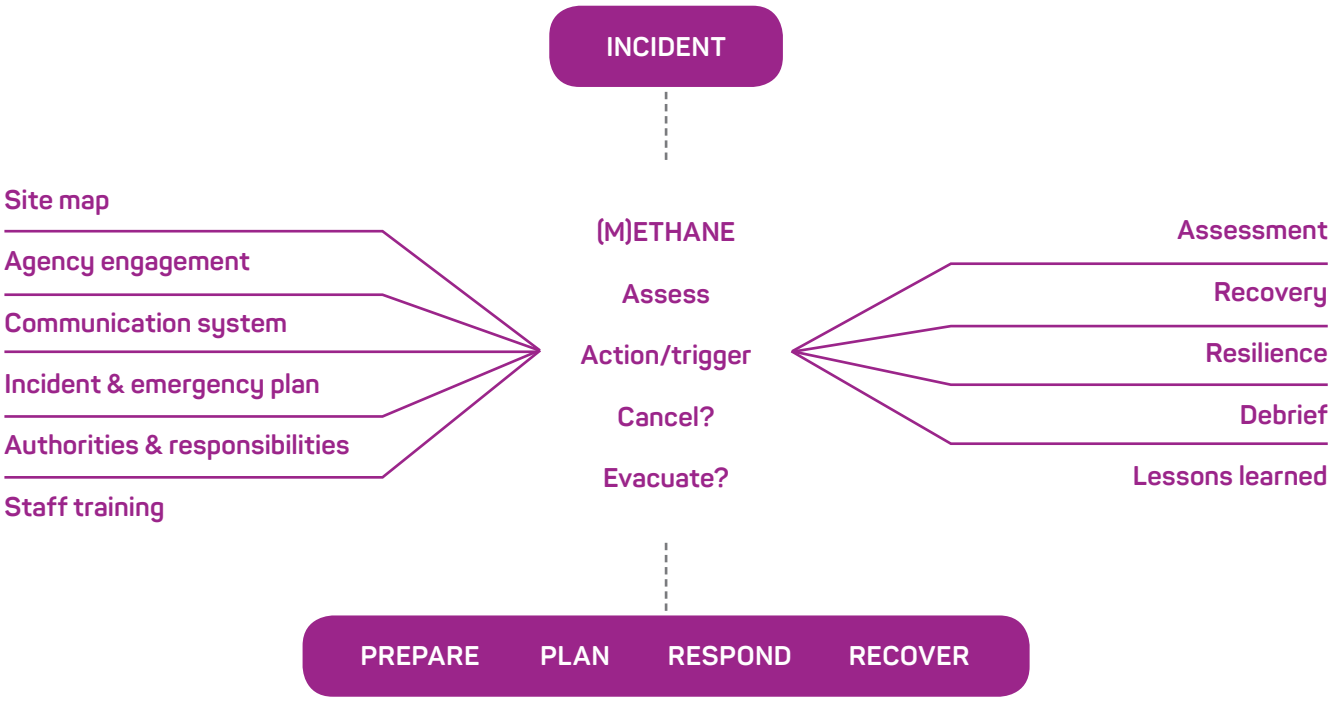


Figure 9 A 'bowtie' summary of incident and emergency planning

A small problem in a crowded place may go unnoticed at first. Experience and learning from past events and incidents is the best way to recognise this type of situation. Engaging the community can provide different perspectives that may uncover potential incidents.

Another aspect of preparation is finding and understanding the current risk policies of key stakeholders. A venue, for example, will have procedures and plans in place for incident response, yet regulation and compliance issues from elsewhere will come into play. These vary greatly across jurisdictions and even within local government areas.

EMERGENCY PLAN

The emergency plan is one of the many documents that management will frequently consult.

The emergency plan is part of the event plan and is derived from risk management planning and identification of risks that may arise from and occur in the crowded place. The plan should be comprehensive and updated when new information is known.

An emergency plan arises from numerous factors, such as the size of the venue, type of event, crowd size and demographics, number of stakeholders and other plans, policies, regulations and requirements of the local council or other permitting agencies.

The plan should describe actions to follow and key considerations, such as notification methods and alarms, evacuation procedures, communication methods, staff in charge, assembly areas, response to first aid incidents and fire, contact details, attendees with disabilities, procedures and media management.

The venue may have its own policies, procedures and emergency strategies that you must work in concert with.

An emergency that may have an impact on a crowded place may not necessarily originate from within it.

EMERGENCY MAP

An emergency map of a crowded place highlights information required to plan actions during an emergency, and this will be part of the event plan. As a location grid, the map shows vehicle access points, emergency pathways through the site, security and redeployment points during an emergency, general crowd flow and 'pinch points' (where crowds are squeezed into smaller areas or corridors), crowd movement during an emergency, evacuation assembly areas, secondary assembly and backup areas, invacuation areas, first aid stations, disabled access and exits. The map may be accompanied by information about types of injury and the number of attendees involved.

The map may also include a location map showing nearby hospitals, emergency services and other relevant stakeholders. It can also show the 'last mile' – the area around the site or venue where the attendees park or alight from public transport to arrive on-site and leave a venue. Australian Standard 3745-2010: *Planning for emergencies in facilities* and its amendments includes advice on emergency diagrams.

In some large events, a grid is placed on the map to indicate the exact location, entrances, exits and pathways, assisting staff and emergency services to locate an incident or emergency. This may be used in combination with a global positioning system (GPS) for exact coordinates.

> Some large sites and crowded places identify infrastructure on emergency maps. The Formula One Grand Prix uses EMAC (event management asset code), wherein a unique number is attached to all temporary or permanent on-site infrastructure. It can be used for repairs and maintenance, and to guide emergency services to the location of an incident.

STAFF AND VOLUNTEERS

Assessing the human resources required in an incident, including on-site and external, is essential to planning. Identification of staff and volunteer competencies, roles and responsibilities in an incident is part of the emergency plan.

Management should consider appropriate risk-related training for staff and volunteers in preparation for incident and emergency management. They should specifically grasp situational awareness – awareness of the immediate surroundings of a situation and the crowd while focusing on the problem.

> What if two or more incidents occur at the same time? The analysis of a single incident may conclude that it can be covered by existing resources and operations and it may be described as a minor incident. However, if staff are focused on one incident, their situational awareness may be impacted, and if something else goes wrong, what might have been a minor incident can quickly become an emergency.

WEATHER

Weather expertise should be called on to monitor weather developing relevant to the venue and surrounds and secured through a structured arrangement.

In March 2010, Melbourne's Moomba Festival was temporarily shut down after a brief but brutal hailstorm passed through the city. Flash flooding and hail of between 2–5 cm in diameter was recorded. Management monitored the weather prior to the event and called for the evacuation of the site prior to the storm. Rides were shut, marquees and infrastructure secured, and communication was broadcast via PA and on large screens about the closure (although many attendees did not adhere to the warning). During the storm, attendees took shelter wherever they could. Following the storm, there was flood damage, and attendees were soaked and superficially injured. Twenty attendees were treated by paramedics for hail-related injuries, and many more suffered minor hail-induced bruises. Injured attendees were directed to the green room to rest, receive first aid if required and change into dry Moomba crew t-shirts. Staff worked through the night and into the morning to have the site restored and functioning for the remainder of the event.

OPERATIONS MANAGEMENT PLANS

Emergency services may develop an operations management plan or an operations order for each major public event and adapt existing plans and orders for more routine gatherings. These plans should be formally submitted to the appropriate senior officer to whom authority has been delegated for approval and signature. The following elements are key to operations management planning:

- Base plans on a risk management approach that provides a means of identifying and managing safety risks associated with the event.
- Detail the overall objectives, roles, responsibilities, tasks and procedures for managing emergencies at the event.
- Convey management and the emergency service commander's intentions in relation to the event.
- Enable subordinate personnel to identify the overall objectives and evaluate the contribution of their assigned tasks.
- Develop clear, concise plans, free from ambiguity.
- Follow a consistent format.
- Set plans out in a logical sequence, covering elements including:
  - situation
  - mission
  - execution
  - administration and logistics
  - communications including any interoperability issues and work-around arrangements
  - safety
  - questions.
- Number plans consecutively with the progressive number of the plan or order and the year of issue, identifying:
  - the authority which issued the plan or order
  - the date of issue
  - the distribution list.
- Issue the plan with sufficient time to allow subordinate personnel to frame and issue their own plans or orders, and to carry out the action required of them.

PRE-EVENT BRIEFING

A pre-event briefing meeting with all key stakeholders well in advance of the event, particularly emergency services where appropriate, is a critical part of the incident and emergency planning process. One purpose of the briefing is to inform stakeholders of the event details and emergency management plans. Concerns and issues relating to the event can be raised and discussed and, where necessary, changes made to the event plan.

An agenda outlines what issues will be discussed and who is participating in the briefing. It should allow time for discussion and, if necessary, be reconvened prior to the event if major changes to the event are required. The meeting should include distribution of relevant documentation, including operational orders, emergency evacuation procedures, insurance details, electrical and structural certification, an event personnel list and contact numbers.

A written record of the meeting, noting decisions, documentation, discussions and detail changes, should be circulated to attendees, and should be kept for review at debriefing meetings or to resolve points of contention.

COMMUNICATION

One important consideration in emergency planning is the use of communication systems during an emergency, including capacity, range and redundancy. Communication channels should be established prior to an event so that staff and personnel operating in the crowded place know how to report an incident or access information. Chapter 2 provides more information on communication.

Response

In a crowd, where noise and emotions can run high, and when an incident occurs, a clear procedure must be followed. It may require an alert sent to relevant stakeholders with a description. The location must be clearly and rapidly described; in these situations, an emergency map or site map is invaluable (see *Emergency map* earlier in this chapter; Chapter 5 provides more information on site maps). In many cases, time is of the essence and clear terminology is vital.

The method or channel of communication should be planned for any incident, and can include radio, social networks, visual message boards (VMS) and video screens.

Considerations concerning incident and emergency response are found in *Guideline 1: Crowded Places Checklists* on the Knowledge Hub.

EMERGENCY COORDINATION CENTRE (ECC) AND EMERGENCY OPERATIONS CENTRE (EOC)

An ECC or EOC is not to be confused with the event management centre (EMC), or any other location where event activities are controlled in normal circumstances. It is also a distinct location from an operations centre, control point or forward command where an incident is being managed.

The number of professionals on duty at an ECC or EOC, as well as the complexity of this facility, will depend on the size of the event being conducted or the active crowded place, the expected attendance and the event type. The complexity of an ECC or EOC also depends on the level of risk associated with the event as per the risk assessment.

Complex emergency events are likely to require enhanced management processes from an interactive, multi-agency coordination centre. To achieve this, an ECC or EOC should:

- be a collective capable of making authoritative decisions
- act as a centre for acquiring and deploying support resources
- manage information collection and dissemination
- develop intelligence and strategic planning capability
- develop and maintain an overall record of the event.

An ECC or EOC assists in the management of emergency response and recovery processes in the most appropriate ways. There is no standard ECC or EOC format for all emergency management circumstances. However, there are principles and concepts that should be observed in planning for, setting up and managing an ECC or EOC. The exact point where either becomes necessary is difficult to specify. However, the following aspects should be considered:

- An ECC or EOC should always be set up when the conditions specified in the relevant emergency plan have been satisfied.
- An ECC or EOC is more likely to be required when more agencies are involved than usual; when the scale of the event is outside normal parameters; when an unusual aspect of an emergency is causing or may cause difficulties; or when the consequences of an event may be extreme.
- Where broad geographical areas are involved, or where operations are very complex, more than one ECC or EOC may be established; in these cases, centres report hierarchically to a higher-level ECC or EOC.
- Efficient and effective management of the event can only be achieved with the active cooperation and assistance of all responding organisations. Managers cannot make effective strategic decisions in isolation.

CANCELLATION OR POSTPONEMENT

Occasionally, events should be cancelled, postponed, altered or interrupted. Unexpected cancellations have the potential to create dangerous situations, especially when a crowd has already gathered. A clearly defined approval and information sharing process is required.

Cancellation is management's responsibility, and the decision should be communicated with attendees. Emergency services may have a legislative power to stop an event – processes that should also be described in the event plan and clearly understood by all stakeholders. The powers to halt an event can be different in each state. For example, in some states the environmental health officer may have such authorisation.

Plans should be in place to appropriately manage such a situation and should address the possible re-admission of attendees to the venue.

There are three periods that should be considered for crowd control during the cancellation of an event:

1. before the attendees arrive – requires various communication channels to be used to inform the attendees; the communication plan for an event must have this contingency in mind
2. during the arrival period, when some of the attendees are already inside the venue – this can be a complex situation as the crowd leaving will encounter the crowd arriving; entrances and exits can become choke points, and car parks are often problem areas as cars arrive and leave concurrently in large numbers
3. during the event when the attendees are all in the venue.

Each of these three periods should be considered when developing an emergency management plan.

EVACUATION

Evacuation planning should be addressed at two levels; for each, the procedures and safe congregation areas will be different. Management should consider:

- evacuations from areas within the event venue for minor incidents, such as the movement of sick or injured individuals to a first aid post, the on-site medical facility or local hospital
- evacuations on a large scale, such as evacuation of the whole event site due to a major incident or emergency.

Evacuation procedures should be included in the emergency management plan and form part of the initial information provided to event attendees. More detail on

evacuation planning can be obtained from the *Evacuation Planning Handbook* (AIDR, 2017). That handbook states how the evacuation plan should detail the strategies and arrangements for all five stages of the evacuation process, including the responsible party for carrying out each of the five stages:

- decision to evacuate
- warning
- withdrawal
- shelter
- return.

Australian Standard AS3745 sets out requirements for developing controlled evacuation procedures for buildings, structures and workplaces during emergencies. These standards are also useful for managers of outdoor events where there are access and egress bottlenecks.

Evacuation of a venue at night can be disorienting for many patrons. The incidence of sprains and strains can increase under these circumstances, particularly if attendees experience confusion about the location of exits, including steps and ramps. Good lighting and clear signage can help reassure attendees and support a smoother evacuation process.

Multi-venue and concurrent evacuations – for example, an exhibition centre or government complex – pose unique risks for evacuation. If all on-site venues use the same evacuation assembly areas, overcrowding can become a serious risk. Management should ensure that attendees will know where to go.

A potential return to the event post-evacuation is complex for management. Ensuring that prohibited items are not brought in during re-entry, and that access is only regained by authorised attendees, presents logistical challenges.

Consideration should also be given to invacuation planning, or shelter in place or lock-down procedures, where the response to an incident or emergency is to confine people within a place due to a dangerous situation outside, such as a hostile act or significant weather event.

Evacuation and invacuation procedures should also be an essential component of pre-event and daily briefings for staff and volunteers.

Recovery and resilience

As traumatic as an incident can be, it is an opportunity to strengthen planning and response for the future. Management's resilience is demonstrated by its ability to learn from experience and refine future event plans.

After a major incident or emergency, recovery can affect many groups, such as people directly involved in the incident, the crowd, staff and management, agencies involved, the media and the organiser, whose reputation may be affected. For a disaster, recovery may reverberate throughout society and include governments and national organisations.

The recovery phase includes the way the site is handed back to management after an emergency. For an event, questions to ask include:

- Who is responsible during the recovery phase?
- How will attendees be let back into the site or venue?
- Has there been a breach of security?
- What are the effects on the social, economic, natural and built environments?

Emergency management plans should identify the local agency responsible for emergency recovery coordination and provide both business and after-hours contact details.

PSYCHOSOCIAL RECOVERY

Psychosocial support considerations depend on whether there has been a major incident during the event, and the capacity to identify and register attendees who may have been exposed to stress.

The purpose of any psychosocial support for affected communities is to enable affected people to maintain and retrieve their biological, psychological and social selves. Types of interventions can range from psychological first aid through to long-term clinical treatment.

There should be clear protocols for follow-up psychosocial support if an incident results in deaths, violence, threat to life, severe injuries, inability to protect or save others or other profound negative outcomes of a major incident in a crowded place. Local services will provide psychological first aid for people acutely distressed or otherwise harmed by the incident. Subsequently, specialised mental health counselling services may be needed to deal with ongoing trauma and grief. Any follow-up would be difficult if affected people and the processes for contacting them had not been identified. In such instances, it may be possible to initiate a generic follow-up through representative groups; for example, through sporting associations for a sports-related event.

Staff and management should also be considered for psychosocial support.

Management may assist people affected by a traumatic incident, in the provision of necessary services and subsequent activities related to the emergency that occurred.

Address the following key elements of support for recovery:

- Maintain positive expectations for recovery and the support to achieve this outcome.
- Provide psychological first aid.
- Organise a means of identifying and registering those affected including staff, performers, responders, attendees, passers-by and communications and administration personnel.

- Identify follow-up contacts to assess risk.
- Meet the requirement to provide ongoing psychological support (it is also important to consider formal counselling, including support to access practical assistance if required or for formal procedures).
- Identify persons at high risk or with high levels of need and link them to formal counselling expertise at the appropriate time.
- Provide services appropriate for the needs of affected people, accessible both physically and in terms of culture and language (support must be appropriate to the age, gender, culture, religion and other aspects of those affected).
- Provide or arrange compensation for patients.

Follow-up outreach may be provided through community events, information nights, support groups, helplines, schools, clubs, workplaces or other institutions.

Anniversaries, memorial services, ceremonies, coronial inquests and inquiries may be distressing for those affected by a traumatic incident in a crowded place. Support for affected people, as well as active contribution to strategies for preventing similar future incidents, may be additional components of recovery.

Constructive reviews and reports can be helpful both to future responses and to assist the psychological meaning for affected people. Further information is provided in the *Community Recovery Handbook* (AIDR, 2018).

In January 2017, a car rampage resulted in the deaths and serious injury of many people in Bourke Street, Melbourne. Psychosocial support services provided by the Australian Red Cross, the Victorian Council of Churches and the Australian Psychological Society were available on and around the scene immediately after the incident and in the weeks following. At the state memorial service on the anniversary of the event, psychosocial support services were again available to those attending the service and those who had been impacted by the event.

Debriefing

A debrief is a meeting held to determine response effectiveness for an incident, its aftermath and the effectiveness of the emergency management plan. It is a discussion of what occurred, identifying effective practices in use and areas for improvement. A debrief is normally conducted after the event's conclusion.

Debriefing is an objective assessment strategy designed to improve future performance. It should not be a 'blaming exercise', or degenerate into personal attack or criticism. The debrief convener should ensure the conversation remains focused, and the rules of debriefing are followed.

An operational debrief, separate from a stakeholder debrief and emergency services debrief, may be required as different attendees and levels of authority become involved.

In some circumstances, debriefs may also be conducted in a series of communications, such as for long-term, large-scale events. This would be done as part of the event management committee's self-monitoring process.

A debrief checklist is found in *Guideline 1: Crowded Places Checklists* on the Knowledge Hub.

Table 4 Types of debrief

Hot debrief	A hot debrief is typically carried out immediately at the end of a shift or phase of an event or incident, and includes staff present during the shift or phase of event or response.
Agency debrief	Each agency involved in the event or incident should conduct their own debrief after their involvement.
Cold debrief	A cold debrief is held after an event has concluded, and when enough time has elapsed for records and findings to be analysed and collated. This involves all relevant staff and stakeholder representatives. This debrief collects findings of the hot debrief(s), the agency debriefs and any other reviews or reporting on the event.

At the 2016 Falls Festival, a residential music and art festival held over the New Year's Eve break in Victoria, scores of attendees suffered minor to severe injuries as the result of a significant crowd crush incident. An all-agencies debrief – including management – resulted in better information sharing processes to assist in planning for the next event on that site.

Exercises

With a complex crowd and a high number of stakeholders, risks can easily be lost in the management of a crowded place. Using scenarios, such as 'what ifs', and exercises are ways to uncover situations that may not be initially obvious. These can occur as 'mini' risk meetings on-site.

> **An exercise is a controlled, objective-driven activity used for testing, practising or evaluating processes or capabilities. An exercise can be as simple as a planning group discussing an emergency plan or as complex as a major multi-agency event involving several organisations and participants.**
>
> *Managing Exercises Handbook (AIDR, 2017)*

For large public festivals or sporting matches, exercises are conducted before the event to check systems are sufficiently operational and arrangements – including emergency operations plans and orders – are appropriate. The areas tested include communication systems, security and staff capacity and responsibilities.

A simple discussion exercise involving a hypothetical situation can be explored at a staff meeting. When other agencies are involved, these are called tabletop exercises: a scenario is described, and the representatives of the agencies give their responses. Field exercises include on-site simulations of an emergency.

Further information on managing exercises can be found in the *Managing Exercises Handbook* (AIDR, 2017).

Lessons management

Lessons management is part of the risk management process, as every risk can ultimately strengthen the resilience of management and the event or crowded place. It is a feedback process that follows the prevention, planning, response and recovery model, and compares the results to the plans and the decisions made. For events, this means that the event plan, risk plan and incident and emergency plan should embed the evaluation process within them.

Two simple questions to ask are:

1. What happened?
2. How did that differ from what was expected?

The next step is to analyse the situation and response to uncover the cause. Remedial action must then be taken for the lesson to be put into action.

Further information on lessons management can be found in the *Lessons Management Handbook* (AIDR, 2013).

Chapter 4: Event and venue planning

SUMMARY OF KEY POINTS

What occurs at a crowded place is highly dependent on how it is planned; a large part of planning is pre-empting problems. Attention to detail, researching similar venues or events, seeking advice, adopting good practice and understanding the crowd are just some of the elements you should consider. It can be difficult to stop an incident from worsening due to the amplifying factors a crowd creates.

This chapter covers the planning process as it relates to health and safety. An event plan should consider every chapter in this handbook, as each contains information that should be included. It is recommended that managers of crowded places and event organisers, even on a small local scale, undertake training, as the responsibility for ensuring a safe and healthy crowd is enormous.

KEY CONSIDERATIONS

- The event plan is the main document used to deliver the event.
- The event plan is made up of supporting plans, such as the risk management plan, the emergency management plan and the health plan.
- Plans are used to liaise with stakeholders as well as to operate the event.
- There may be many licences, permits and other approvals from authorities required for the event, and these should all be in the event plan. Prior approvals are an important consideration in the planning process and are linked to stakeholder and risk plans.

INTRODUCTION

Crowded places and events require detailed planning. The outcome of this planning is an event management plan: an essential document that breaks down all the work to deliver, coordinate and close an event. The plan includes tasks, responsibilities, schedules, runsheets and much more. The plan will vary depending on numerous factors, such as anticipated crowd size or technical detail.

All events are unique. Even a repeat event, such as an annual festival, may have different suppliers, changes to the venue, different weather conditions or increased attendee numbers. Accordingly, each event plan is unique, and should be event-specific. There have been many cases where a plan has been used from a previous event without revision and adaptation, resulting in disaster.

Ultimately, the event plan is about the wellbeing of people in a crowded place, including attendees, staff, volunteers, emergency services and suppliers. Although not all risks are directly related to health and safety, every problem, including financial and reputational risks, can impinge on health, safety and security. Health and safety concerns should therefore be considered in the event plan. More information about health considerations can be found in Chapter 7 and Chapter 8.

Event Plan

Investing time in a detailed event plan is necessary. Not only does it assist management in producing a safe, healthy and successful event, it becomes essential when an emergency or incident occurs in a crowded place.

An event plan documents the work areas, tasks, responsibilities and schedule to deliver the event.

For smaller events, like community festivals or local sporting matches, an event plan can begin with management answering important questions. The list in *Guideline 1: Crowded Places Checklists* available on the Knowledge Hub is a good start, based on knowledge and experience of seasoned event managers. Many things can be forgotten if a checklist or template is not used, although a checklist is not exhaustive.

In certain circumstances, event plans should remain confidential, and not be passed on to stakeholders without the permission of the document owner.

Depending on the size and type of event or crowded place, an event plan may include the sub-plans listed in Table 5.

Table 5 The event plan

	An event plan includes:	
RISK ASSESSMENT	Risk management plan (see Chapter 1)	A plan that documents the risk assessment undertaken, including treatment options prepared in line with AS/NZS ISO 31000.
	Stakeholder management plan (see Chapter 2)	A plan that documents the stakeholders considered and those consulted in the event planning. Stakeholders should be listed, and any individual issues they raise discussed and addressed.
	Marketing, media and communications plan (see Chapter 2)	A plan that documents the marketing, public information and information sharing that occurs before and during an event.
	Emergency management plan (see Chapter 3)	A plan that documents the actions to be undertaken by the management team in case an emergency or incident occurs, including any criminal acts.
	Evacuation plan (see Chapter 3)	A plan that documents the process of evacuation that may be required, including the decision-making process for an evacuation and the routes and methods to enact an evacuation.
	Traffic management plan (see Chapter 4)	A plan that details the measures taken to manage traffic and road closures, mitigate risk to vulnerable areas, including hostile vehicle attack and any other aspects for roads, traffic, pedestrians and parking.
	Transport management plan (see Chapter 4)	A plan that documents how stakeholders will be transported to, from and around the site.
	Public transport plan (see Chapter 4)	A plan that facilitates communications between management and public transport providers regarding site access and tactics to minimise service disruptions.
	Site plans and map (see Chapter 5)	A plan that documents the common maps to be used by all stakeholders during the planning for and management of the event, including gridded maps, structure layouts, access and egress routes.
	Crowd management plan (see Chapter 6)	A plan that documents the process for managing the crowd, including appropriate staff, communications, signage, barrier selection, access, egress and emergency exits.
	Health services plan (see Chapter 7)	A plan that describes the collaborative health services to be provided at an event and the concept of operations for coordination and delivery of health services. The plan should describe the roles and responsibilities of each organisation and how they will work together.
	First aid plan (see Chapter 8)	A plan than demonstrates the first aid provision at a planned event. It should include the number of first aiders, location of first aid posts and equipment available.
	Security plan (see Chapters 6 and 9)	A plan that identifies and addresses security risks.

RISK MANAGEMENT

Management is responsible for ensuring their site and event adheres to a detailed, well-documented risk management plan throughout all stages of the planning process, and that stakeholders have been consulted. Chapter 1 provides more information on crowds and risk management.

In a coronial enquiry, the Coroner will want to know if there was a plan; if it was followed – including if not, why not; and if the course of action contributed to a death. The Coroner may encourage management and staff to follow plans and recommend rewriting plans that don't work. Some plans may be found to be inadequate or irrelevant; it all depends on the facts found. The Coroner's job is to make recommendations to avoid future deaths, not to act as a referee to ascertain if a plan was followed.

ORGANISATIONAL STRUCTURE

Managers of crowded places should have an established organisational structure as part of their ongoing operations and administration. Events, however, are project-based – the structure is temporary and can grow rapidly as an event is planned.

Events of substantial size such as major sporting events should plan an organisational structure, which may resemble a large company's structure with divisions and departments. A multi-agency organisational structure for a crowded place may include emergency services, regulatory authorities, local government and health services. It can be divided into subcommittees according to areas of responsibility.

For large events, the event organisational structure will include the event management centre (EMC; sometimes referred to as an event coordination centre). This place or office is generally also used to handle major emergencies where stakeholder agencies are represented.

In the case of very large or catastrophic emergencies, an emergency coordination centre (ECC) or emergency operations centre (EOC) may be sent up. More information on ECCs and EOCs is found in Chapter 3.

STAKEHOLDERS

Health and ambulance services should be made aware of the event management plan to assess the likely impact on normal community health resources. Chapter 2 provides more information on stakeholder engagement.

> A small town, typically serviced by a nurse-led community clinic and visiting GP, may suddenly become a temporary 'large town' with attendees staying there for an event. For health services, this means increasing staffing to match the size of the visiting community and its needs and arranging for potential inter-facility transfers to hospitals with higher levels of care. This influx requires advanced planning to cope with risks. If not, there will be issues with inadequate staffing, leading to fatigue and an inadequate skill mix.

FIRST AID AND MEDICAL SERVICES

As events are temporary and project-based, there is often limited ability to increase first aid and medical services over time. Adequate resources to cope with expected crowds, as well as potential changes to numbers, should be considered early and become part of the event plan. Chapter 8 provides more detail about first aid and medical services.

Governance requirements

LEGAL AND INSURANCE CONSIDERATIONS

Management should consider obtaining legal advice prior to the event. Items that warrant consideration include:

- permission to use land, and suitability for the event type
- liability for injuries to staff, performers, volunteers and attendees
- liability for losses that may be suffered by staff, performers, volunteers and attendees if an event is cancelled or disrupted due to an emergency or other reason
- obligations to assist staff, performers, volunteers and attendees with emergency accommodation, repatriation or other assistance in the event of an emergency
- liability for financial obligations incurred by emergency responders, local government and others when responding to emergencies occasioned by the event
- possible liability for the resultant effects of the event on normal emergency operations and the surrounding community
- liability for boundaries outside the event and venue.

Management should consider whether they and their suppliers have adequate insurance to cover any potential legal liability that may be incurred. Managers will be vicariously liable for any action of staff and volunteers and should consider whether it is appropriate to extend insurance cover to performers and attendees for actions taken in the event of an emergency. Insurance providers should be consulted on appropriate risk management practices with respect to the event and the extent of appropriate insurance cover.

Management should also consider obtaining legal advice so that the terms of any proposed insurance cover are sufficient to deal with the risks of the event. There may be a requirement to post a bond or provide liability insurance cover to meet the costs of response to emergencies, subsequent venue clean-up, and traffic, crowd and other policing functions.

LEGISLATION AND REGULATIONS

Typically, legislation, regulations or local laws govern or restrict public events and crowded places, or aspects of them. In some cases, particularly for large or high-impact events, special state or local legislation exists. You should be familiar with your local jurisdictional legislative and regulatory requirements.

APPROVALS, PERMITS AND LICENCES

It is management's responsibility to identify and ensure compliance, and that the required approvals are obtained. This may involve obtaining a formal permit to conduct the

event, and could include further guidance, requirements or conditions. Permits and approvals will take time to obtain, and this should be factored into the planning schedule. If the event crosses local council areas or across states, such as a marathon run, management will need approval from multiple agencies. In addition to advice from government, it is advisable to consult the local workplace authorities or other regulatory bodies to identify all required licences and permits.

The event plan may be required by local councils, emergency services and other stakeholders as a condition for permits and licences.

Information on the approval process should be obtained early in the planning process, including:

- details of the approving authority and any other authorities actively involved in the approval process
- information required to support the application
- timelines including relevant deadlines for lodging of applications as lead time will be required for applications to be processed.

Types of approvals, permits and notifications include:

- local government approvals – depending on the state or territory, approvals may be required for use of public venues; food and drink; alcohol; temporary structures; camping; road closures; parking; pedestrian, traffic and crowd management; and other issues with community impact
- Commonwealth, state or territory government approvals for the use of Crown land, roads, parks, waterways, bays and other property managed by governments
- state or territory government regulatory approvals, licences, notifications or standards including:
  - alcohol licensing
  - food defence
  - roads, traffic and parking
  - public transport
  - fundraising, raffles and gaming
  - noise
  - fireworks
  - animal welfare and control
  - heritage approvals
  - waterways and aquatic features
  - WorkSafe, WorkCover and related practices
  - electrical safety
  - gas safety
  - building and temporary structures
  - amusement devices
  - crowd control and security
  - construction work and logistics, such as folk lift licences
  - dangerous goods storage and handling
  - closure of certain adjacent or peripheral roads or streets
  - heritage or Crown land use approvals
- police – depending on location, approvals may be required for events on roads, highway collections, blank firing firearms, historical re-enactments (including weapons and firearms) and liquor licences.

> Food vendors using gas bottles in catering vans may present further risks beyond food safety. Unsafe gas bottles can cause explosions, fire and harm to attendees and property. Management should require that all vendors have tested and in-dated gas bottles and appliances, and should ensure a gas safety checklist is completed prior to operation.
>
> One major event in Adelaide now requires that the vendors remove their bottles prior to attendance and use new, tested and guaranteed bottles supplied from the event to remove another area of risk.

Approvals form part of the stakeholder management and planning schedule – further detail on stakeholders is provided in Chapter 2.

AGREEMENTS

A contract or letter of agreement can list, for example, the conditions to operate, expectations, level of service, appropriate qualifications and licences. Compliance with the conditions of the contract should be monitored during the event.

'USER-PAYS' POLICY

Some public agencies have adopted a 'user-pays' policy for services provided at events. This policy improves the allocation of statute resources in the community by charging for services deployed to plan for events. Management should consult local and state authorities for relevant fee structures and determine any applicable charges for services provided.

As a condition of approval being granted, management may be required to provide feedback on the approval process and an evaluation of the event. This post-event requirement might be done in the form of a debrief or a report to relevant authorities.

GETTING ADVICE

There is strong emphasis on consultation throughout this handbook. Managers may employ the services of experts; giving consideration to such things as time, cost, quality and risk.

Sometimes, local governance requirements are unknown; this is particularly true for unfamiliar locations or venues, new program ideas and new demographics.

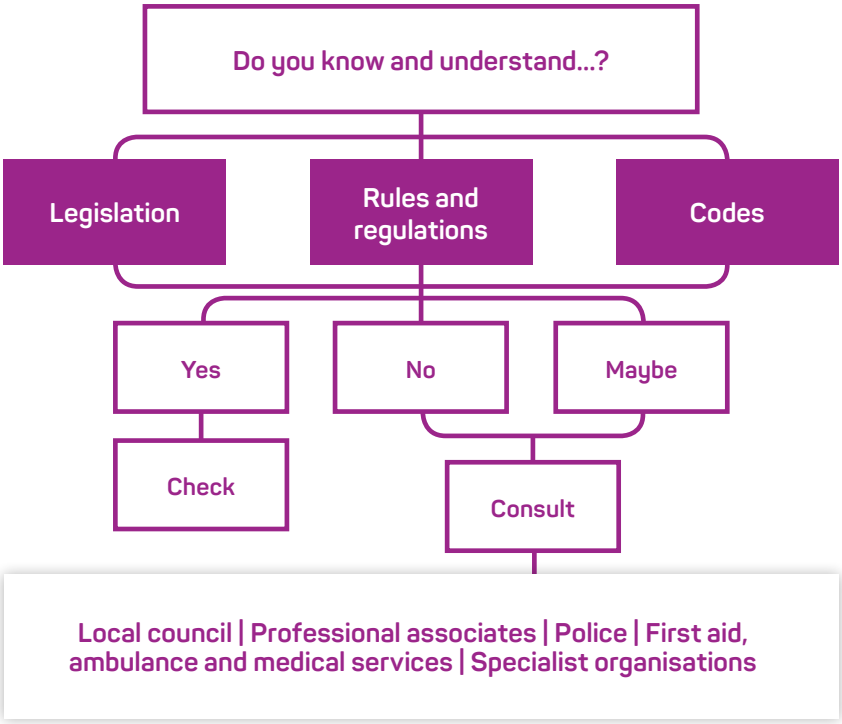


Figure 10 Understanding the need to consult experts

A new manager decided to plan a music event on a vacant piece of farmland adjacent to a large open range zoo. Legislative frameworks were not available to prevent the event occurring despite concerns from key public safety agencies. Management did not take advice from the agencies, nor did they review publications available, such as the *Safe and Heathy Mass Gatherings Manual* (1999). As a result, management did not have the appropriate corporate protections for costs and liabilities and ended up losing multiple family homes that had been put up as collateral for the event. The manager ended up leaving the country.

Management should look at each element of the event plan and ask:

- Is this covered by legislation?
- Do standards or codes apply?
- Are there any rules or regulations?
- Has this been covered in another risk assessment?

As illustrated in Figure 10, if the answer is unknown, management should consult local government, emergency services, professional associations, security companies and health services to ascertain if they require expert advice or to engage a specialist company. *The National Strategy for Protecting Crowded Places from Terrorism* (2017) is available to help managers to assess and respond to risks of a terrorist attack.

The process outlined in Figure 10 will help management uncover the relevant legislation, rules and regulations and any necessary permits and licences required.

Venue

Features of a venue should be matched with the requirements for an event, such as crowd size, toilet requirements, ingress and egress, distance from transport, and distance to emergency and other services. Established venues have pre-existing risk management policies and a documented event history. Event-specific evacuation plans and procedures may be required, modifying existing venue procedures. Venues have specific risks, and a two-way conversation with a venue manager is necessary in the risk management process. Professional advice may assist in confirming a venue is fit for purpose.

As planning progresses, any change may have an impact on venue capacity and capability to handle risks. The flexibility of management to respond to these changes is a consideration. Changes can take place well outside the venue site, but still have an impact. The venue and event are not isolated from the surrounding community; location, such as proximity to businesses, transport hubs, CBDs, emergency services and hospitals can have an effect, especially on incident and emergency response.

Usually a venue is chosen based on the event. Sometimes, however, the venue may be fixed, and the event requirements will need to be flexible to accommodate the venue.

> The Southbound music festival, held in Busselton, Western Australia, was cancelled the night before the event in January 2015, after bushfires in the area restricted access to the site. Staff were on-site and setting up when the decision was made. The impact of the fire prompted discussion between management, the City of Busselton and emergency services, and resulted in the permanent rescheduling of the festival to the period between Christmas and New Year's Eve. The permanent date change provided emergency services and stakeholders with greater scope to plan during the busy summer season.

Management should review existing site plans to ensure they suit event needs. For example, a venue normally used for trade shows will require adjustments for an electronic dance music performance. The output of venue planning is the site plan and map, where health and safety are integral considerations. Further information on site safety can be found in Chapter 5.

Staff

Ensuring a crowded place is managed with appropriately trained staff is fundamental to the management process (Allen et al. 2008). The roles include:

- management – event mangers and coordinators
- crew – machinery operators and equipment technicians
- front of house (FOH) staff – ushers, ticket check and wristbanding staff, information providers
- hospitality – bar and wait persons
- security.

Any of these roles may be performed by volunteers.

A management team is assembled quickly and exists for a finite time (Allen et al. 2008). There are a number of challenges and considerations for management:

- Consider your ability to create effective teams within available times.
- Establish clearly defined team tasks.
- When choosing team members, consider personality, skill, knowledge and availability.
- Provide adequate training and resource support.
- Understand the legal obligations of employers and employees, such as insurance and WorkCover.
- Consider costs and budget availability.

VOLUNTEERS

There are a number of websites and organisations concerned with event volunteering, a specialist area that introduces new risks. Some of the issues include recruitment, training, governance, insurance, work health and safety, agreements and contracts, rostering and responsibilities, and spontaneous volunteers. Volunteers, and spontaneous volunteers who emerge to assist, may also be involved in incidents and emergencies and this should be accounted for in planning. Management should note that volunteers retain the same rights and obligations as paid staff under the model *Workplace Health and Safety Act*.

> As one of Australia's largest and longest running annual events, the Sydney Festival employs as many as 100 volunteers to assist with show delivery. Key to the success of such a volunteer program is the clarity of responsibility for risk between paid and unpaid positions. Paid staff are held accountable where responsibility for staff or attendee safety exists, and thus elements of risk. Volunteers are used to enhance the event experience rather than underpin it.

The crowd

Different events attract different demographics, often by design. Successful marketing defines and communicates efficiently with potential attendees, and can be used to send out related information, particularly regarding health and safety issues. As part of the event plan, the communication plan should include this type of information.

Information on alcohol restrictions and recommended weather gear, for example, can significantly reduce problems on the day of the event. Attendees will have dietary, physical and access requirements that must be considered.

Each crowded place has unique health and safety risks, which may include:

- illicit drug and alcohol use attracted by specific entertainment performances
- encouraged audience participation that influences crowd movement ('wall of death', moshing, slam dancing)
- accommodating ill and infirm people attracted by religious healing events, increasing the level of on-site medical care required
- access for senior citizens, requiring higher levels of health services
- overreactive and violent supporters attracted by sporting events

- interpreter services, special food services and multilingual signposting, brochures and announcements attracted by diverse cultural events
- creation of a crowd crush from obstacles causing an attendee to fall; locked or sudden opening of gates; barrier collapse; mass moves away from a source of panic or towards something desirable (craze)
- spontaneous crowds and unplanned demonstrations.

CROWD MOVEMENT

It is often mistakenly assumed that a crowd at an event is stationary. Certainly, most of the time, attendees are watching the show; yet crowd movement is related to the event program. During periods of crowd movement – between acts, at half time or during intermission – there are important health and safety considerations that should be part of an event and risk plan.

Crowd movement should be considered at different times. During breaks, where will the crowd go? Will the pathways allow emergency evacuation? The event program should be compared to the site map to look for trouble spots at certain times.

Crowds flowing out from, and back to, train and bus stations, taxi ranks, and parking areas should be included in the event plan.

A site map is a valuable tool when examining crowd flow before, during and after an event. Further detail on site maps is found in Chapter 5. Site maps and floor plans are also part of the risk management process outlined in Chapter 1.

At least 60 people were injured at the Falls Festival music event in Victoria when one headline act finished and the audience rushed to a nearby stage to see the next performers. A few people slipped in the rush, and created a domino effect. Attendees later described how they were lifted off the ground by the crowd and how the pressure made it difficult to breathe.

During the event

The prime consideration during an event is monitoring the application of the event plan; specifically, the risk management plan. A resilient event management plan will be flexible enough to accommodate most changes. It is, however, unlikely that *all* issues can be forseen.

Monitoring is essential to:

- recognise a change
- identify the cause and effect
- assess the impact: is it a small incident or an emergency?
- identify actions required to minimise any disruption
- communicate efficiently and in a timely manner to the crowd and stakeholders if necessary
- recognise and minimise any flow-on effects from the change and the mitigation of the risks
- record any incident for legal and evaluation purposes.

This list demonstrates how monitoring takes up resources and must be part of the event plan. For most events, it is during the event that the safety risks occur. As described in Chapter 1, staff, volunteers and subcontractors must be situationally aware, and aware of the triggers or danger signs in a crowd.

Monitoring is essential for security. The HOT method (**H**idden, **O**bviously suspicious or not, **T**ypical) is an established approach, used for identifying bags.

In some cases, an impromptu on-site risk management meeting is called for, and relies on collective staff and volunteer experience.

Another on-site task during the event is checking compliance. Public events with food stalls require constant surveillance. Chapter 7 provides more information on public health.

A discarded cigarette set fire to stubble surrounding parked cars at the UK's Boomtown Festival. Eighty cars were destroyed by fire; fortunately, no injuries were reported, despite the incident occurring metres away from the festival campsite. The campsite was evacuated, and management provided affected attendees with logistical support, including travel arrangements for those with destroyed cars and internet and phone lines so car owners could contact insurance companies. The festival went ahead as planned, despite the fire.

Access and egress for emergency and essential services

The requirements for emergency and essential services for access and egress from a site, as well as movement around and within the site, should be accounted for in planning. Dedicated official parking should also be made available for attending emergency services personnel. Transport may be via cars, small and large trucks, buses and golf carts – all should be considered with regards to turning circles, width of roads, height limitations, load capacity, how to move them out of the way if they break down or get bogged and how they interact with each other if there is an emergency.

Planning should consider whether emergency services personnel have access to all sub-sections of the venue, including performance, attendee and parking areas. Ideally, there should be separation between transiting

vehicles and pedestrian traffic to minimise risk of injury and response times.

Traffic management is the domain of police, venue security and transport and local government authorities. However, management is responsible for adequate planning, and must liaise with relevant authorities. A venue should have adequate access and egress for emergency service vehicles, as well as dedicated perimeter roads that may be required for movement.

For large events, adjacent streets on all sides of the site should be closed with parking banned, to provide access and a buffer zone; access should be restricted to emergency service vehicles and residents. Emergency services and public transport authorities should be informed of any traffic alterations from normal flow, such as blocked off public streets. Roadways and access routes should be clearly distinguished, signposted and kept clear.

Where camping is associated with a crowded place, there should be adequate capability for attendees, wardens and emergency services to identify locations. This can be achieved by gridding locations, and by providing maps with alphanumeric values for reference.

Questions to ask include:

- Is there adequate access to and within the venue?
- Is there a road network? Or would responders have to walk significant distances to the spectator or performer areas?
- Is the site served by a road that can be closed to the public and used only for access and egress of emergency service vehicles?
- If access roads are unpaved, would emergency or service vehicles become bogged if heavy rains occurred during or just prior to the event?
- Once on-site, is there sufficient room for marshalling, manoeuvring, repositioning or redeployment of emergency vehicles?
- Would departing vehicles be prevented from leaving by congestion produced by other arriving vehicles?
- Are adequate access and marshalling areas available for large numbers of emergency vehicles should a major incident occur?
- Can aeromedical providers ascertain if there is a suitable site available for evacuation?
- In the event of a mass patient situation, does the venue layout provide space for an on-site treatment area to permit triage and stabilisation of patients prior to removal?
- To eliminate the need to carry casualties and equipment over long distances, will that triage area be easily accessible?
- Are evacuation points established and clearly marked?
- Do health services providers have a plan to service evacuation points in the event of a major emergency?
- Should emergency vehicles be met by staff and escorted through the site?

Evaluation and debriefs

Assessing the success, or otherwise, of the health and safety aspects of an event is considered part of the general event evaluation. The event plan, emergency management plan, incident reports, near miss reports, risk management plan and other plans are evaluated and compared to what happened at the event. The event plan is then examined for gaps – this informs future event planning.

A debrief is the forum to discuss what occurred during the event, to identify both good practices and areas for improvement. The debrief is conducted at the event's conclusion. Some circumstances may warrant a series of debriefs, such as for long-term and large-scale events. These would be executed as part of the event management committee's self-monitoring process.

A debrief is an essential part of planning; the convenor of a debrief should ensure it is efficiently facilitated and remains focused, and that the rules of debriefing are followed. However, debrief effectiveness is often limited by sloppy preparation, conduct and follow-up. With care, the work involved in planning and organising an effective debrief will be rewarded many times over when either the effectiveness of existing arrangements is confirmed, or when improved systems and practices are identified and implemented.

Further information on evaluation and debriefing can be found in the *Lessons Management Handbook* (AIDR, 2013); Chapter 2 provides more information on pre-event briefing and communication.

Chapter 5: Site safety

SUMMARY OF KEY POINTS

Managers of a crowded place have a duty of care to all attendees and staff involved. They are regarded as the 'duty holders' and are expected to make all reasonably practicable efforts to ensure the health and safety of the attendees.

Many regulations and standards affect the operation of a crowded place, and these vary from one jurisdiction to another. Events and festivals that have risky programs – such as motor racing, water sports and fireworks – are heavily regulated. Management should subcontract out these types of activities to specialist licensed companies where appropriate. However, this does not diminish the responsibility of management as the duty holder.

KEY CONSIDERATIONS

- Managers of a crowded place have a duty of care to avoid foreseeable risks. The safety of all the people on site is part of that duty.
- Health and safety considerations apply to all people involved in event production, as well as the crowd.
- The work health and safety guidance in each state and territory includes specific information on many of the aspects of site safety.
- On-site structures, often temporary, are the source of many safety risks.
- A crowded place involving electricity, gas and fire will be governed by a multitude of codes, regulations, standards and acts.
- The complexity of rules and regulations, and the specialist knowledge required to apply them, is the business of many expert suppliers. Management should consider early consultation with these companies.
- High-risk events have associations that can assist in site safety planning.

INTRODUCTION

Health and safety in a crowded place is both a moral and legal obligation. Attendees are concerned with health and safety, as are managers, suppliers, contractors, performers, and other stakeholders. Safety is a responsibility of the whole community; however, this does not mean it is equally shared in a legal sense. Different jurisdictions have different definitions for who is responsible – it is advisable to check local jurisdictional requirements.

This means suppliers, contractors and others involved in the event may have a responsibility, along with the event organiser and venue manager.

Management has a duty of care to avoid foreseeable risks and to take reasonable precautions:

- Perform a risk assessment for all areas of the place to identify and control safety risks.
- Enact a plan to manage all risk and safety issues, including allocating responsibility to specific people, contractors and others involved with the place.
- Promote clear and accurate communication and consultation between event organisers and all others involved with an event or place.
- Document risk and safety policies and procedures, and ensure all staff, volunteers and contractors can ably implement them at an event.
- Delegate the management of safety to a designated person with health and safety knowledge and skills.

If a supplier – for example, a seat hire company – fails to fulfil its safety obligations, legal responsibility rests with the supplier, and not necessarily with management if they have done everything to minimise the risk.

Safety falls under each state and territory's adoption of the model *Work Health and Safety Act*. Breaches of these laws are criminal acts.

The model *Work Health and Safety Act* states that what is 'reasonably practicable' requires consideration of:

a. the likelihood of the hazard or the risk concerned occurring; and
b. the degree of harm that might result from the hazard or the risk; and
c. what the person concerned knows, or ought reasonably to know, about:
    - the hazard or the risk; and
    - ways of eliminating or minimising the risk; and
d. the availability and suitability of ways to eliminate or minimise the risk; and
e. after assessing the extent of the risk and the available ways of eliminating or minimising the risk, the cost associated with available ways of eliminating or minimising the risk, including whether the cost is grossly disproportionate to the risk.

Legislation based on this Commonwealth Act is in place in each state and territory, except Western Australia and Victoria. In those states, work or occupational health and safety legislation imposes similar obligations.

Management should know and comply with the standards within the event industry. The hierarchy of rules and guidelines is as follows:

1. acts and legislation – law passed by the Australian Parliament
2. regulations – most are under legislation and represent the standards that management should meet, such as licensing requirements

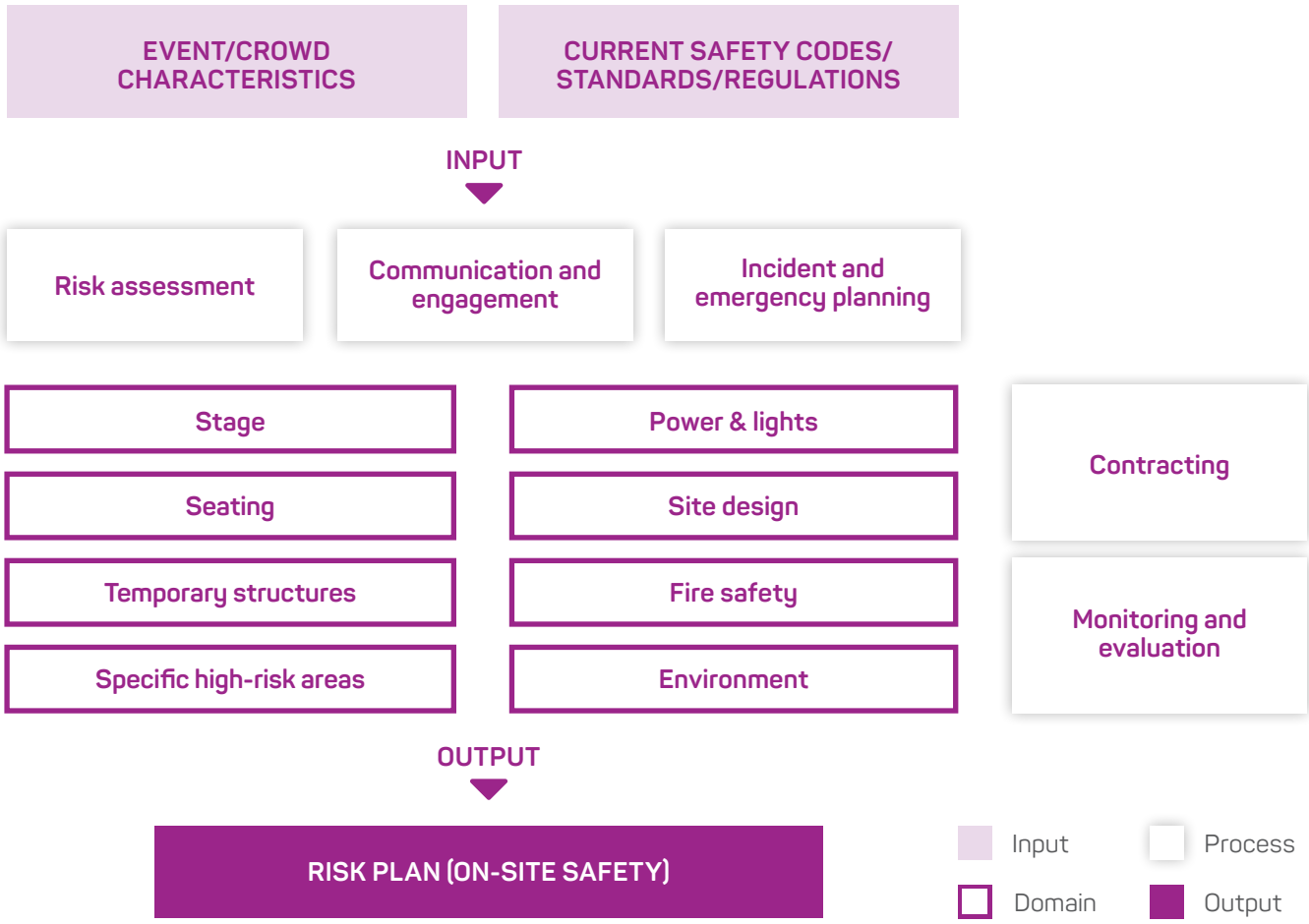


Figure 11 Process for developing a site safety plan

3. codes of practice – these provide detailed information on how owners and operators can achieve the standards required under work health and safety laws
4. industry standards – provided by industry associations
5. international standards, such as the ISO 31000 *Risk management – Guidelines*.

Effective management of safety is a process that begins well before an event, continues through the staging and culminates in the debriefs.

Health is both an important outcome of safety planning and management, and the umbrella term used to describe the specialised and, at times, complex network of providers involved in providing health services.

Safety is an exercise in continuous improvement, and the greatest benefits will be gained by ensuring that lessons learned from previous events and exercises – and the experiences of others – are incorporated into the design and execution of any event plan. Health planning minimises the impact of incidents on attendees, communities and health services, by engaging integrated 'whole of health' plans and service delivery models that are tailored to risk assessment and health service availability.

Risk management

Site safety risk can be complicated; one incident may set off a multitude of secondary incidents. As such, the whole community must be considered and should be accounted for in the risk management safety plan. For example, air quality may be adversely affected in some crowded places or within a venue, and arrangements should be made to reduce the impact of dust and fumes. Chapter 1 provides more information on crowds and risk management.

Work health and safety

Most crowded places are regarded as a 'workplaces' in the legal sense. Management and authorities should be familiar with their respective state or territory law, particularly work or occupational health and safety legislation. There is a legal obligation to provide for the safety of attendees, and the appropriate care, safety and training of all personnel working at the event.

Personal protective equipment and safe handling facilities should be provided to mitigate risk.

At sites where noise levels are high – such as rock concerts, air shows and motor racing – staff who will be

exposed to noise for prolonged periods must be provided with adequate ear protection. Attendees should also be warned of the dangers posed and advised of measures to protect their hearing.

Consultation is a key component of work health and site safety – more information on consultation and communication is available in Chapters 1 and 2.

SafeWork Australia defines a workplace as a location where work is carried out for a business or undertaking, and includes any associated spaces where staff go or are likely to be while at work. This definition covers volunteer- and community-run events. All states and territories implement strict laws and regulations around the planning and management of safe workplaces. Management should visit the SafeWork Australia website (https://www.safeworkaustralia.gov.au) to determine their obligations and understand the potential consequences of poor planning.

SAFETY OFFICERS

A crowded place should have one or more personnel with dedicated safety role(s) or who have safety responsibilities as part of their role(s). For some events, safety officers are mandatory. Responsibilities may include:

- input into risk assessments and mitigation strategies
- reporting and recording
- auditing and inspecting
- investigating incidents
- identifying hazards and planning responses
- monitoring risk management plans
- liaising between owners and operators, such as event organisers and emergency services
- liaising with regulatory authorities.

Safety personnel should be vested with authority to make decisions and instigate changes when necessary. Ideally, these people will have experience or qualifications in site safety.

Site map

A site plan and site map are essential tools used to set out required event elements and programming, and can be used to identify choke points and queuing areas.

A site map can identify flow patterns in crowds, including ingress, egress, circulation and possible clashes with the arrival of supplies or equipment. Events often use a circular flow for the crowd, used to identify dead ends and place security and signage.

The site map can show entrances, flow lines, exits, separate vehicle entrances and emergency pathways. The map may show the areas outside the site as these may contribute to problems.

Although queues help the orderly nature of crowd movement, they can also form barriers that arise quickly; security and staff must be aware of their influence on crowd movement. This is just one aspect of using a site map to identify safety risks in crowds. The map is also a tool for risk management exercises, such as scenario development and tabletop exercises.

Developing plans that can be implemented immediately – changing the flow of attendees and removing risks – is a strategy that reduces crowd crush and strengthens emergency management and transport plans.

Over 450,000 people visit the City of Melbourne to celebrate New Year's Eve. Prior to 2012, the midnight fireworks program was water-based, showcasing the city's key assets – the Yarra River in particular. However, this catalysed high-risk crowd flow issues in the CBD and around primary transport hubs. To mitigate potential for a major incident, the City of Melbourne developed, in collaboration with emergency services, a strategy to decentralise and disperse attendees throughout the city and away from high-risk hot spots. Live CCTV was used to understand the crowd movements within these areas. This allowed for any required changes to be executed in real time.

The map shows the crowded place as an integrated entity over time. This means that each placement and action in the crowded place can influence other areas, and this may change over the event duration. People standing in queues may have their own health and safety issues due to heat, rain, dust and pollen. Queues can also be a target for hostile and criminal acts. Queuing can occur before the event, throughout the site and after the event, as attendees wait for transport or queue to exit a car park. These times are characterised by tiredness and, too often, a rush to get home.

The duty of care may extend beyond the event's conclusion and to areas outside the event site. For example, attendees with no tickets may congregate outside a venue to listen to a concert from a distance, or perhaps to see acts as they leave. Duty of care may also cover the route to or from the site from public transport. These considerations should all be factored into site planning and safety.

Structures

STAGE

One of the factors determining stage configuration is the anticipated behaviour of the crowd. While classical music and ballet performances typically attract a mature and reserved audience, teenage and pre-teen fans at rock concerts have been known to storm the stage to interact with performers. Such incidents, apart from being disruptive, can cause injuries. Misunderstanding the audience and behaviour is the source of many safety risks.

Management should have current intelligence on attendee types, accrued through experience or by consulting with people who have that knowledge. This is all part of the consultation process outlined in Chapter 2.

Stages are usually elevated above the floor or ground to provide a better view of the performance, especially for spectators farther back in the crowd. This impedes people who might rush the stage to interact with a performer. However, a stage or a platform is insufficient to deter determined and agile spectators, and an additional physical deterrent may be required.

At some venues, first aid personnel are located adjacent to the stage to accept injuries occasioned at the front of the spectator area.

During concerts, one effective practice is to erect a 'D' shaped barrier in front of the stage. This structure will deflect spectators to the outside of the stage should any surge come from behind. It also provides an additional barrier to prevent spectators from reaching the stage. Security staff should be positioned in this spectator-free zone. Alternatively, staff should be able to gain access to this area quickly from either end. Chapter 6 provides more information on crowd management and security.

TEMPORARY STRUCTURES

Like the main stage, structures such as seating, side stages, toilet blocks and tents are covered by the Australian Building Codes Board (ABCB) *Temporary Structures 2015* as well as many federal and state standards relating to structure type, material and use.

Due to their transitory nature, many events require easily-constructed temporary structures. This includes the main stage platform, as well as towers to house speakers and floodlights, temporary seating, dance platforms, roofs, towers, masts, viewing platforms, marquees and large tents, and artistic or decorative items such as archways, overhead signage, amusement devices and inflatable structures.

It is essential that all temporary structures are designed and erected with a margin for safety and a view to potential hazards. This should be done under the supervision of the relevant state or local authority and must conform to local government building and engineering specifications. There are different regulations concerning temporary structures in each state and territory.

Temporary structures are often hurriedly erected – access to the venue may only be permitted for a short time before opening – and they are typically designed for rapid removal at the end of the event. Additionally, temporary structures are rarely designed or erected to withstand uses other than those intended by the manufacturer. Therefore, little or no safety margin is incorporated. High winds or spectators climbing for a better view can overstress a structure. Wind speed capacity, for example, is an important consideration for structural integrity.

Temporary structures should also be inspected periodically during events of longer duration. Any structures that may be used for a purpose other than the manufactured intent should be signposted and secured to prevent inappropriate use or access. This may require additional security staff.

A major international cycling event was routed through country areas near a major city. As part of the stage set up, an inflatable start/finish structure was erected over a road. Unfortunately, the height of the structure was not in line with traffic clearance heights, and the road was not formally closed at the time the structure was erected. Although speed restrictions were in place, a large truck ignored them and a collision occurred. Had the incident taken place later in the day, it could have caused injuries to anyone on the roadside. Fortunately, the event was unaffected, though the structure was damaged. However, the main media reporting that night focused on the structure and truck collision, rather than the event.

LOAD CAPACITY

There is a limit to the load capacity of any structure, and precautions should be in place to prevent overloading and structural failure.

Any viewing platform or vantage point – such as a building veranda or balcony – can be the source of a major accident if attendee numbers are not properly controlled. Planning should consider controlled access to venue spaces that could provide vantage points and would be vulnerable to overloading. This may require consultation with building owners.

The bases of temporary structures should be protected from vehicular traffic damage and have designated zones buffering them. Some sites – such as piers, parks or civic spaces – may have load limitations for vehicles.

RIGGING AND WORKING AT HEIGHT

Rigging is the support and suspension of objects, common at events with a large stage, lighting and sound and in crowded places like malls and airports. This process includes the setup, use and breakdown of

cranes, hoists, cables and other equipment. Rigging and working at heights is regarded as a high-risk activity, and is covered by numerous acts, regulations and standards. It requires anchorage points and the use of restraints to prevent falls. Rigging licences are required in all Australian states and territories.

TEMPORARY SEATING AND ANCHORAGE

Seating in a community centre or arena often combines the standard fixed perimeter seating with additional foldable or stackable seating on the central floor.

Temporary seats are often not secured to the floor or to one another. While this may not present problems with most attendees, more enthusiastic attendees may pose the following difficulties:

- Attendees standing on seats for a better view are prone to injury if they lose their balance or are bumped. In such instances, other spectators can be affected; sometimes this is caused by a 'domino effect' among closely spaced chairs, with potential for a significant number of injuries.
- If the crowd becomes hostile, portable chairs can be used as dangerous missiles.
- Seats may be moved into aisles, blocking escapes and creating trip hazards if there is an emergency.

Refer to the Australian Building Codes Board (ABCB) for more information on temporary seating and anchorages.

GAS SAFETY

At many public events, portable pressurised gas cylinders are used to inflate children's balloons, carbonate beverages or provide cooking fuel. Frequently, cylinders are not secured, or are merely fastened to a two-wheeled hand trolley (used to move them) that is itself not independently secured.

If a cylinder falls over and the neck or valve becomes cracked, the uncontrolled release of pressurised gas can turn the cylinder into a deadly projectile. All portable gas cylinders must be secured, at both top and bottom, by ropes or chains to a structural post, wall or rigid anchor point.

Appliances for gas cooking, camping and heating, including hoses and regulators, must be safe, certified and comply with relevant regulations and safety standards. Gas safety checklists should be used before an event starts.

Refer to your state or territory agencies (such as Energy Safe Victoria) for detailed guidelines on this process.

ON-SITE POWER, LIGHTING AND SOUND

On-site power and electricity are the source of many hazards and are covered by state and territory adoptions of the model *Work Health & Safety Act* and AS/NZS 3002 *Electrical installations – Shows and carnivals*. Incidents can include electric shock, electrical or petrol fires, arcing and fumes, as well as secondary accidents such as falls from scaffolding due to shock. Tagging all leads, regularly testing equipment, operating with a maintenance schedule and using extension cords correctly are all important safety measures. Generators must be situated correctly. Understanding and documenting the power capacity of a site should include the power needed during an emergency.

Even in venues darkened for a performance, lighting should always be adequate to identify exits and the corridors and aisles leading to them.

Auxiliary battery power or generators should be installed to provide light in a power outage and to run the public address (PA) system. The latter may permit directions to be given to attendees in a power failure, thereby alleviating panic.

As many concerts are performed with only stage lighting, access to the main lighting or house lights is essential in case of an emergency. The location of the controls for these lights, and the operation of the controls, must be known to persons on-site responsible for emergencies.

The sound system at a site can be used to communicate quickly and effectively with the crowd. It can overcome the general noise at a site and can be particularly useful during an emergency. The safety officer and management should be familiar with the way a sound system works and the use of microphones.

Many standards, codes and regulations exist that relate to electrical safety, such as *Electricity Reform (Safety and Technical) Regulations* in the Northern Territory and AS/NZS 3760 *In-service safety inspection and testing of electrical equipment*, applicable nationally.

Refer to the relevant regulations in your state or territory.

> At one concert, the sound system did not properly work, and quickly began to heat up. The system started sparking and eventually caught fire. The wiring at the outdoor venue was found to be the cause; the negative and positive were oppositely wired. As a result, the sound desk had gradually built up power until it exploded.

FIRE SAFETY

All states and territories have legislation governing fire safety. The local fire authority should monitor fire prevention and preparedness measures to ensure relevant standards are met. Management and health personnel should consider potential fire hazards in the planning process and discuss any concerns with the fire authority. Management should also consider safety requirements and specific approvals if they intend to use fireworks.

EMERGENCY TOOLS

Forcible entry kits should be available for emergency use at strategic locations in the venue, with a 'break glass in case of emergency' type of entry. These kits may contain:

- fire axe with prong
- pry or crow bar
- pair of heavy-duty bolt cutters.

Communication systems

There is a strong link between communication and site safety. There will be many levels of communication involved, such as sound systems, signage, handheld radios and SMS broadcasts. Each level of communication must have a backup. External communication is also required with the local community, hospitals and emergency service agencies before and after any event or incident. Chapter 2 provides more information on communication.

Environment

Environmental considerations include access to shelter on arrival, during the event and for departure queuing at an event's conclusion. Monitoring the weather during an event is required, such as heat, winds and storms. This is linked to the promotion of the event – attendees should be provided with suggestions on 'what to bring.' Weather should be actively monitored, especially if forecasts point to potential issues in the area.

Protestors

Managers should identify, as part of the risk management process, the potential for protestors prior to and during an event. If a protest is likely, discussions with police and security services are essential to ensure that management has contingencies in place, and to mitigate the risk of any violence. While protestors' actions are generally not the concern of health personnel, it is possible that a protest can result in injuries to protestors and the public. Therefore, it is preferable that warning of any expected protests be given to health care providers so that suitable planning and preparations are made.

Information centre

A well-identified, appropriately located and well-publicised on-site information centre – staffed with knowledgeable personnel – can reduce pressure on security and health workers by providing useful information services to attendees. Roving staff and volunteers can support this effort. A reduction in attendee uncertainty diminishes the tension that leads to behavioural problems.

All crowded places should make suitable provisions for lost children and property, and other such eventualities.

Maintenance staff

The immediate availability, preferably on-site, of maintenance staff – such as plumbers and electricians – can reduce the likelihood that a problem will escalate to a level that may affect public health and safety.

Briefings

It is essential that daily briefings be conducted for all personnel prior to and during an event. In addition, it is important that management conducts a familiarisation briefing for all on-site health and emergency services so full cooperation and coordination between event staff and external supporting services remains effective. Chapter 2 provides more information on briefing and communication.

Specific high-risk areas

In Australia, there have been many incidents at high-risk events that involved fireworks and lasers. These activities are now closely regulated and overseen by associations such as the Confederation of Australian Motor Sport (CAMS) and the Australian Power Boat Association. Pyrotechnics at events is covered by Australian Standards AS 2187.3, AS 2187.4 and the *Australian Dangerous Goods Code*. There are also local rules and regulations to consider, as well as contract obligations to document, and permits and licences to obtain.

These events carry risks that can become catastrophic. However, for some of these events, a degree of risk is an integral part of the attendee experience. For these unique productions, risk management services can be provided by contractors with experience and specific qualifications. Part of the risk management process is ensuring the contractor has relevant qualifications, competent staff and is compliant with all relevant standards and regulations.

A checklist for contractors and a list of specific high-risk events is provided in *Guideline 1: Crowded Places Checklists*, available online on the Knowledge Hub.

Membership of the relevant association is one competency indicator for a contractor. Another is the application of ISO 31000 *Risk management – Guidelines*. By using the processes outlined in Chapter 1, management can ensure that risks are managed, and a document trail kept for accountability.

Chapter 6: Crowd management and security measures

SUMMARY OF KEY POINTS

Security companies now specialise in event and crowd management; the dynamics of crowd research and management has become a science. This chapter describes a small part of that field. It is highly recommended that managers of crowded places seek early advice from police and from recognised security and crowd management companies. The cost of leaving an important part of risk management to the last minute can be enormous.

KEY CONSIDERATIONS

- Crowd management maintains order and is a proactive approach to manage the expectation of the attendees, minimise the potential for overcapacity and provide a systematic approach to elements of crowd movement.
- The key to crowd management is the creation of a crowd management plan.
- Crowd issues can be complex and require detailed planning.
- The site design and its output, the site map, are tools to assist in the planning of crowd dynamics.
- Further concerns include entrances and exits, barriers and fencing, seating and signage.
- Security has become a specialist area and requires planning, licensing, training, briefing and deployment.
- Police have the same function in an event as they do in the community and should be consulted in the early planning of an event.

INTRODUCTION

Since the release of the 1999 *Safe and Healthy Mass Gatherings Manual*, the collective knowledge, experience and data on crowd management and security has increased enormously around the world. It has been systemised, tested and refined. The internationalisation of events, particularly large sporting events, has helped develop knowledge in this area; in part because of the legacy they leave on the hosting community, including employment opportunities, improved public health and modernised transportation systems.

Crowd management must consider many factors, such as demographics, crowd size, type of event and site design. Planning for crowd management and security for a rave is markedly different to an ANZAC Day gathering. Likewise, planning for a crowd intent on moving – such as through an airport – differs to preparation for a lunchtime concert crowd in a CBD. However, these crowds and their management and security do have common characteristics and there is a common method to manage them. A small issue in one area can quickly become a disaster in others. The process in Figure 12 illustrates various considerations for crowd management.

Crowd planning and the site map

Crowd number forecasting is an input into the crowd management plan. It is relatively straightforward for ticketed or invitation-only events, and for some sites with predicted and quantified traffic data like transport hubs. Even in these situations, however, there are incidents, such as protests or service disruptions, when unexpected crowds can suddenly appear. By monitoring social networks, owners and operators may predict when there could be a surge.

Crowd control is a constant re-establishing of public order. It refers to mechanisms used to limit access, control admission and warrant arrests; in so doing, the site map discussed in Chapter 5 is imperative. Crowd management is a proactive approach to manage attendees' expectations, minimise the potential for overcapacity and provide a systematic approach to elements of crowd movement, for maximum enjoyment and value for the assembled gathering.

Crowd management for events refers to planning and preparation issues such as ticket sales and collection, ushering, seating, public transport, parking, public announcements, toilets, amenities, post-event dispersal and catering, as well as planning for ingress and egress of attendees and their movement around the site.

Management should not commit emergency services without first seeking approvals from the relevant agencies. Such involvement may have an associated cost. However, law and order is a police matter when the situation is beyond the resources and capability of the event manager. Emergency management plans should address the process for seeking external assistance.

In the planning process, it is important to understand attendee and crowd dynamics, and how these factors interrelate. Further investigation and research for crowds and sites may be advisable, particularly where the circumstances or characteristics of an event are unique. Additional information can be sought from other literature, press reports, the promoter, private security organisations, emergency services and, for visiting dignitaries and celebrities, from personal security services. All this information will assist you in predicting potential problems which can then be addressed in the planning process.

ISSUES FOR CONSIDERATION

Consider the following issues in crowded places:

- human behaviour
- capacity

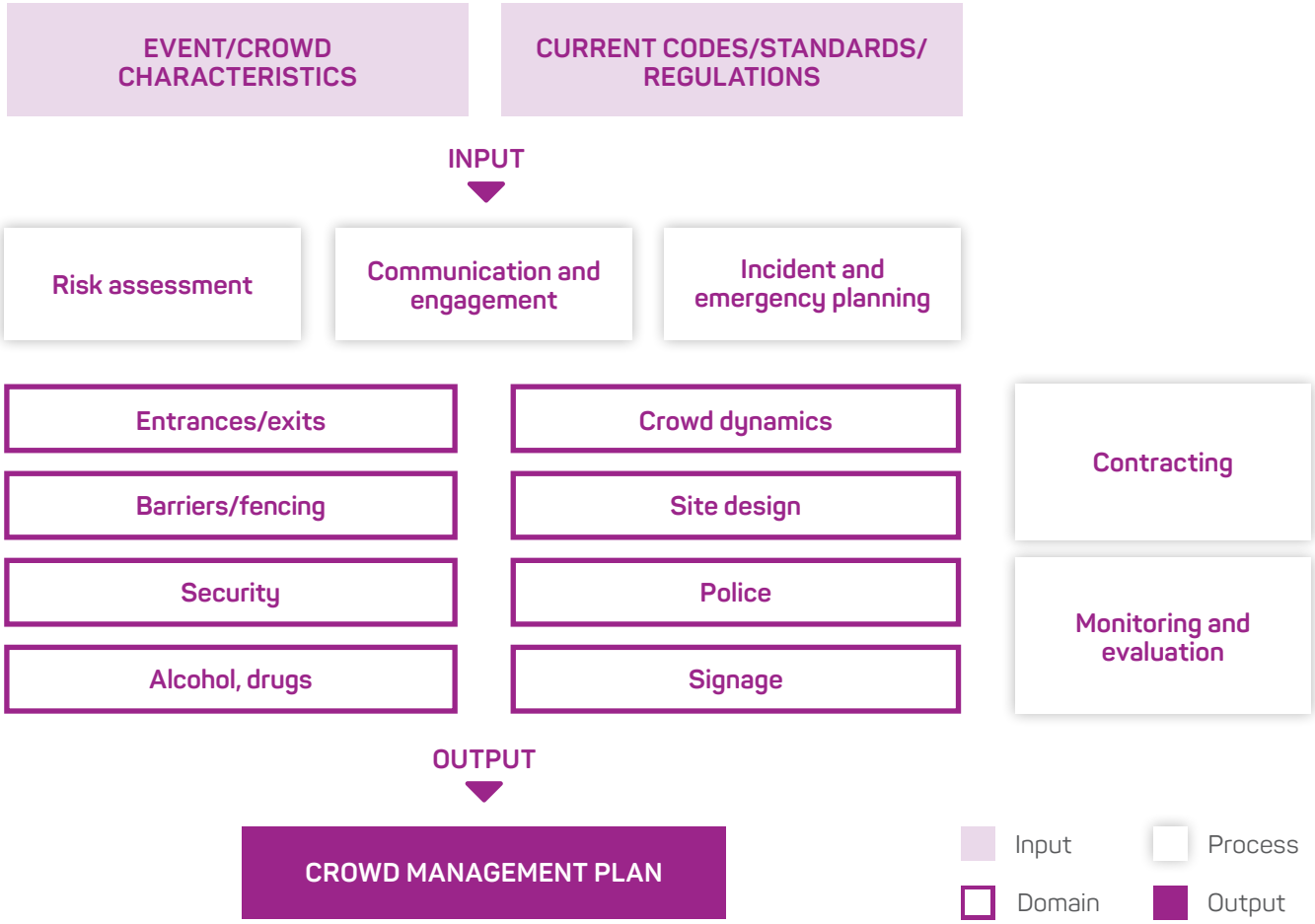


Figure 12 Process for developing a crowd management plan

  - The maximum numbers permitted are often established by regulations for safety reasons.
- demographics
  - Consider the composition of the crowd or attendees, including age and gender mix.
  - If it is identified in advance that a high proportion of attendees will be young children, consider additional facilities such as child minding, feeding rooms and pram access.
- medical staff
  - Audiences of young children or elderly people tend to require additional medical facilities, and children are more susceptible to crush injury.
- actual or potential groupings within a crowded place, such as ethnic or cultural groups
  - The likelihood of potential clashes or other crowd tensions may increase due to the presence of rival ethnic, cultural or other sensitive groupings. This may be particularly relevant at some sporting events.
- densities (refer to *Guideline 1: Crowded Places Checklists*, online on the Knowledge Hub)
- impact of infrastructure
- crowd flow
  - Consider circulation or throughput capacities and metering.
  - Control procedures are used to prevent critical crowd densities from developing in specific areas. These are especially useful in managing potential bottlenecks or choke points.
- issues for outdoor events
  - Consider control and distribution of attendees in the field through use of space and barriers.
  - Consider minimum space allocation on grounds with no seats.
  - Plan for different weather.
  - Provide some form of sectoring and barrier management with security
- communication
  - Prior to arrival, on-site and post-event information can be sent to attendees before they arrive to reduce risks. On-site communications assist crowd control – Chapter 2 provides more information on communication.
- crowd psychology
  - Consider the motivation, expectations and mood of the crowd.

Site design

When considering the causality of major incidents at events over the last 25 years, site design was identified as a fundamental issue in many cases. This suggests the primary elements to improve crowd safety at events include numerical analysis of flow rates, fill rates and capacity. The following considerations are relevant to understanding some of the causes behind many crowd incidents and disasters (Stills, K. 2015):

- Crowds are conditioned by the event environment.
- The environment includes both hard elements (such as design) and soft elements (such as communication).
- Management has control over these influences.

When determining the suitability of a site, consider:

- anticipated capacity
- anticipated demographic, including age – this can influence whether a crowd will be seated or standing, and dynamic or static
- density and flow in the context of available square meterage
- event access for logistics and talent
- attendee access, including transport hubs, parking and traffic management
- attendee egress – consider emergency exit width and assembly areas
- emergency services access
- proximity to resources – consider the implications of whether the site is rural or metropolitan, including response times for emergency services
- sale of alcohol and licensed areas
- sale of food and health requirements
- amplified sound requirements and restrictions
- exposure to weather conditions
- ground surface and suitability
- use of temporary structures
- barrier requirements and designs
- toilet and amenities requirements
- access to power, water and sewerage.

BARRIERS

Effective use of barriers can avoid many problems, including congestion in thoroughfares. The purpose of barriers should be considered first, such as keeping people out or vehicle management. Questions to be asked in the planning phase include:

- What types of barriers are required?
- Is a solid physical barrier required, or would a psychological barrier such as barrier tape suffice?
- Will these barriers harm the crowd or impede viewing of any incident?
- What will be the response if the barrier is breached?
- Can barriers be used to section the crowd and create passages for emergency personnel to evacuate ill or injured people?
- Will there be barriers to create a pit, moat or sterile area between the crowd and the stage, which can be used to facilitate the evacuation of injured people?

The positions, types, shapes and arrangement of the barriers should account for ingress and egress, emergencies and their use to relieve crowd pressure and redirect flow.

The use of psychological barriers is only suitable for orderly crowds. Any physical barrier must be able to withstand crowd surges.

There are different types of barriers, and these can have a dramatic impact on crowded places and event outcomes. Management should consult industry experts.

Fencing is used around the perimeter of an event site and to isolate areas to the crowd. Perimeter fencing considerations includes crowd entrances and exit points, emergency exits and security to monitor the fence. The construction of fencing is covered by the manufacturer's specifications, the *Building Code of Australia*, the model *Workplace Health and Safety Act*, and additional rules and regulations including those imposed by local councils.

Hostile acts, described in Chapter 9, present an important use for barriers; for example, bollards to stop hostile vehicle attacks. Further information on barriers as a means of mitigating the risk of hostile acts can be found in the Crowded Places Strategy and *Hostile Vehicle Guidelines for Crowded Places*, 2017.

Temporary barriers and fencing can be moved. This may help in directing the crowds to other areas to lower density, relieve pressure and change the mood of the crowd. The use of barriers to actively move a crowd can be part of the general crowd management plan. This may mean identifying aspects of the crowd, such as flow, density and mood, that will trigger the command to open selected barriers. As with all risk management tasks, this action implies responsibility.

SEATING

Seating types affect many aspects of health and safety. Each seating option presents unique risks, including use of moveable chairs, fixed seating, tiered seating, or having no chairs and/or ground seating; as well as attendees standing or moving around the site. Management of aisles and walkways is a further consideration for access and flow.

A show staged outside attracted 5,000 attendees. The seating was set up with wide aisles, and with plenty of clearance for emergency services access. The crowd was excited, and when the gates opened, they rushed to get the best seats. As the seats were moveable, attendees picked up chairs and moved closer to the stage. The carefully laid out aisles were quickly filled with attendees and chairs.

Maintaining a clear line of vision for spectators reduces the likelihood of crowds moving to get a better view of the stage. A wide angle of view also helps to reduce crowd densities in front of the stage.

The site and stage should be tested for sight and audio lines so that there are no dead spots. Crowds will move if they cannot see or hear the show, and this has caused surges and deaths at concerts.

When using temporary seating, consideration should be given to site suitability and the base structures used.

In some places, seating must be fixed to the ground or fixed together in groups to prevent the crowd from moving the chairs into aisles and thereby blocking emergency exits.

Testing soil and ground stability may be required when using temporary grandstands and suitable base plates must be used.

An outdoor event included a temporary grandstand, with 3,000 seats positioned on an oval that had been watered throughout the summer. When attendees began taking their seats, the weight caused a partial subsidence of the grandstand, and a section had to be evacuated before the event started. The installers of the grandstand did not notice soft ground during the installation; an investigation identified an underground leak in the watering system that created an unstable structure base.

Entrances and exits (ingress and egress)

There are a number of important considerations for the entry and exit of attendees. Many of these are governed by Australian Standards, legislation and building codes, as well as state and territory and local rules and regulations.

Considerations include the following:

- Entrances:
  - Designate staff to supervise, marshal and direct crowds.
  - Conduct bag searches where necessary.
  - Provide access for emergency services.
  - Designate egress and evacuation routes.
  - Provide clear signposting.
  - Ensure the entrance is in working order.
  - Provide access for wheelchairs.
  - Separate pedestrian and vehicular traffic.
- Entrance management:
  - Use flexible opening and closing times (advertised times are preferable).
  - Stagger entry times by providing supporting activities.
  - Keep entrances clear of all other activities.
  - Keep queues away from entrances.
  - Arrange sufficient numbers of suitable barriers, fences, gates and turnstiles.
  - Locate ticket sales and pickup points in line with, but separate from, entrances.
  - Arrange to have a PA system or alternative system to provide information to the crowd.
  - Provide sufficient and appropriately trained staff.
  - Set up control points for searches to detect prohibited items such as alcohol, illicit drugs, glass, metal containers and weapons (these points should not affect movement).
  - Provide a secure area for the storage of legally confiscated goods.
  - Provide toilets if queues are expected to be long.
  - Apply metering techniques as appropriate.
- Exit management:
  - Ensure fire and exit doors are not locked – where there are concerns about illegal entry, doors could be fitted with alarms.
  - Ensure exit doors open in the direction of escape and are confirmed operational.
  - Check placement, function, clarity and signposting of exits.
  - Ensure doors that do not lead to an exit are so marked to prevent 'dead end' entrapment and the potential for panic.
  - Ensure all exit corridors are free of all impediments to crowd movement.
  - Ensure turnstiles are freewheeling or can operate in reverse.

  - Ensure exit corridors are not crossed by cables which can create trip hazards (if this is unavoidable, cords should be marked and insulated to prevent damage and potential electrical risks; refer to AS/NZ *Electrical Safety*).
- Escalator management:
  - Designate staff for control at the top and bottom of escalators and ensure they are aware of and able to access the emergency stop button.
  - Meter the flow at both ends.
- Stairway and corridor management:
  - Control both ends if a crowd is large.
  - Meter access as required.

Temporary venues provide unique challenges for entrances and exits. Where possible, consider aligning exit widths, number of exits and distance of travel as with the regulations applied to permanent structures by the *Building Codes of Australia*.

An inspection of nightclubs in a regional Australian city revealed that three popular nightclubs were in breach of more than one fire safety regulation, including locking or blocking fire doors, deactivating fire detection systems and overcrowding. The emergency exits had been locked to prevent non-paying attendees from getting in or re-entry of attendees that had been ejected – an issue which could have been resolved by placing a security guard near fire doors or using alarms. Fortunately, the licensees cooperated with authorities and corrected the violations, and evacuation orders were not enforced.

Ticketing and invitation-only

Ticketing, including invitation-only events, is the first measure in achieving crowd control. The following issues should be considered:

- Is advanced ticketing possible? Advanced ticketing allows organisers to anticipate attendee numbers and plan accordingly. It also enables information about services and their location to be passed on to ticket-holders before the event, such as first aid, water sources, toilets and services for other personal needs.
- Are there multiple entrances to the venue? Directing attendees to arrive via specific entrances can reduce congestion at a given entrance.
- Is it feasible to stagger crowd arrival by specifying entry times? Again, this allows for reduced congestion at entrances. Last minute crowd rushes can occur.

Signage and on-site communication

Signage is a major communication method to provide information to crowds. Placement, message, colour, size and font should be carefully thought out. Clarity, accuracy and validity are important to ensure that the crowd trusts the signage. Signage should be examined from a risk management point of view and from the scenarios of an emergency. Emergency signage used during incidents should be tested. Chapter 2 provides more information on signage and communication.

Alcohol, drugs and potential weapons

Alcohol and drugs may catalyse or exacerbate unruly and antisocial crowd behaviour. In addition, the presence or sale of alcohol within a venue may significantly increase the number of patients presenting to on-site medical and first aid services. Each state and territory has separate liquor licensing laws.

Consultation with police for these matters is essential in risk management planning. This includes planning for alcohol, drugs and items that could be considered potential weapons. Police will provide advice on their policies, such as active enforcement and the specific legislation for stop, search and detain processes. There may also be operations using dogs to search for drugs. Illicit drug use at planned events significantly increases first aid presentations, often requiring advanced clinical interventions.

Following are a number of strategies that have been implemented to manage risk posed by alcohol, drugs and potential weapons:

- Prohibit or limit the sale of alcoholic beverages in crowded places (through Responsible Service of Alcohol (RSA)), particularly where unruly attendees are expected, or where a significant number will be under the legal drinking age.
- Supply low-alcohol content options where alcohol is sold.
- Control times when alcohol will be sold, serve alcoholic beverages in disposable cups, and limit attendees to a certain quantity per sale.
- Working with security, specify enclosed areas for the sale and consumption of alcohol.
- If lawful within the state or territory, use advance tickets and display advertising to communicate the message that alcohol, drugs, weapons and fireworks will not be permitted into the area, and that purchase of tickets is deemed as consent to a search of persons and property for prohibited material prior to admission.
- Search personal belongings – such as jackets, purses, and bags – and confiscate any alcohol, drugs or prohibited items.
- Develop and implement an alcohol management plan.

At some cricket events, alcohol purchases are limited to four serves of alcohol per person per sale.

Signs in parking areas and at entries should display the same warnings to discourage attendees from bringing alcohol or illicit drugs into the venue or area. There are, however, possible negative consequences to such signage. Some attendees may attempt to consume a quantity of alcohol intended for the entire event prior to admission ('preloading'), ultimately causing problems for the event medical or first aid staff. Alternatively, it could also prompt attendees to leave alcohol in cars, only to be consumed in car parks prior to departure. The most desirable approach is to discourage attendees from bringing alcohol to the event in the first place.

The management of alcohol sales is the responsibility of the licensee, who provides an appropriate alcohol management plan in accordance with local and state or territory liquor licensing laws. Any mitigation strategies or requirements, such as a specific security to crowd numbers ratio, should be reflected in this plan.

Crowd dynamics

Crowd management has become a studied science, and online models exist to help you. They all concern arrival, ingress and egress, movement around the site and departure. Also, for large events, the area around the site – the 'last mile' – is a place of high risk. Crowds merge as they alight from various types of transport. This area is also important for security, and for some areas it will be cleared as a 'stand-off' area with a security perimeter. This is further discussed in Chapter 9.

Rates of arrival, flow around the site, emergency flow and exit are a concern of crowd dynamics; density measurements are related to this risk. A system for monitoring the crowd is essential and can be managed by event and security staff. Technology such as digital CCTV and drone measurement has seen advances in this area. Ticket collection can have a significant impact on flow rates and security requirements at the entrance gates – this must all go into the event planning. Disruptions can ripple through the crowd and affect areas away from the source of the problem.

Trigger points based on crowd considerations may be used to identify when escalation of management plans is required at a crowded place. Triggers may occur in response to common pre-defined occurrences – such as the end of an event or a band's setlist – or in response to emerging hazards and threats, such as flow stoppages. Triggers may have different thresholds depending on the type of event and crowd present.

Trigger points for the escalation of responses with regard to crowd considerations may be related to:

- density
- changes of mood
- changes in weather, such as a significant increase in humidity
- flow stoppages
- alcohol and intoxication
- the end of the event, or half-time
- setlists or when stages close.

As well as density and flow rates, crowd mood is an indicator of possible problems. Planning and resourcing differs for a crowd of a football club's active supporters compared to that of a trendy teen music performer or a popular toddlers group. Thoughtful consideration is advisable when different crowds either occupy or transverse the same space at the same time.

Security personnel

The provision of security services is vital to public safety, particularly within a site. Different types of security may be used in crowded places, including:

- private security guards
- crowd controllers
- traffic controllers
- police officers.

The composition of security services will vary according to the venue and event. Police are additional to the security plan and are typically a 'user-pays' service.

Roles and responsibilities of security personnel must be clearly established prior to their engagement. Decisions and actions taken by security personnel may have an impact upon the way in which emergency services and health personnel respond to a given situation. In planning and throughout all stages of an event, a close working relationship should be maintained between:

- security personnel
- health and medical services
- emergency services
- other security services, for example those responsible for performers and VIPs.

The predetermined responsibilities and roles of security personnel should be clearly communicated with the security company. Security personnel may be designated to:

- manage crowds, including implementing measures to prevent crushing
- control access to stage or performance areas
- provide security control at entrances and exits
- minimise fire risk by patrolling areas
- control and marshal vehicle traffic
- conduct searches for alcohol, drugs and weapons
- provide security for large sums of money and confiscated goods

- assist emergency services if necessary, including in the provision of immediate, life-saving first aid.

Key security questions to ask include:

- How will all security personnel be identified (for example, uniforms, IDs and tabards identifying roles)?
- Will their identification be clearly understood by the attendees and staff?
- If private security officers are to be used, what will their role and function be? How will their services integrate with the police? Are they permitted to work outside the venue?
- What policies will be enforced in relation to minor offences on-site so that discretion is exercised consistently during the event?
- Will there be areas on-site for the collection and storage of significant sums of money, and what security will be in place to protect these areas and off-site banking? Are these areas positioned near road access to avoid carriage of large sums of money on foot through attendee areas?
- What arrangements have been made for VIPs? (Police should be able to provide appropriate contacts for considerations in this respect.)
- What arrangements have been made for the movement of high-profile persons through crowded areas?
- What arrangements have been made for lost or stolen property including the securing of any found property?
- What arrangements have been made for lost children?
- What arrangements have been made for detection of forged credentials?

Recruitment and briefing

Private security personnel are required to be licensed under jurisdiction arrangements. There are specific licensing requirements in each state and territory.

To enable security staff to perform these duties effectively, it is vital that they be appropriately briefed prior to working in a crowded place. The following should be addressed as part of the briefing:

- Clarify management lines.
- Provide details of VIP attendance and any special security arrangements proposed.
- Provide details of the venue layout, including entrances, exits, first aid points and any potential hazards.
- Give clear direction on the management of unacceptable behaviour and clarify security's responsibility for incidents outside the venue.
- Provide details of emergency and evacuation plans and procedures, such as protocols for raising alarms, requesting assistance, notifying health services and redirecting to health services in the case of minor issues.
- Explain the communications systems to be used and any working arrangements to overcome possible interagency issues.
- Provide instructions for the operation, deactivation and isolation of any on-site machinery and utility supply in case of emergency.
- Provide information relevant to physical needs, food, sleep, refreshment and rostered hours of work.
- Outline mobilisation and step-down protocols.
- Provide details relevant to work or occupational health and safety issues including working in isolation, support and backup arrangements.

The attitude of security staff is a major factor in crowd compliance. Security staff are charged not only with controlling a crowd, but also making them feel welcome. Every staff member who interacts with attendees plays a role in crowd control. The dress, demeanour and actions of staff may set behavioural expectation levels, and these factors should be considered in planning and briefing of staff.

A happy crowd is safer than an unhappy one. The creation of goodwill and nurturing an organisational culture is the role of management. At the Woodford Festival, held on New Year's Eve, there is a '3 Minutes of Silence' event across the site. It is revered and observed by 20,000 attendees. Crowd behaviour leading up to the countdown at midnight has profoundly changed the New Year celebration into a more reflective, considered and joyful occasion for all.

Deployment

All sites will have areas particularly suited to crowd monitoring, and problem areas where attention is required. Consider the following with regards to deployment:

- Identify key points such as entrances and exits, barriers and general thoroughfares.
- Identify high concentration areas, such as vendor stalls, bars and toilets.
- Establish strategic observation points to monitor crowd movements and behaviour (for example, a central control room with video surveillance may be required).

An attendee died of drowning during a significant 2014 event that extended across a CBD. The Deputy State Coroner found that the cause of death was 'drowning by misadventure' and that alcohol intoxication was a contributing factor.

The Coroner made two recommendations:

1. Management give urgent consideration to the retention by the company of an appropriately qualified risk management consultant to perform a review of the company's risk management policies, practices and procedures.
2. Management give urgent consideration to the provision of formal, documented training to directors, officers and staff who are required, from time to time, by the company to conduct risk assessments and to prepare event management and emergency management plans. Such training should be provided by an appropriately qualified risk management consultant or registered vocational training organisation specialising in the provision of risk assessment and risk management training.'

Police

Police officers can perform many functions at events and in crowded places, including but not limited to law and order. The requirements for a police presence inside private venues or events in public spaces should be discussed between management and local police commanders. Management should be aware that the cost of a police presence can be considerable. Police working on a user-pays basis may also be supplemented by rostered officers to provide an integrated security overlay. Discussions with local police commanders will provide a platform for resourcing implications and information about the security environment. Managers may also want to engage with police through Crowded Places Forums. Further information is found in Chapter 9 and the Crowded Places Strategy.

If an incident occurs and police are called in, they should be informed of the situation. Police may be contacted by any member of the crowd. Police will require a contact person from the organisers to assume control of a situation and obtain answers any questions.

Emergency planning should consider that the police have legislative responsibilities to the surrounding community. Based on the size or level of emergency, an incident in a crowded place can take resources away from the community.

Chapter 7: Public health

SUMMARY OF KEY POINTS

Public health is a major consideration for crowded places. Like risk management, public health is affected by national and international standards and local legislation. Although some risks may be rare, their consequences may be catastrophic. Crowded place managers should plan for public health in detail. Events and festivals on new sites, due to their temporary nature, are particularly vulnerable. It is essential that management understands and maintains up-to-date knowledge on health issues that may affect attendees, staff and surrounding communities.

KEY CONSIDERATIONS

- Public health covers a wide range of issues that affect the population and focuses on prevention.
- Prevention starts with the promotion of health issues to potential attendees before they arrive at the site.
- Predicting the public health in crowded places involves assessing contributing factors such as demographics, weather and event duration.
- Health risks must be monitored for all attendees, including staff, vendors and suppliers.
- A public health audit is recommended (and may be a requirement) prior to the commencement of an event and should be followed with ongoing public health surveillance.
- Primary areas of concern for public health include water, food, waste, toilets, hygiene, pests and off-site areas.

INTRODUCTION

“Public health is concerned with the big picture of how society is organised to maximise health and well-being – about what people can do for themselves as well as the role of institutions and government to ensure good health in our communities.

Our primary focus is prevention and early detection, rather than on clinical services. We look at the whole population, rather than the individual, and seek to manage risks. In this way, public health complements and works with clinical services.

Department of Health, WA

Health services are always stakeholders at events and crowded places and should be consulted.

A crowded place is a temporary subset of the Australian population. For events, this subset is generally a specific demographic with highly predictable characteristics. The activities at an event, the density of the crowd, its temporary nature, the time period and crowd demographics combine to influence and be influenced by issues in public health.

Managers of places with predictable crowds – such as airports, beaches, schools and shopping centres – can study, implement, monitor and improve their public health actions as part of their standard procedures.

Managers of temporary crowded places – such as festivals, concerts and short-term evacuation centres – should consider public health as part of the project planning. New sites, such as one-off music events in rural or bushland settings, can have highly variable and uncertain conditions. Management must focus on public health issues within this uncertainty.

Management should understand that a single public health issue may be serious enough to close an event immediately and may have severe financial and legal implications. Early consultation with public health providers is essential to the event planning process.

Agreements with any service providers, including event vendors on- and off-site, should include a clause stating that authorised event officers may direct them to cease operation if they are found to be in contravention of food safety standards, any relevant public health standard or otherwise operating contrary to the interest of those attending the event. Crowded places can also attract unlicensed ‘rogue’ food vendors that will require police action to desist; this potential should be included in the public health plan.

Public health management sits under the risk management process outlined in Chapter 1 and the incident and emergency processes outlined in Chapter 3. The major domains of public health covered in this chapter address food and water, alcohol and drugs, disease control and infection, waste and climate.

At a large private function for VIPs, over 200 attendees were rushed to hospital because of food poisoning. Management was closely investigated by authorities and found to have had excellent food handling practices. Management set up the site again in its entirety to discover the cause – the large marquees had been newly waterproofed, and the associated chemicals had dropped from the marquee onto food as a result of rain.

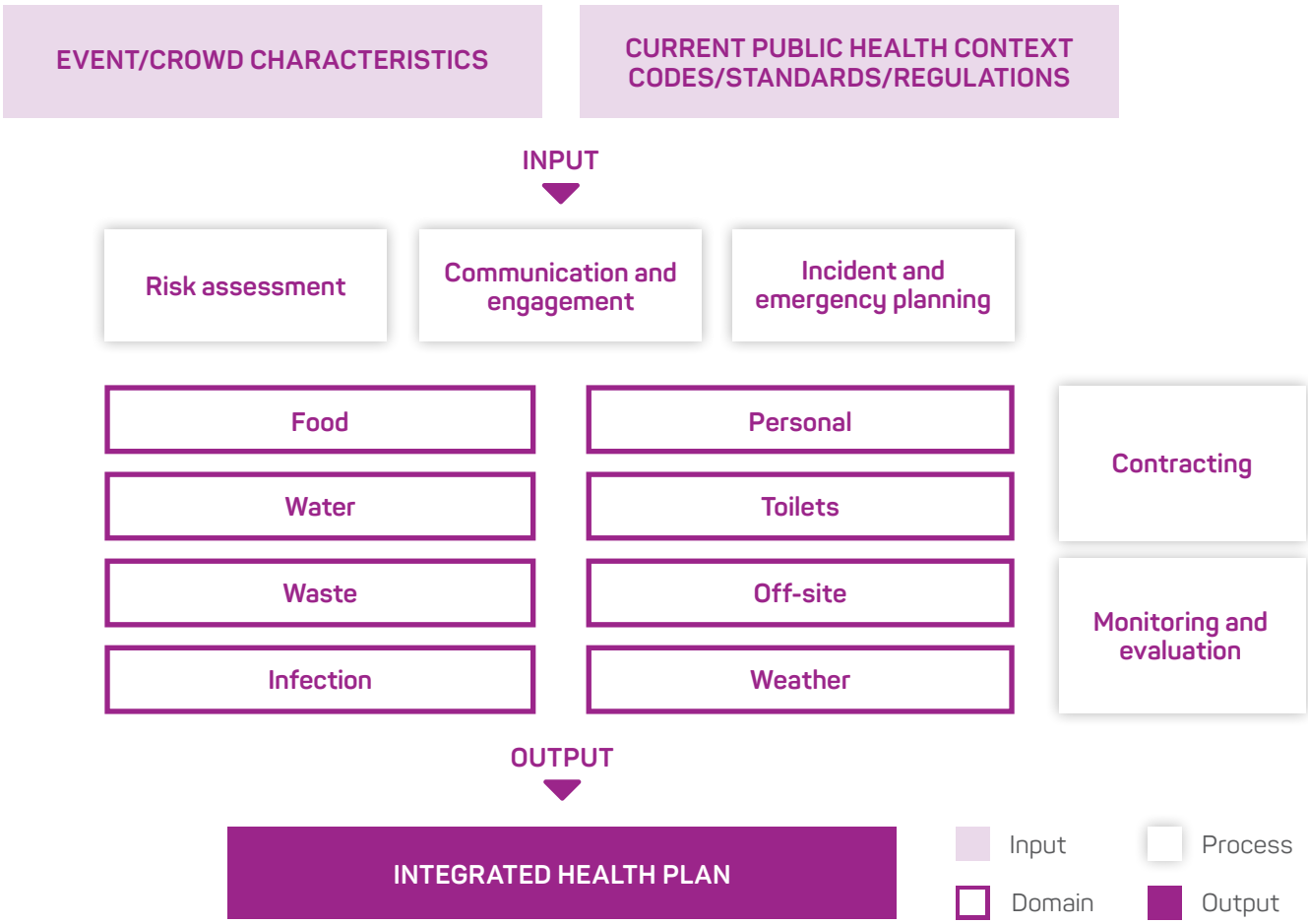


Figure 13 Process for developing an integrated health plan

A crowd was warned about wild pigs and snakes at an event in a rural area. The local community did not mention ticks, as they were accustomed to their presence and assumed that attendees would know. Many attendees found ticks on themselves in the week after the event, which may have presented significant health issues.

Public health management process

The public health management process is part of a more general risk management approach. First, define the problems and identify the risk factors. Next, intervene to control or prevent the problems, and then monitor and evaluate the results. The interventions phase minimises the likelihood through preventative measures.

Consder the following as part of the public health management process:

- Comply with regulations.
- Understand the general health of the population and create a safety climate.
- Identify health risks.
- Monitor the crowd.
- Ensure compliance.
- Take action, respond and evaluate as required.

Context

Public health falls under different legislation and regulations in each state and territory of Australia and varies in each jurisdiction; for example, Victoria is governed by the *Public Health and Wellbeing Act 2008*, and New South Wales by the *Public Health Act 2010*. *Standard 3.2.2 Food Safety Practices and General Requirements* in the *Australian and New Zealand Food Standards Code* (ASNZFSC) applies nationally. Some public health responsibilities are local council-based, and some are public health unit-based. Managers should consult with the local hospital on public health issues as well as clinical health services.

Because many services such as water, toilets and food are contracted out, these standards will be part of the contract and documentation process outlined in Chapter 4.

Figure 14 Considerations in public health

Crowded places and large public events present unique challenges for prevention and harm minimisation, especially when held at temporary venues. Stakeholders' familiarity with their respective roles and responsibilities, and their knowledge of the potential and actual public health issues, presents a common challenge. Public health agents – from government, suppliers, vendors, organisers, staff and volunteers – should be invited to participate in planning and may identify or pre-empt hazards. This is a shared responsibility, and part of the duty of care.

The WOMAdelaide Festival once held events on large open lawns mowed 24 hours prior by local council. However, patient presentations were always high for respiratory-based illnesses and urticarious, hay fever-like symptoms. Following several years of legacy data, pre-event planning saw the medical provider, management and local council prepare the space approximately one week prior. Management observed a consequent reduction of over 50 per cent for such presentations compared with previous events.

DEFINITIONS

Health needs assessment (HNA): HNA is a systematic method for reviewing health issues that face a population and leads to agreed priorities and resource allocation to improve health and reduce inequalities (source: *Health Needs Assessment: a practical guide*).

Hazard analysis critical control point (HACCP): HACCP identifies hazards in the preparation and handling of food, and the identification of steps or tasks in the process when control can be exercised to reduce the risk.

Environmental health officer: A professional role that develops, regulates, enforces and monitors laws and regulations governing public health – regarding building and environmental management – to promote good health, hygiene and environmental practices. An officer is employed by local authorities and has the power to fine and immediately shut any food outlet.

Health promotion

It is important to consider the opportunities to promote self-care, personal responsibility and 'looking after your friends'. This will have a flow-on effect to the overall crowd behaviour at a site.

Health promotion forms part of the communication plan, as described in Chapter 2. Messages should be based on the risk assessment plan and can be sent out to attendees in advance, reinforcing personal resilience. However, there may be a conflict between resilience and site requirements, such as a ban on water bottles.

Health promotion considerations include the following:

- Attendee medication

  - Encourage attendees to check and supply their own personal medication, especially symptom relief medication.
- SunSmart measures
  - Provide and encourage the use of shade areas.
  - Encourage use of sunscreen creams and hats and make them available for purchase.
- Smoking
  - Consider making the event smoke-free.
  - Designate areas for smoking.
- Hydration
  - Encourage attendees to maintain an adequate intake of fluids.
  - Make water and other drinks freely and readily available.
- Nutrition
  - Encourage food proprietors to provide nutritious foods.
- Safe sex
  - Promote safe sex messages.
  - Consider providing free condoms.
- Alcohol
  - Consider the designation of alcohol-free areas.
  - Consider restrictions on the sale of alcohol.
  - Consider glass-free policies.
- Drugs
  - Consider opportunities to spread harm minimisation messages.
- Hearing protection
  - Consider providing advice about hearing protection, and possibly free ear plugs. This is applicable to venues such as rock concerts and car races.
- Respect
  - Consider providing information on what will be considered unwelcome conduct such as sexual harassment and bullying.
- Preparedness
  - Encourage attendees to be prepared to provide relevant information to first aid staff, such as describing any medication.
- Hand hygiene
  - Provide access to soap and running water, with alcohol-based hand sanitiser.
  - Promote hand-washing. particularly before preparing food, before eating and after using the toilet.
- Respiratory etiquette
  - Promote behaviours to minimise the risk of spreading flus and contagious viruses.

Environmental health officers available on-site during events can deal with public health issues and monitor public health aspects of the event.

Agreements with service providers, including on-site food vendors, should include a clause stating that officers, authorised by management, may direct them to cease operation if they are found to be in contravention of public health standards or otherwise operating contrary to the interest of attendees.

Environmental health officers appointed by local or state governments will be able to exercise any statutory authority to control on-site risks to public health.

Identification of health risks

The risk management approach outlined in Chapter 1 should include assessments of the public health risks. Needs-based assessment is comparing the existing controls with the identified risks. In the context of on-site health and safety, these are referred to as hazards, and may be classified as event hazards, site hazards and crowd hazards, including likely behaviour of attendees.

Needs-based planning examines health and safety risks from the perspective of attendee requirements. The process is inclusive, considering all communities present in a crowded place. Community input becomes part of the risk identification process and informs solutions, including the crowd's expectations of the event or place and their reasons for attending. For example, if people expect to drink alcohol, the health problems will likely be different to alcohol-free gatherings.

Checklists for organisers and approving bodies are found in *Guideline 1: Crowded Places Checklists* online on the Knowledge Hub.

Monitoring of health risks

Monitoring and surveillance of crowded places is paramount and will dictate a need for a plan to manage health risks, and both identify the root causes of and mitigate the risks associated with presentations. Recognising subtle trends in patient presentations with similar symptoms will reveal new vulnerabilities and hazards which can escalate quickly, such as illicit drug use or gastroenteritis. A rapid response and the reallocation of on-site resources may be required. Clear and speedy communication is essential.

First aid posts, medical centres, security personnel and cleaning staff can provide information to help assess risks.

- First aid and medical personnel can provide data through triage and, specifically, by collecting gastrointestinal illness surveillance questionnaires or maintaining records of injuries, incidents involving water courses, alcohol and drug use, sun exposure, dehydration and other health concerns.
- Security agencies, local government, health departments and local drug and alcohol agencies can provide information on up-to-date trends about illicit drug use and information on safety hazards.
- Cleaning staff and portable toilet vendors can provide information related to waste management surveillance, location usage and hygiene.

- Effective liaising between pre-hospital (ambulance), health, work safety and event staff forms the basis for immediate treatment of hazards that are causing injury or illness.
- Workforce management systems and sick leave across agencies may have implications for health planning; several absent staff from each agency may not seem an issue, but aggregated workforce gaps can present a real problem across an event.

Management should consider how early warning signs are communicated to minimise risk. Triggers for this should go into the risk management plan, with responsibilities and tasks assigned to the appropriate personnel. Further information on risk management plans and communication is found in Chapters 1 and 2.

Gastroenteritis ('gastro'), which causes diarrhoea and vomiting, can spread quickly and result in multiple presentations of attendees with similar symptoms. The plan should include how to manage a group, identify root causes of and mitigate risks associated with presentations. Gastro surveillance includes monitoring staff and their sick leave, as well as attendees.

An agricultural event taking place within a metropolitan area included cattle judging within a tent erected on a lawn. Throughout the first day, many attendees were affected by an unknown substance and treated by the on-site first aid provider, with some sent externally for further attention. There was no process for monitoring this emerging trend, and it was not until the next day that management and emergency services became aware of the number of linked patients. The cause was investigated by the fire service and work health and safety agency, but never definitively confirmed due to the delay in notification. A suggested cause was attributed to the interaction of animal urine and fertilizer applied to the site weeks prior to the event.

Maintaining compliance

To ensure compliance with public health requirements, an audit by the local environmental health authority may be required prior to the event. Subsequent monitoring should also be undertaken at appropriate times, particularly for outdoor events in hot weather and with transient food vendors that may not have sufficient sanitary or refrigeration mechanisms available.

Environmental health officers should have pre-event access to resources to help overcome any noted problems early; these might relate to toilet servicing, unsafe areas, fencing repairs, vector monitoring or water testing. Engaging environmental health officers early may prevent them needing to use their powers to stop the event or operation due to a problem identified too late.

Public health contingency arrangements

There is always a risk that unforeseen circumstances, potential or actual, will create a public health risk. It is important to consider and document contingency arrangements as part of the public health emergency management plan. The plan should include:

- contact details, including after-hours, for key event personnel, such as event organisers, environmental health officers, emergency tradespeople and emergency services including health services
- contact details for additional staff
- twenty-four-hour contact details for the food proprietors
- arrangements for alternative suppliers of equipment in the event of a failure or loss of water or power
- arrangements for food handlers who become ill
- arrangements for alternative water suppliers
- arrangements in case of product recall
- procedures for the handling of complaints
- a debriefing process.

On-site staffing

The minimum number of staff required – representing an appropriate mix of skill sets – at first aid and medical tents will vary by event. This will be determined by the risk management plan outlined in Chapter 1, and relates to event type, crowd demographics, distance to health facilities and the capability and capacity of local health services. The staffing model should be agreed to in advance by management and local ambulance and health services. This will then inform discussion about the engagement of providers and match capability to the requirements of a crowded place.

Domains in public health

The legislation, regulations, codes and guidelines in each state and territory list the categories of public health. They describe the origin of a health risk and the measures required to prevent it, such as reducing the likelihood and the severity should the risk occur. A list of domains can be a master checklist for management. For temporary crowds, a checklist for the project or event plan ensures all areas of public health are covered. The likelihood of a major public health incident may be rare, but the consequences can be catastrophic for all stakeholders, the attendees and the organisation.

Management should consider consulting public health officials on:

- free, safe and adequate water supply, including drinking water security
- food safety and defence
- sanitation requirements and waste management
- water safety
- pest control
- infectious disease prevention and investigation
- safe storage of any drugs on-site
- hand and respiratory hygiene
- standards for activities involving skin penetration, such as tattooing and body piercing
- building safety (including water bodies)
- animal control
- noise and other nuisance issues
- public health emergency management and planning.

This is not an exhaustive list, and you are encouraged to seek out the latest information. The temporary nature of an event or the pressure of meeting deadlines do not excuse planning. The World Health Organisation's *Public Health for Mass Gatherings: Key Considerations* provides detailed information on these (and many more) public health areas.

Weather

Sites exposed to the climate must be prepared for health risks, including dehydration, heat exhaustion, thunderstorm asthma and the increase in infections due to flooding and rain. High humidity is a factor in planning the health resources required. Chapter 5 provides more information on site safety.

Food

Unless proper measures such as temperature control and sanitation are applied to food storage, preparation and distribution, food may become contaminated and present a danger to public health. Special events held outdoors in warm weather pose additional risks as they tend to have less than ideal circumstances for food handling, transport and storage.

All food services in crowded places should comply with requirements stated in the *Australian and New Zealand Food Standards Code* (ASNZFSC).

> Food risks are multiplied by the number of people at an event. Even low-frequency public health incidents can be catastrophic in outcome. During a conference at a well-known and respected convention centre, over 250 people got food poisoning, with 25 admitted to hospital.

Each state and territory, and many local governments, have legal requirements in relation to approvals, licensing and food safety. For adequate standards to be met, an environmental health officer should initially assess food service proposals, including the proper authorisation of vendors. Any proposal assessment should be based on current food hygiene legislation and safety codes. This assessment should be followed up with an audit, as well as periodical monitoring of food safety.

Risk assessment should form part of the food safety plan, addressing:

- quantities and types of food
- lines of supply
- premises
- preparation techniques
- means of distribution
- licensing and permit processes, and the authorisation of vendors
- defence against deliberate acts
- food safety documentation, including a HACCP approach and surveillance.

> Although an individual food stall may be compliant with standards, a combination of stalls may produce breaches. One stall's waste area may be next to another's food preparation area, separated only by a tent wall. A cooking area may be only a thin tent wall away from the children's play area.

FOOD DEFENCE

Identifying vulnerabilities within the food supply chain should be considered part of your risk assessment plan. Food defence reduces the risk of a deliberate threat of food or water contamination. In rare cases, chemical, biological or radionuclear agents could be used to cause injury or death in civilian populations, and to disrupt social, economic or political stability.

Where vulnerabilities are identified, the following priorities should be considered:

- the most readily accessible food and water processes
- food and water most vulnerable to undetected tampering

- foods most widely disseminated or spread
- the least supervised food production areas and processes.

Prevention is the primary means to avert a food incident and can be achieved through robust physical security arrangements:

- Optimise physical storage and warehousing of food for crowded places and gatherings. This includes internal and external access, as well as tamper-resistant and tamper-evident processes and packaging to support early detection and alerting.
- Create a defensive culture, ensuring that staff question, challenge and report any unusual activity throughout the food supply chain process.

Food supply chain processes that warrant specific physical security considerations include:

- processing, manufacture and assembly
- storage and transport
- distribution
- retail supply and food service.

Preparedness and response are considered the same for food safety incidents and jurisdictional public health. Law enforcement departments will be involved where there are food safety incidents (source: World Health Organisation).

These topics are explained in further detail in *Guideline 1: Crowded Places Checklists* online on the Knowledge Hub.

Rice is a common food at events. However, it can be the source of food poisoning. *Bacillus cereus* bacteria can grow when rice cools and is left to stand. Leftover rice is reheated and sometimes reused at events, which can result in widespread food poisoning.

Water

A free and adequate supply of safe drinking water should be available; this is a requirement in some jurisdictions. Allowing for 20 litres of potable water per person per day, inclusive of four litres of drinking water, is a good guideline. The duration, location, demography and the expected ambient temperature should be considered in deciding the quantity of drinking water required for an event.

It is imperative that management do all they can to ensure attendees remain hydrated. Accessibility to free water could be a successful way to reduce the number of sick attendees, whether they are active in 40 degree sun or inside a crowded venue.

Toilets

Where existing toilet facilities are judged insufficient, additional portable units should be made available.

Toilet locations should be:

- well-marked
- well-lit (including surrounding area) if night usage is expected
- serviced (including pump-out of portables) on a twenty-four-hour basis during the event (vehicle access is obviously necessary)
- located away from food storage and food service areas.

Other considerations in the provision of toilets:

- Provide for the safe disposal of needles, syringes and other sharps away from the reach of children.
- Provide condoms if appropriate.
- Provide units for disposal of feminine hygiene items.
- Provide wheelchair-accessible and ambulant toilets and amenities.
- Establish one or more medical centres with an isolation toilet for use where communicable disease is experienced, such as gastroenteritis.
- Designate separate toilets and handwashing amenities for food handlers.

It is important to approximate the type and number of bathroom facilities required. Suppliers should be able to assist with this approximation – it will be part of ensuring the competency of a supplier. Special needs facilities should also be planned for and provided.

Some considerations are found in *Guideline 1: Crowded Places Checklists* online on the Knowledge Hub.

Waste management

Waste management requires a detailed plan, which should be provided to the local environmental authority. Consider the following areas for waste management:

- Food waste:
  - Place covered containers strategically around the venue for waste disposal. Waste should be deposited in covered containers placed strategically around the venue.

Table 6 Food and water considerations

Food considerations	
Premises and equipment	Fit-out and construction of the premises must be in accordance with ASNZFSC, state and territory legislation, local government laws and identified codes of practice. The premises used for food storage, preparation and service must be easily cleaned; have adequate ventilation and lighting; and be designed to prevent the entrance and harbouring of pests, and to prevent the build-up of dirt and food scraps. Equipment must be in safe working order and easily cleaned.
Handling and storage	The details of food handling and storage are found in each state and territory's health information, such as the New South Wales Government Food Authority and the Standard 3.2.2, *Food Safety Practices and General Requirements*. These provide clear details on all issues, and offer valuable recommendations regarding: • cross-contamination – separate utensils, hand washing, cleaning equipment and storage • thawing, cooking, heating and cooling – temperatures, refrigeration • cleaning and sanitising – washing area, cleaning surfaces • chemical storage • storage – temperature, cross contamination, dry goods, protection of displays • staff – hygiene, training, supervision and communication.
Staff safety	The safety of staff and the public is an important consideration, and work or occupational health and safety standards must be met. Some hazards to avoid include loose power leads, trip hazards, inadequate refuse disposal, inappropriate positioning of equipment (especially hot equipment), poor ventilation, extreme temperature in the work environment, badly stacked supplies and unguarded equipment.
Refuse disposal	A regular disposal system should be in place. Putrescible refuse can cause odour and attract pests. Adequate disposal facilities must be easily accessible to food handlers as well as waste contractors. A separate refuse collection should be organised for food premises and should be continually monitored so the frequency of collection is appropriate. Refuse facilities should enclose waste and be constructed to be cleaned easily. Where possible, the separation of refuse into recyclable and non-recyclable, dry, wet and hazardous disposal units should be encouraged.
Sewage and waste	Food premises must have a sewage and waste disposal system that effectively disposes of all sewage and wastewater, constructed so that there is no likelihood of sewage or wastewater contaminating food.
Suppliers	Food providers should take all practicable measures to ensure food is correctly prepared, protected from contamination and has been under correct temperature control. For all food received, outlets should keep a record of the name and address of the food vendor or manufacturer.
Transport	The length of time food is transported for should be kept to a minimum. Temperature requirements should be maintained, and the food should always be protected from contamination. Food transport vehicles should be clearly identified and subject to surveillance and monitoring.
Water considerations	
Water supply	Managers using water stored in their own tanks must have access to facilities to refill diminished supplies. Access should be organised before the event as well as for obtaining and maintaining water security during events. In areas where non-reticulated water is the only source, consideration should be given to the clarification and disinfection of the water supply to achieve greater than 1 ppm residual chlorine. Water pressure must be adequate to provide for all uses and peak demands. Alternate water supplies should be available if existing supplies fail to meet demand or are rendered unsafe or unusable.
Hand washing	Hand washing facilities – exclusive to food handlers – must be provided and should be easily accessible within areas where food handlers work. Hands are likely to be a source of food contamination. Potable water must be used for hand washing. The water must be running and, where possible, hot water should be available. Soap and disposable handtowels should be provided in the hand washing area.
Sinks for the crowd	Provision of a potable water supply for sinks and hand basins is essential. Potable water must be supplied to all sink areas. Hot water should be used where possible. An appropriate detergent and sanitiser should be used to adequately clean all sinks and hand basins.
Access	An appropriate means of access to drinking water for attendees must be considered in a field or outdoor venue, or during raves where the activity produces an extreme heat environment.

  - Covers are essential, especially in outdoor settings or if high temperatures are expected.
  - Crowd density may prohibit garbage removal vehicle access – empty containers regularly to prevent overflowing, and move waste to a temporary, properly prepared holding area, until bulk removal at designated times or after the event.
- Empty containers:
  - Make arrangements for the appropriate storage or disposal of empty containers, such as cardboard boxes.
- Hazardous waste:
  - Make special arrangements for the safe storage, collection and disposal of hazardous materials and waste, including waste from food preparation areas, sharps and other hazardous materials, such as material safety data sheets (MSDS).
- Clinical waste:
  - Provide for the storage, collection and disposal of clinical waste generated from on-site medical and first aid facilities including sharps containers.
- Sewage and sullage:
  - Provide and maintain adequate facilities for ongoing sewage and sullage storage and disposal.
- Recycling:
  - Where possible, consider specific containers for recyclable materials.

Animals, rodents and vegetation

In outdoor settings, control of rodents, snakes, spiders, mosquitos and insects should be addressed. If hazardous species are known to inhabit the area, or if carriers of diseases are locally endemic, the attending first aid and medical personnel should be alerted. Consultation with local government may assist in the identification of these risks. Medical and first aid personnel should also be alerted to the presence of potentially poisonous and noxious plants and trees.

A decision should be made about the control of domestic animals if they are to be permitted into a venue.

Consideration should be given to the potential effect of an event on nearby domestic or farm animals and native fauna.

Local government will be aware of local risks.

Swimming and water areas

Combining alcohol and water activity brings risks. The risk of a drowning incident increases significantly when alcohol and bodies of accessible water are combined. Purpose-built swimming areas should comply with state requirements for water quality. Other water courses near a site that may be used for water recreation or washing should be assessed for suitability against the National Health and Medical Research Council's *Australian Guidelines for Recreational Use of Water*, or the state or territory standard where available. Where water courses are considered unsuitable, they should be fenced off with warning signs erected.

Trained and certified supervision should be considered for:

- families with small children
- spectator groups where alcohol is consumed
- bodies of water with additional hazards, such as steep, slippery sides, submerged snags or unusually variable depths.

> In Adelaide, South Australia, Surf Life Saving services are used to provide water rescue capability along the River Torrens when it is the site of major events.

Water quality must be addressed in designated swimming areas and where water could be used for swimming in hot weather. Consideration should be given to the controlled use of soaps and detergents in natural water courses.

Infection control and personal hygiene issues

Personal hygiene issues are key considerations for health risks in crowded places and hand washing facilities are an important factor.

Ideally, there should be access to hand washing or hand hygiene before eating. Staff who cannot leave posts and must have food brought to them, such as security details, should carry personal hand sanitiser or have it provided with meals.

> Some cruise ships have staff employed to stand at the dining room door encouraging people to use alcohol-based hand rub (ABHR) before entering.

At events where the duration is overnight or longer, hygienic washing facilities should be provided. Suggested minimum requirements for campground facilities based on two to three nights of camping are outlined in Table 7. Alcohol consumption is also a consideration with regards to the adequate provision of facilities; some liquor licensing regulations specify additional requirements.

Table 7 Suggested minimum requirements for campground facilities

Gender	Toilets	Urinals	Hand basins	Showers
Male	1 per 50	1 per 100	1 per 75	1 per 100
Female	1 per 25	N/A	1 per 75	1 per 100

Infectious disease transmission through unsafe sex or drug use may pose a health risk, particularly for attendees at an event-affiliated campsite or overnight facilities at a venue. Consideration should be given to the availability of condoms and a properly licensed needle exchange/disposal mechanism. While these are sensitive and controversial issues, they are important public health concerns in contemporary society and cannot be ignored.

An influenza outbreak occurred during the 2008 World Youth Day in Sydney.

Viruses isolated in crowded places may have complex and unpredictable effects on community influenza activity. A flexible approach on the part of public health authorities and hospitals can assist to appropriately manage and contain such outbreaks.

Off-site impacts

A crowded place can have a public health impact on the surrounding area including impacts on noise pollution, traffic congestion and disruption to normal medical services. Most will be covered by rules and regulations.

Diseases can be carried into a crowded place; this is a particular concern for events where attendees come from geographically distant locations, such as international sporting events, and may spread infectious pathogens across borders. Awareness of the general illnesses and trends in the community will assist in the assessment of health resources required. Obtaining this information for groups of international travellers or other communities where the population is transient can be difficult.

At the end of an event, a crowd will be immersed back into the community. Any infections picked up in the event can be spread widely, potentially overseas; not just gastro and flu, but also measles, sexually transmitted infections (STIs) and diseases or infections spread through use of illicit drugs.

Evaluation

A post-event survey should be conducted to ensure a proper clean-up has been undertaken. For example, all scrap foodstuffs and discarded needles should be properly disposed of. The site should be returned to its pre-event condition.

As part of good risk management practice, appropriate records should be retained of all service providers so that they may be traced should a subsequent outbreak of a notifiable disease occur, or a claim be made for an injury or illness.

Health personnel should also understand that real-time problem monitoring with a post-event debrief of data provides an opportunity to identify potential and actual problems.

There should be a formal public health debrief following the event, and a public health representative should participate in the all-agency debrief.

Chapter 8: First aid, ambulance and medical services

SUMMARY OF KEY POINTS

Requirements for first aid, ambulance and medical services will be informed by the process of risk assessment to develop a health plan. This is based on understanding the characteristics of a crowded place that contribute to health issues, understanding standards used in similar sites, and assessing the risk in consultation with stakeholders. An integrated whole-of-health plan is required when multiple health service providers are involved, such as on-site ambulance and first aid. Local hospitals and health services should be provided with a copy of the health plan to facilitate planning and enable rostering of additional personnel as required.

KEY CONSIDERATIONS

- Early consultation is essential to heath planning.
- Resources required in the plan will depend on forecasting the type and rate of presentations, and this will be influenced by characteristics of the event.
- Planning incudes deciding on the correct mix of first aid, ambulance and on-site medical services.
- Planning will produce a health plan for the event.
- The plan will be subject to the risk management process outlined in Chapter 1.
- On-site considerations include:
  - first aid posts
  - an on-site medical centre
  - mobile teams
  - ambulance services.
- Other site considerations include:
  - medical equipment
  - communications systems and documentation
  - privacy concerns.

INTRODUCTION

Events and crowded places have dramatically changed over the years – their numbers, geographical spread and increased importance – and providing medical services is challenging. The professionalisation of the event sector is matched by parallel requirements and expectations for appropriate first aid, ambulance and medical services. Health planning is integral to your event planning and should include consultation with all health services present. A single adverse medical outcome, fostered by an ill-considered medical plan, may have a negative impact on attendees. In extreme cases, a lack of planning may also lead to severe penalties. Figure 15 illustrates the process and is part of the risk management process outlined in Chapter 1.

Management should consult early and widely so that adequate resources are committed, with a minimal impact on local health services and communities.

Ambulance services should be contacted, and, ideally, should be integrated into the risk identification and mitigation process. No event should have a negative impact on the normal business capability of a health facility or ambulance service.

This chapter covers the fundamental management process and addresses key considerations for first aid, ambulance and medical services. Checklists, operational tips and prompt lists are found in *Guideline 1: Crowded Places Checklists*, available online on the Knowledge Hub.

Background

Experience and data shows that some attendees in a crowded place will require some type of care. A number will be managed on-site by first aid staff; some will require ongoing medical assessments, interventions or care; and some may require transportation to hospital. Incidences may be greater than what occurs naturally in a population of comparable size.

Characteristics of a crowded place are recognised as important influences on its demand for health care. Negative impacts can be produced by weather, duration, location, site topography, static or mobile crowds within the site, crowd mood, availability of alcohol and illicit drugs, average attendee age, whether the crowded place is outdoors or indoors, and bounded (fenced or contained) or unbounded. Remember, negative medical outcomes make headline news. Figure 15 illustrates some of the inputs into event health planning.

A crowded place has the potential for delayed emergency response because of limited access and other environmental variables. This requires planning and preparation, and a commitment to mitigate hazards so that timely and appropriate health care is available.

Patient type profiles and the range of severity or acuity of presentations is highly consistent among events that are similar in nature, with similar demographics and held at similar times of the year.

Attendees can experience the same clinical conditions on-site as experienced in society, and presentations can be predicted due to historical awareness of demographics.

Ambulance services, health departments and experienced first aid organisations are invaluable sources of information. Any organisation providing a health service should conduct – and be able to provide proof of – their health risk assessment upon request. A health management plan should be produced so processes are documented and understood.

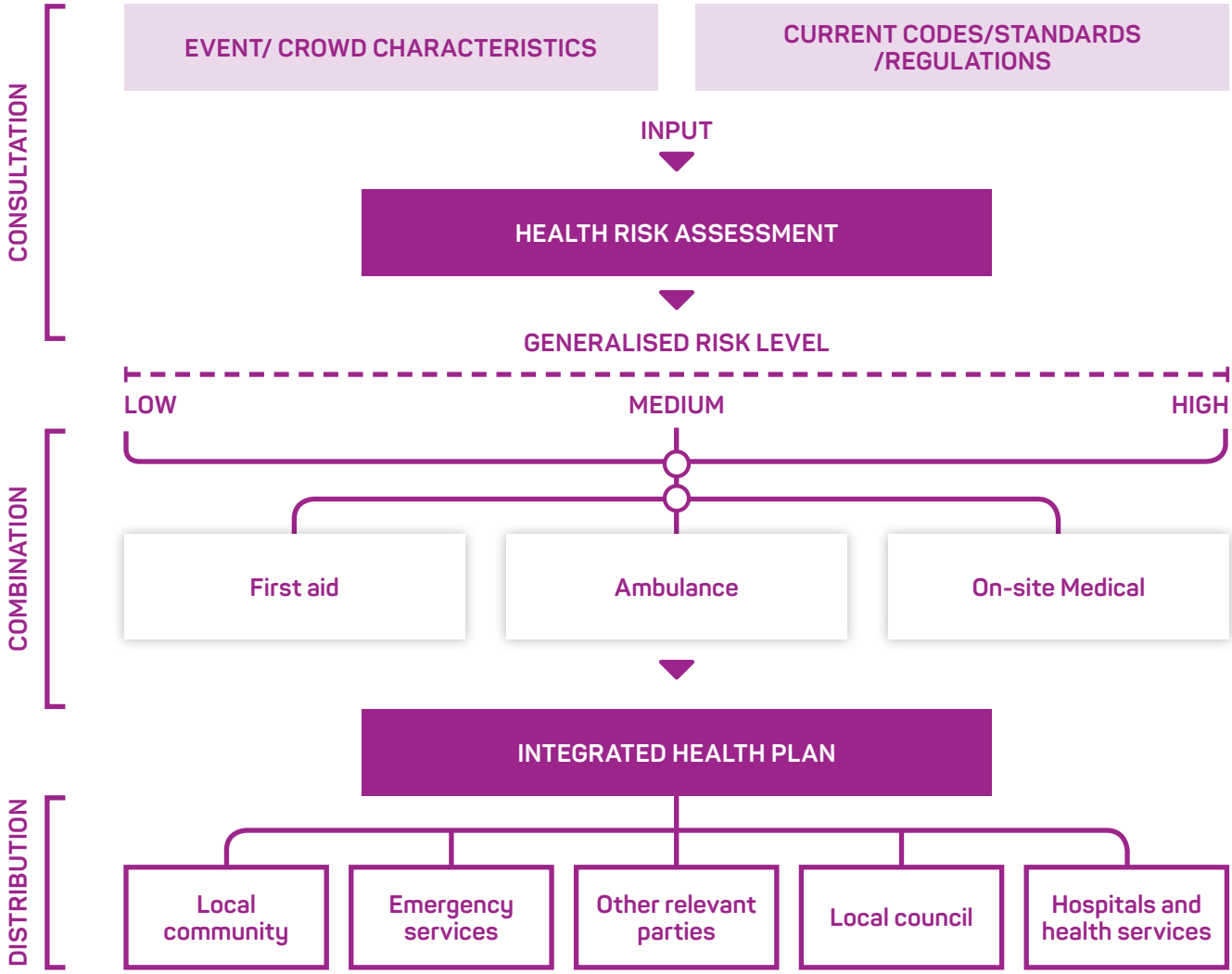


Figure 15 First aid and medical services process

Health planning

Well-planned, appropriately trained, skilled and properly equipped clinical and command resources mitigate negative outcomes in high-acuity patient presentations.

Event characteristics will indicate the approximate types of presentation, that is, injury or illness, and how often they arrive at the centre. This is called the rate of presentation and can be used to predict the level of resources, numbers, skills and equipment required, as illustrated in Figure 15.

The most significant contributor to the patient care workload of on-site medical and first aid services is crowd size. Patient presentation rates (PPR) – patients presenting to first aid services at the event per thousand attendees – vary significantly. Expert first aid, ambulance and medical services can estimate the potential workload for an event and suggest required resources, based on the on-site medical capacities and using existing predictive models and historical data.

Health risk assessment is a specialised skill and requires experience beyond the completion of a checklist. When planning health service delivery, you should consider factors specific to the event, people and context: a change in any may dramatically alter the risk profile and level of services required.

> Falls, hypoglycaemia, stroke and cardiac chest pain is not uncommon for elderly attendees. Equally predictable is intoxication and misadventure-related trauma among the 18–25 age group at certain events. Cardiac arrest is also not an uncommon case at planned public events.

OPTIMISE THE CROWDED PLACE EXPERIENCE FOR ALL ATTENDEES, STAFF AND PERFORMERS

Attendees with minor injuries can be managed on-site, allowing their return and avoiding hospital involvement. A shared responsibility for wellbeing between attendees, management and the first aid provider will support efficient preventative care and symptom relief.

ENSURE ADEQUATE AND APPROPRIATE HEALTH SERVICES ARE AVAILABLE ON-SITE

Clinical intervention skills available on-site increase safety and may allow injured staff and attendees to return to the event. Planning ensures that dedicated resources are appropriate to the event's size and nature.

MINIMISE THE IMPACT OF THE EVENT ON THE LOCAL COMMUNITY AND HEALTH SERVICES

On-site ambulances can provide pre-hospital emergency care to attendees and facilitate rapid transport of attendees in a critical condition to hospital. Dedicated ambulances also offset the resource impact on the surrounding community.

PREPARE FOR INCREASES IN HEALTH SERVICE DEMAND

Scalable systems with additional on-site resources can respond to increased or diverse presentations as well as mass patient incidents.

> For some crowded places, there may only be one provider for multiple services, for example, where security also provides first aid services. If a security issue emerges, it is possible that there will then be a shortage of first aid support in the event of an incident. Consideration should be given to allocating a dedicated resource for critical services.

Early consultation and engagement

Management should provide documentation, including the event, emergency management and first aid plans, to health services for the undertaking of an informed risk assessment. Health services can then advise on requirements and propose a mix of resources to mitigate identified on-site and community risks.

Management should understand the reach and limitations of employee skill sets, including on-site health services. The role, purpose and skills of first aid providers should be clearly defined and understood by management. Management should check that the first aid provider adheres to local laws, provides sufficient staffing with trained, qualified and experienced professionals to meet projected needs, is adequately insured and abides by adequate clinical governance processes.

Management should consider contracting a specialist first aid service. Further guidance on the establishment of first aid care is available from ambulance services and specialist medical providers.

Statutory ambulance services do not routinely provide first aid – they support and complement the first aid plan by providing access to pre-hospital care. Paramedics are trained and equipped to administer medications to manage patient presentations in the same manner as Triple Zero (000) call response cases anywhere.

Ambulance services – especially non-government organisations – may charge a fee to recover costs for their services in a planned crowded place. Management should engage early to fully understand the integrated health model suggested for delivery and risk mitigation. Management should consider costs associated with that mitigation as a part of the operating budget.

A hospital avoidance strategy not only minimises the impact on local services but helps protect the crowded place by offering peace of mind to attendees. Services should reflect the needs of the attendees and the expectation of management. In some circumstances, a local hospital or a state department may provide on-site medical teams as a hospital avoidance strategy, but this should not be expected.

Considerations related to hospitals include additional patient load projections, including case mix; local population changes before and after; staffing capability; and capacity arrangements for hospital patient transfer. Hospitals may need to engage with regional hospitals, their state department of health and aeromedical retrieval providers.

Primary coverage concerns

Key elements of patient care planning include:

- site intelligence, especially predicted crowd size, behaviour and demographic
- disaster planning and response strategies
- expectation of minimum service delivery requirements
- health care personnel and skill mix (including limitations), contracted from a first aid service or via other arrangements
- medical triage strategy and facilities
- communications
- transfer arrangements

- transportation within the site and to local health services
- medical record management
- public information and education
- mutual aid
- supply and data collection
- weather
- pre-event setup and bump-in-bump-out tasks for staff and suppliers.

When properly equipped with your plans, local hospitals can consider the potential impacts of incidents and plan for additional patients before, during and after an event, and how this might have an impact on community health maintenance.

HEALTH MANAGEMENT TEAM

If more than one service is operating on-site, a lead organisation should be identified to designate roles and responsibilities for all. More information can be found in *Guideline 1: Crowded Places Checklists*, online on the Knowledge Hub.

The role, purpose and skills of first aid professionals should be clearly defined for all staff and volunteers, and clearly understood by management. Questions to ask include:

- Is the service exclusively focused on assessment, treatment and referral of emergency cases, or does it extend to provide general medical care for less urgent cases?
- How will the professional qualifications and skill sets be endorsed, and what indemnity is guaranteed by the provider?
- Will professionals registered in overseas jurisdictions or visiting from other countries be involved in providing patient care? Is their accreditation valid?
- Are professionals qualified to treat the expected attendees, and are they supported by appropriately trained staff with access to necessary equipment?
- If the first aid service is carrying restricted medications or drugs, are appropriate permits and secure storage arrangements in place, recognising variances across jurisdictions?

As illustrated in Figure 15, consultation with all first aid, ambulance and medical services; creating a health plan and distributing it; preparing for a disaster; and ensuring an element of response flexibility to unknown risks are all integral. Physical detail and related logistics of a crowded place are essential inputs to the health plan. More information can be found in *Guideline 1: Crowded Places Checklists*, online on the Knowledge Hub.

MEDICAL REQUIREMENTS

Minor to severe injuries should be predicted in any crowded place, and consequences can be lessened with forward planning. The medical plan should:

- prepare for the most critical injury or illness foreseeable, for example, cardiac arrest
- establish a mobile team and a tiered response strategy to provide the 'Chain of Survival' illustrated in Figure 16 (transport is ordinarily the domain of ambulance services, and the provision of event-related vehicles should be discussed with them)
- provide basic first aid care accessible throughout the site; the largest workload component.

LEVEL OF CARE

Understanding the characteristics of attendees and the expected patient load is part of the risk assessment for adequate health service provision. This facilitates identification of appropriate resources to mitigate risks. Peer champions and social media support – for example, Red Frogs, Crowd Care and Red Cross 'save-a-mate' groups – provide areas for rest, recovery and observations for referral.

An on-site presence of social workers, mental health professionals and physiotherapists should be considered; a much wider specialist array at sporting events for people with disabilities could be required. Specific requirements may exist for some international sporting bodies.

Providing on-site first aid services is essential in some circumstances, such as remote settings where ambulance resources are limited. The ability to stabilise an injured attendee when no pre-planned transport method is at the ready will improve a patient's outcome – but there should be no delay in requesting transport to a fully-equipped facility should that be required.

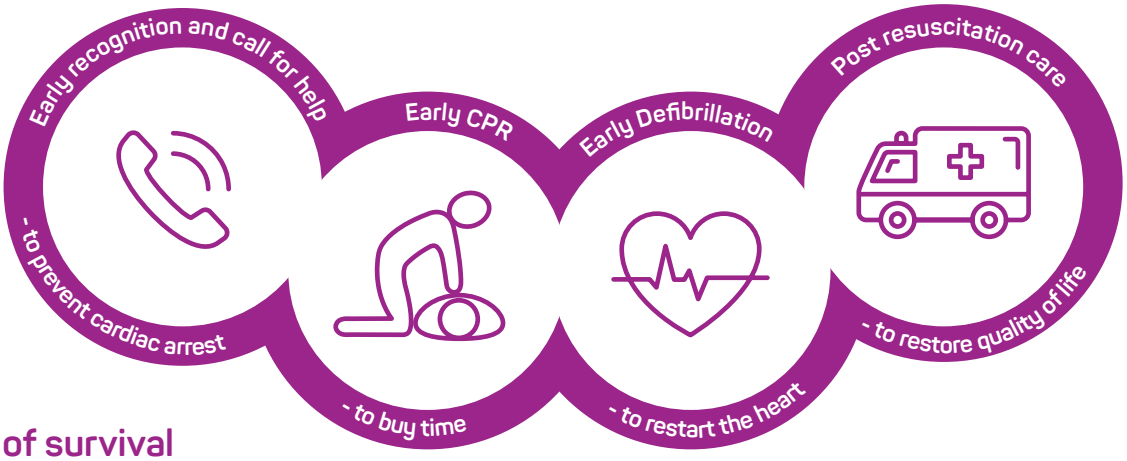
As part of an integrated health plan, a tiered response to life threatening problems should be available throughout the crowded place. Rapid access to basic and advanced life support (BLS and ALS) should be within minutes, and with early access to evacuation.

MAJOR INCIDENT

If an incident escalates to what would, in most circumstances, be deemed a major incident, then state-based ambulance resources will assume the overarching command and control of all on-site medical resources. Consideration should be given to the division of responsibility between ambulance services and management in the extreme case that an incident results in fatalities. If this occurs, how will dead bodies will be moved, by whom and to where?

On-site services

An integrated health plan should outline the on-site medical care, including first aid posts, medical centres and mobile response teams. It should include aspects of ambulance requirements, medical equipment and on-site/off-site communication strategies and will set out governance arrangements, including integration



Chain of survival

Figure 16 Chain of survival (adapted from source: ZOLL)

with local health services and maintaining community coverage.

FIRST AID POSTS AND MEDICAL CENTRE

A first aid post is the location in a crowded place where attendees can go for treatment. First aid posts, as well as the centralised medical centre, should be clearly signposted and labelled on the site map. A list of important considerations can be found in *Guideline 1: Crowded Places Checklists*, online on the Knowledge Hub.

MOBILE TEAMS

Mobile teams provide effective response conduits within the site, on foot, by bicycle or via lightweight retrieval vehicles, and can be summoned by attendees. Readily visible, static first aid posts are accessed by attendees requiring care and minimise the level of patient retrievals. For urgent situations, responders can be dispatched from these locations.

A functional communication system and tiered response protocols are required for urgent cases. In emergencies, attendees will use mobiles to call Triple Zero (000), or to contact a nearby friend or security staff. Thus, mobile teams should always have communication with the first aid control point and be available for dispatch. That control point should have a communications link to ambulance services (if they are not on-site) so that Triple Zero (000) calls can be referred directly to the first aid service.

AMBULANCE

Access should be made available to all ambulances and responding services.

While conventional ambulances are appropriate for patient transfers to off-site medical facilities over good roads, these vehicles may be unsuitable for off-road use. Temporary roads and cross-country terrain may require four-wheel drive vehicles or, for example, where grounds are saturated by recent rainfall. The event organiser must plan to ensure specialist vehicles are available in these cases.

In denser attendee areas, vehicles may encounter access problems. Consideration should be given to using other appropriate means of transport, either designed or modified to accept stretcher cases from these areas. Water craft may be required for patient access and retrieval in some circumstances.

Magnetic-based beacons, warning devices, portable radios and appropriate marking for response vehicles should be provided if the ambulance service has not done so and should comply with your state and territory regulations.

The communication network may be based on existing infrastructure or may need to be arranged by management. There should, however, always be robust communication between ambulance services, on-site first aid control and management.

More information on emergency access and egress can be found in *Guideline 1: Crowded Places Checklists*, online on the Knowledge Hub.

MEDICAL EQUIPMENT

Equipment requirements will vary depending on the risk assessment plan, and will be informed by predicted attendees, the site plan and the distance to the nearest fully-equipped facility. Weather may have an impact on the medication required; for example, dusty environments may trigger respiratory issues requiring bulk lots of inhaler medication.

Management should ensure that medical service providers have access to adequate medication to fulfil predicted treatment requirements, and that they hold the correct permits to access and provide medication.

MEDICAL SERVICES COMMUNICATIONS

Communications for first aid services should be included in the communication plan. Chapter 2 provides more information on communication.

MEDICAL DOCUMENTATION

Documentation of treatments undertaken should meet the requirements of privacy legislation and maintain the confidentiality of patient information. There should be duplicates of all documentation so that the provider can keep a record after handing over documents to paramedics and the receiving hospital. Confidential patient information may not be available to management unless permission is granted by the patient. Documentation may be used for:

- post-event review of activities
- tracking of biological, chemical and infectious disease exposure
- police or coronial investigations.

Specialist services have experience and established systems to manage patient information in accordance with legislation and regulations and can advise on best practice methods.

Legal considerations include:

- Who has access to records?
- Who keeps the data, and for how long?

Case study

An annual event struggling to attract attendees was revitalised by reviewing its plans. The result was an improved end-to-end delivery of service that was mutually beneficial for all stakeholders.

BACKGROUND

A school-based challenge involving human powered vehicles had been held for years in a regional setting in Victoria. The event attracted approximately 22,500 participants, staff, families and volunteers, all flowing into the town and with many camping. This influx of people doubled the small community population for four consecutive days.

In 2017, 19 attendees required transport by Ambulance Victoria to hospitals for spinal injury clearances, fractures and other trauma-related illnesses or injuries. This put enormous strain on the community ambulance resource, the local health facility and first aid services.

As it was, the event format was deemed to be an unacceptable risk to all community stakeholders.

ISSUES IDENTIFIED

- Significant levels and presentations of injury were associated with the event.
- Inadequate ambulance resources were provided to the event due to budget constraints of management.
- First aid services were not adequately integrated with track- and crowd-based activity. It was apparent that the first aid provider was overwhelmed.
- Inadequate staffing, services and facilities compounded problems at the local health services.
- Inadequate event plans lacked detail across a significant number of rudimentary event planning processes.

RISKS

- The event, if run in the same manner, would continue to have an adverse impact on emergency pre-hospital response capability and ambulance, and an impact on the service delivery capability of the local health facility
- There would be a high likelihood of serious injury to children if change were not exercised.
- The event brand could be tarnished given its association with poor vehicle safety.

ACTIONS

- A debrief report was submitted to management, identifying the number of patients and the injuries sustained during the event. Recommendations were made.
- Health agencies, police and the ambulance service submitted a letter of concern to management and informed the local council.
- A collaborative meeting was held to discuss concerns, and to identify possible solutions prior to its next scheduling.

OUTCOMES

- An independent, race event organiser was appointed to assess the entire event, from event plan to post-event processes.
- Independent and collective meetings were held to discuss issues and pathways forward.
- A new committee was formed to allocate responsibility for components of the event.
- A new event and emergency management plan was drafted and distributed for review by all stakeholders.
- Health agencies, Ambulance Victoria and the first aid provider were invited to propose resourcing requirements and cost estimates.
- The new committee considered the information and committed to revitalising the event.

RESULTS

- Management accepted that change would cost money, but that to do nothing risked the health and safety of the participants, their brand and the general community.
- A new medical director role was established and appointed to the management team.
- An ECC was established.
- Ambulance Victoria resources were increased to afford command and clinical resourcing to manage clinical case transfers.
- First aid organisations provided an increased level of service to blend with the new event plan.
- The local health facility increased staffing and access to radiological services, reducing the need for protracted transports to outlying hospitals by the ambulance service.
- Normal business ambulance resources were retained within the community to provide normal business responses to meet government set response key progress indicators (KPIs).
- Fewer injuries were sustained, posting a 26% reduction in transports to hospital, yet with more available ambulance resources to manage that work.
- The combined result was that the event was a safer and healthier crowded place.

Chapter 9: Hostile acts

SUMMARY OF KEY POINTS

Understanding the potential for hostile acts in crowded places and management's options to prevent or mitigate consequences forms an integral component of risk management and security plans. Management should foster a security culture to help build resilience against a hostile act. The dynamic nature of a hostile act demands an immediate and effective response. The transition to a police response may take time, therefore it is the responsibility of management to enact an initial response plan. *Australia's Strategy for Protecting Crowded Places from Terrorism* (the 'Crowded Places Strategy'; 2017) and its supporting documents are easy to access, read and understand. This chapter provides an overview on the importance of understanding and incorporating this guidance into your planning.

KEY CONSIDERATIONS

- How do prevention and response activities in relation to hostile acts differ to other hazards or emergency events?
- What are management's responsibilities in a crowded place?
- What can event managers do to prepare for, prevent and respond effectively to hostile acts, and in a timely manner?
- How can management build resilience to hostile acts?
- Where can more detailed information be found?

INTRODUCTION

Crowded places are an attractive target for individuals and groups desiring to disrupt, generate fear and inflict casualties, and this trend is likely to increase. It is critical that management focus its attention on resilience against the likelihood and potential consequences of these incidents. This effort will be most effective with strong stakeholder relationships in the private sector, emergency services and government. Collectively, vulnerabilities can be best understood, identified and mitigated through a range of activities, including information sharing, development of guidelines and best practice training procedures. This chapter draws on the Crowded Places Strategy and accompanying guidelines found at www.nationalsecurity.gov.au.

DEFINITIONS

Hostile act: An act intended to cause injury/death to people, disrupt business or effect publicly for a cause. The potential for hostile acts is not limited to Islamic extremists. Any violence-prone group or individual could undertake a hostile act (source: adaptation from *Hostile Vehicle Guidelines for Crowded Places*, 2017).

Trends and tactics: Hostile act planning will continue to involve weapons and tactics that are low-cost and low-capability. Basic weapons – such as knives, vehicles, firearms and explosives – can all be used in attacks, either as a single methodology or as part of a 'mixed mode' attack. Understanding and constantly reassessing the threat environment and the effectiveness of existing mitigation is highly recommended.

Nature of the threat

Australia's national terrorism threat level currently remains at 'probable', reflecting ASIO's advice on individuals and groups harbouring intent and capability to conduct a terrorist attack in Australia. In most cases, it is not a location, but a high volume and concentration of attendees that attracts a hostile attack. The impact and consequences of an attack provide terrorists with the media coverage and ideological aims they seek.

Active armed offender (AAO) attacks are one of the most common tactics adopted by terrorists and other criminals around the world. Attacks of this nature can be sudden and unpredictable.

Responsibility

It is the responsibility of government, management and private sector stakeholders to work together, so plans and processes exist to reduce the impact of a hostile act. An act often unfolds rapidly, and it may take time for police to respond. Management has the primary responsibility and duty of care for protecting the site, including steps to protect staff and attendees from threats, including terrorist threats.

Management will often be required to perform the emergency response until police can assume control.

Guidelines

The Crowded Places Strategy ensures a clear understanding of what constitutes a crowded place, the threat that can be posed to such places and the roles and responsibilities for all stakeholders who may play a role in protecting crowded places. This collective approach increases resilience to hostile attacks.

The strategy is underpinned by assessment tools and guidance documents focused on specific weapons and tactics used by terrorists. The resources are designed to increase awareness of weapons and tactics and to provide guidance on risk mitigation and contingency planning activities.

The Crowded Places Strategy and its supporting material can be accessed at www.nationalsecurity.gov.au.

Online resources include:

- *Crowded Places Self-Assessment Tool*
- *Crowded Places Security Audit*
- *Hostile Vehicle Guidelines for Crowded Places*
- *Chemical Weapon Guidelines for Crowded Places*
- *Active Armed Offender Guidelines*
- *Improvised Explosive Device Guidelines.*

Management should use the self-assessment tool to gauge their attractiveness to hostile attacks and complete a security audit to help identify gaps in security.

Building a national approach

FOUR CORE ELEMENTS

The Crowded Places Strategy involves four core elements that provide a structure for a consistent national approach to protecting crowded places and flexibly applied throughout Australia. These are:

- building stronger partnerships
- enabling better information sharing and guidance
- implementing effective protective security
- increasing resilience.

BUILDING STRONGER PARTNERSHIPS

Protecting crowded places from terrorism is a responsibility shared by governments, the private sector and the community. It requires sustainable and strong partnerships across Australia between all governments and managers of crowded places, including businesses and local governments. In Australia, the national framework for cooperation – known as the 'Crowded Places Partnership' – supports a nationally consistent and coordinated approach for trusted engagement between police, managers of crowded places, and Commonwealth agencies in every state and territory. The primary vehicles for police to engage collectively with managers of crowded places in each jurisdiction are known as 'Crowded Places Forums.'

ENABLING BETTER INFORMATION SHARING AND GUIDANCE

Protecting crowded places from terrorism in an evolving threat environment requires trusted and routine information sharing and guidance across Australia between all governments, industry sectors, business, and communities. The strong partnerships developed and sustained through the Crowded Places Partnership will help to achieve this goal.

It is a key responsibility of government to ensure those who manage crowded places have access to high quality threat information. This information, intelligence, and guidance is generated by ASIO and police across the country, and shared, primarily, through the Crowded Places Partnership and Crowded Places Forums.

IMPLEMENTING EFFECTIVE PROTECTIVE SECURITY

Managers have a responsibility to undertake a risk assessment and/or vulnerability analysis of their crowded place, implement the appropriate mitigations, monitor them for effectiveness (including through audits), and review them at appropriate junctures. The following guidelines are a start to hostile risk assessment, and management should seek further knowledge and assistance from private security professionals.

1. Complete the Crowded Places Assessment Tool to gauge the attractiveness of your site to an attack.
2. Complete the Crowded Places Security Audit to highlight security gaps (it is important to remember that protective security measures should be proportionate to the level and type of threat). Consider:
   - security governance, for example, questions like 'Is there a risk management plan?' and 'Are staff trained?'
   - physical security, including communication, entrances and exits, perimeters, hostile vehicle mitigation and CCTV
   - information security, such as passwords, sensitive data and information backups
   - personnel security, including pre-employment checks.
3. Develop a layered security approach. Not all emergencies can be prevented, and emphasis should be placed on minimising severity.

Layered security reduces the likelihood of an attack on a crowded place by building multiple layers of redundancy into a site's security architecture. This is achieved through a deter-detect-delay-respond model. Deterring, also called target hardening, uses obvious physical and electronic measures. Detecting uses visual detection alert systems. Delaying slows down the intrusion, allowing security time to respond. Responding uses competent security staff and reliable communications. Actual measures within each level vary for unique locations and will be influenced by a variety of factors. Managers should prioritise the highest risk areas with security measures proportionate to the threat. Figure 17 illustrates examples of protective security measures that can be used within each layer.

Recovery from a hostile act is the process of rebuilding, restoring and rehabilitating affected attendees, communities and physical assets.

Central to recovery is a business continuity plan, an outcome of the risk management process described in Chapter 1. Implementation of this plan is triggered by an incident and is designed to return the site to normal as soon as possible. It may include relocation of operations, sources of replacement equipment, secure off-site

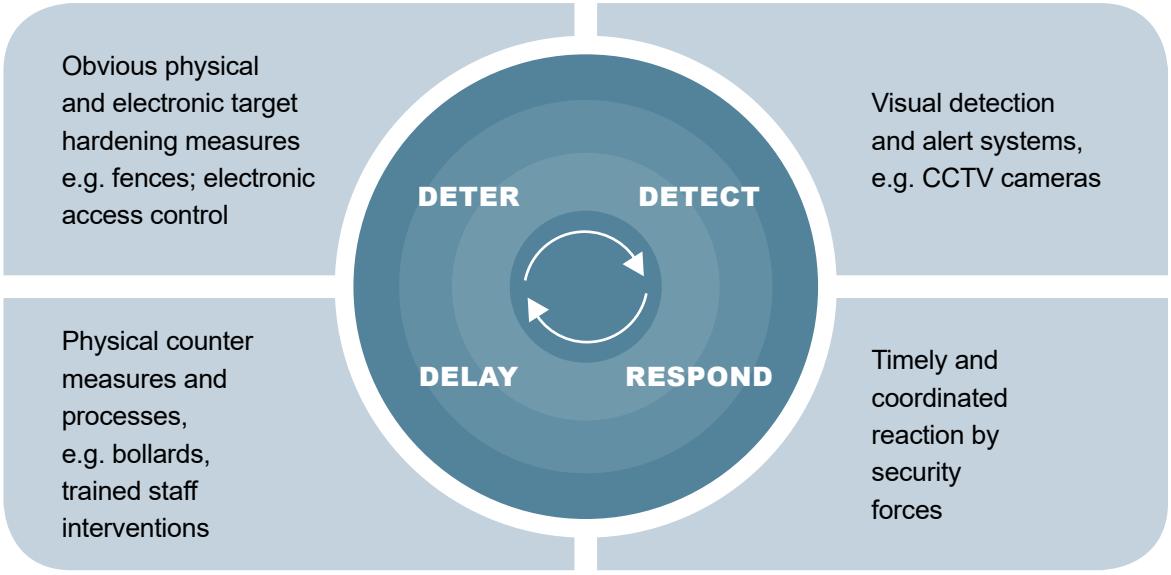


Figure 17 Layered security (source: *Australia's Strategy for Protecting Crowded Places from Terrorism*, 2017)

storage, and agreed methods for out-of-hours contact for staff, clients and other critical personnel.

INCREASING RESILIENCE

Well-planned and tested security measures not only reduce the likelihood of a hostile act, but also diminish its impact or consequences as it is occurring. Resilience extends more broadly than the traditional scope of recovery-related activities; it includes building a protective security culture to help prevent an attack, reduce damage caused by an attack and enable a crowded place to recover more quickly.

The following practices can help foster an effective security culture:

- Provide staff with clear, succinct and jargon-free guidance about security standards and procedures.
- Promote good security practice to both staff and visitors by making use of internal communication systems, posters, message boards and newsletters.
- Provide staff training in security practices.
- Exercise all staff in security scenarios (examples are available in the Crowded Places Strategy).

Active armed offender (AAO) attacks and associated risks

CHARACTERISTICS OF AN AAO INCIDENT

An active armed offender is an armed offender who is actively engaged in killing and/or attempting to kill people, and who has demonstrated their intention to continue to do so while having access to additional potential victims.

AAO incidents commonly:

- occur in crowded places where an offender has access to many potential victims
- rapidly evolve, often reaching resolution quickly
- involve the offender continuing to harm attendees until confronted by police or security
- are not effectively resolved through negotiation or peaceful means.

To achieve their objective, in most incidents, offenders need freedom of movement and ready access to attendees. The following activities should be prioritised:

- Initiate immediate response arrangements.
- Minimise the duration of the incident.
- Restrict the offender's movements.
- Move attendees from danger.
- Prevent attendees from entering the area.
- Help police locate and isolate the offender.

Management should adopt prevention-preparedness-response-recovery (PPRR) arrangements aligned with emergency service agencies.

CONTINGENCY PLANNING

It is critical for management to understand that traditional risk planning, discussed in Chapter 1, is not adequate for hostile acts. Contingency plans supplement general emergency plans and can often be integrated as sub-plans. A range of flexible and scalable options dealing with unforeseeable scenarios should be provided.

RESPONSE

Due to the dynamic and unpredictable nature of hostile acts, there is no best practice that management can build into their security arrangements. The most important goal of any initial response plan is to minimise the offender's access to attendees. Therefore, managers should develop practices and strategies aimed at evacuating people and isolating the offender.

ADVICE FOR MANAGEMENT

It is incumbent on management to implement and coordinate an initial response. Police will require an accurate assessment of the situation, and the sustained situational awareness of staff is fundamental to this. Continuous communication between stakeholders is critical.

Your priorities are to:

a. save and protect life
b. facilitate an evacuation of attendees at risk
c. contain the incident or threat
d. support emergency response and investigation activities.

INITIAL ACTION ADVICE FOR ATTENDEES

Management should, via social media and signposts throughout the site, communicate important tips for attendees. Nationally consistent security advice in the event of an AAO attack reminds attendees to escape, hide and tell.

Escape: The priority is to remove victims from close proximity to the offender.

Occupants of crowded places should consider evacuating the site if it is safe to do so. People should leave behind most belongings and determine the safest escape route before beginning to move. Maintaining situational awareness and making good use of available concealment or cover while moving is also important.

Hide: If unable to safely evacuate, shelter in place ensuring people take advantage of available concealment or cover from the offender.

If the option of hiding is adopted, individuals should continually reassess the situation and their opportunities to safely evacuate or better secure themselves within the premises. They may also need to consider options to incapacitate the active armed offender in the event they are located. This can include using or throwing available objects or using aggressive force when confronted. Such action should only be taken as a last resort and in order to protect life.

Tell: The more information people can pass on to the police or managers the better, but NEVER at the expense of an individual's own safety or the safety of others.

If it is safe to do so information should be provided immediately to the police via Triple Zero (000). People passing on information to law enforcement may be asked to remain on the line and provide any other information or updates that the operator requests.

Further information is provided in the *Active Armed Offender Guidelines*.

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