

Module 9

The Contingency Planning

1. Introduction

While planning an event, it is important to consider every possible risk and hazard that may occur. Knowing the risks ahead of time and planning for those risks are essential to successful planning. Planning for the worst may help reduce the chance of a “worst-case scenario” happening. If the responding agency knows the risks ahead of time and is alert, it can reduce its response time, ensuring the safety and security of those in attendance. Risks vary depending upon the type of event; therefore, event organisers must tailor the planning for each risk to the specific event.

If event organisers know the possible risks that an event poses and the nature of the audience that is likely to attend the event, they can analyse the hazards and take the necessary steps to plan a safe event.

2. The event risk assessment

Risks can detract from an event and can sometimes result in serious loss and/or cancellation of the event. Therefore it is important to have a risk management strategy in place to identify, evaluate and treat risks to the event. In addition to reducing risks, this strategy will be helpful in obtaining insurance. It will help to demonstrate that appropriate steps were taken to manage risks and meet duty of care to event participants.

The purpose of a risk assessment is to identify hazards which could cause harm, assess the risks which may arise from those hazards and decide on suitable measures to eliminate, or control, the risks. Significant findings of the risk assessment must be recorded. It will also be necessary to visit the site or venue to identify specific hazards.

There are five steps which need to be taken to assess the risk associated with staging the event.

2.1 Five Steps to Risk Assessment

Step 1

Identify the hazards associated with activities contributing to the event, where the activities are carried out and how the activities are to be undertaken

Step 2

Identify those people who may be harmed and how

Step 3

Identify existing precautions, eg venue design, operational procedures or existing 'safe systems of work'

Step 4

Evaluate the risks

Step 5

Decide what further actions may be required, eg improvement in venue design, safe systems of work, ect.

3. How to manage risk

A logical approach to creating a good risk management environment and to protecting the event from risks is to:

- define the event, including who owns the event and who are the major stakeholders
- hold a risk management meeting with key players such as staff, suppliers, council and police
- establish common terminology to describe and categorise risks
- identify potential risks in all areas of your event
- rank them in terms of their probability and severity
- devise strategies to manage risks
- allocate areas of responsibility
- document and implement the risk management plan
- monitor risks and establish an incident report system
- carry out a debrief after the event with recommendations for the future.

4. What is risk management?

Risk management is defined as a logical and systematic method of establishing the context, identifying, analysing, evaluating, treating, monitoring and communicating risks associated with any activity, function or process in a way that will enable organisations to minimise losses and maximise opportunities.'

It is important to realise that risk occurs in all aspects of an event including:

- health and safety
- administration
- staff management
- financial
- legal
- marketing and public relations
- crowd management
- security
- event related activities
- environment
- fire and evacuation
- technology
- transport
- weather.

5. Hazard Analysis

Hazard analysis provides planners with information about the kinds of emergencies that may occur and their potential consequences. Analysis assists planners in deciding what steps to take to prevent the possible emergencies and how to respond if an incident occurs.

The best way to begin a hazard analysis is to list the possible risks present at the event. Every community's list will differ based on topographical and geographical features, weather patterns, and other factors. (Tsunami, for example, would not be identified as a hazard in an area that is far from a coastline.) Identifying hazards also includes considering the possibility of a secondary hazard (for example, a tornado may lead to power failure, loss of water, and other hazards).

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The following table includes some of the more obvious risks and possible hazards that may exist. Being prepared for the worst allows planners to have responders and supplies on hand if an emergency does occur.

5.1 Typical List of Risks and Hazards

Abandoned vehicles	Hurricane
Airplane crash	Intentional chemical release
Airspace encroachment	Kidnapping
Assault	Landslide
Avalanche	Loss of utilities (water, sewer, telephone)
Biological incidents	Lost child
Bomb threat/suspicious package	Lost and found
Building inspection	Media relations
Cancellation of event	Motorcades
Civil disturbance with demonstrations	Mudslides
Communications	Parking
Credentials	Permitting
Crowd control	Power failure (sustained)
Cyber attacks	Radiological release
Dam failure	Security
Demonstrations	Structural collapse
Dignitary protection	Subsidence
Drought	Terrorism
Earthquake	Ticketing
Epidemic or other public health concern	Tornado
Evacuation of area	Traffic control
Explosive materials	Train derailment
Fire	Tsunami
First aid matters	Urban conflagration
Flood	Volcanic eruption
Food handling violations	Wildfire
Food waste disposal problems Winter storm	
Hazardous Materials release	
Hostage without terrorism	
Human waste disposal problems	

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Event planners must identify characteristics of each possible hazard to determine the risk and consequences. Characteristics to identify are:

- Frequency of occurrence—the frequency of occurrence (both historical and predicted) for each hazard in the particular jurisdiction.
- Magnitude and intensity—the projected severity of the hazard's occurrence.
- Location—the location of the hazard, if the hazard is associated with a facility or landscape feature
- Spatial extent—the geographic area that may be expected to suffer the impact of the hazard (either around the known location of a hazard or as an estimate for non-localised hazards such as tornadoes).
- Duration—the length of time that the hazard may be expected to last.
- Seasonal pattern—times of the year when the hazard threat exists (based on month-by-month historical occurrence).
- Speed of onset and availability of warning—the amount of time projected between first warning (if any) and actual occurrence.

5.2 Potential Consequences

To determine the potential consequences of a hazard, estimate the lives, property, and services at risk. Evaluate the extent of the hazard by closely examining your community in terms of:

- People (deaths, injuries, and displacement).
- Critical facilities (days of service loss, repair time).
- Community functions (disruption).
- Property (damage, destruction, cost of replacement or repair).
- Potential secondary hazards (dams, chemical processing plants).
- Loss of revenue.
- Negative public image of jurisdiction.

When evaluating hazards, remember that hazards may occur in multiples and that one hazard may cause a secondary hazard.

5.2.1 Identify the Hazards

Determine what kinds of emergencies have occurred or could occur in the jurisdiction.

5.2.2 Weigh and Compare the Risks

Determine the relative threat posed by the identified hazards, using qualitative and quantitative ratings. This information enables planners to decide which hazards merit special attention in planning and other emergency management efforts.

5.2.3 Profile Hazards and Their Potential Consequences

Compile historical and predictive information on each of the hazards and overlay this information on community data to estimate the hazard's potential impact on the community.

5.2.4. Create and Apply Scenarios

For the top-ranked hazards (or those that rate above a certain threshold), develop scenarios that raise the hazard's development to the level of an emergency. This is a brainstorming activity that tracks the hazard from initial warning (if any) to its impact on a specific part of the jurisdiction and its generation of specific consequences. Brainstorming provides information about what actions and resources might be required for response.

6. Contingency Plans

Unfortunately, not every event runs smoothly. Often, incidents occur that are beyond the control of the planning team. Therefore, contingency plans for every event should be in place.

An emergency response plan requires a comprehensive hazard and vulnerability analysis. Consultation among all parties who may respond to an emergency situation during the event is essential.

- What weather conditions may require cancellation of the event?
- What weather conditions will postpone the event?
- How will storm warnings be monitored?

- What plans are in place for sudden, severe weather conditions, such as tornadoes? Will shelters be available?
- Who has the authority to make these decisions, and at what point does he or she exercise that authority?
- How is notification made of a cancellation or postponement?
- Are additional security personnel, including police, on standby or on call if an immediate increase in these services is required?
- Have you advised ambulance services and local hospitals of the nature of the event, provided an expected spectator profile, and estimated potential medical problems?
- Have you notified fire and rescue services of the nature of the event and identified the services that might be required?
- Has the jurisdiction considered how to respond to a Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE) type of man-made, intentional event?
- Has the need for mass decontamination been considered?

6.1 The Planning Process

6.1.1 Organising for safety

Once the health and safety policy statement has been prepared and the levels of responsibility have been agreed and you have prepared your safety plans, it is necessary to organise for safety especially when work is to begin on site.

Effective organising contains these four elements:

- competence
- control
- co-operation
- communication

6.1.1.1 Competence

Competence is about ensuring that all employees, self-employed people, contractors and subcontractors working on your site have the necessary training, experience, expertise and other qualities to carry out the work safely. Competence is also about ensuring the right level of expertise is available, particularly in relation to specialist advice.

Ensure that the contractors or subcontractors you intend to hire, to build the infrastructure or provide other services, are competent in the management of their own health and safety when working on site. Simple checks of the contractors' and subcontractors' health and safety policies can be carried out and applicable safety method statements and risk assessments obtained and examined in relation to their proposed work.

6.1.1.2 Control

Establishing and maintaining control is central to all management functions. Control starts with the production of a health and safety organisational structure, which details specific health and safety responsibilities and shows clear reporting mechanisms. Control also ensures that the contractors and self-employed people understand their responsibilities and that they know what they must do and how they will be held accountable for safety on site. It is important to make sure that contractors understand how health and safety will be controlled and monitored before they begin work on site.

6.1.1.3 Co-operation

Effective co-operation relies on the involvement of employees, contractors, and others, in your planning, standard setting, operating procedures and instructions for risk control as well as involvement in monitoring and auditing. Co-operation enables the risks to be suitably controlled by allowing the exchange of information. Contractors, subcontractors and self-employed people need to appreciate the hazards and risk to others working on site and to co-operate with each other to minimise identified risks. Effective co-operation can be achieved by working to prepare site safety rules and safety plans.

6.1.1.4 Communication

Effective communication ensures that all those who are to work on site understand the importance and significance of the health and safety objectives. Make sure that you keep contractors, subcontractors, and others informed of safety matters and procedures to be followed on site.

7. Monitoring safety performance

Monitoring is essential to maintain and improve health and safety performance. There are two ways of generating information on safety performance:

- active monitoring systems; and
- re-active monitoring systems.

Active monitoring systems give feedback on safety performance before an accident or incident happens. Active monitoring can be achieved by carrying out inspections of the contractors on site by checking the contractors' safety method statements for carrying out work against their actual work on site.

Reactive monitoring systems are triggered after an accident or incident has occurred. They include identifying and reporting injuries, ill health, and other losses such as damage to property, incidents with the potential to cause injury, and weaknesses or omissions in safety standards. Information obtained during inspections as well as a result of incidents or property damage can be recorded in an event logbook. This book can be used to keep other records and the information used to audit and review the event at a later date. It therefore follows that without these monitoring systems no improvements in safety performance would take place for future events.

8. The role of the safety co-ordinator

Event organisers must have access to competent help in applying the provisions of health and safety law unless they are competent to devise and apply protective measures themselves.

A competent person is someone who has sufficient training, expertise, experience or knowledge and other qualities that enable that person to devise and apply protective measures. Appoint a suitably competent

safety co-ordinator to help you comply with health and safety legislation and ensure that the safety co-ordinator reports directly to you. Safety co-ordinators can assist in the:

- selection and monitoring of contractors;
- liaison with contractors, self-employed people on site and the health and safety enforcement authority;
- checking of safety method statements and risk assessments;
- preparation and monitoring of site safety rules;
- checking of appropriate certificates in respect of structures, electrical supplies, etc;
- communication of safety information to contractors on site;
- monitoring and co-ordinating safety performance;
- co-ordinating safety in response to a major incident.

It is not recommended that event organisers appoint themselves as the safety co-ordinator. To be effective the safety co-ordinator should not have other competing roles which would inevitably face an event organiser during the course of the event.

9. Auditing and reviewing safety performance

Auditing aims to establish that appropriate safety management arrangements are in place, adequate risk control systems exist and that they are being put into practice. Carry out auditing at the completion of every music event so that any problems identified in your planning, organisation or any matters that arise during the event can be analysed and corrected for any future events.

Views of the police, fire brigade, health authorities, first-aid providers and local authority can be sought as well as views of the safety co-ordinator, contractors and stewarding contractors. Arrange for a debriefing after the event to review the effectiveness of the safety management systems. The local authority may also ask you to attend a debriefing meeting so that they can give you some feedback on your safety management systems from their perspective.

10. Site suitability assessment

It is important to visit the venue or site to carry out a preliminary assessment to determine suitability. The main areas for consideration are: available space for audience, temporary structures, backstage facilities, parking, camping and rendezvous points. You may already have a proposed capacity in mind, together with some ideas of the concept of the entertainment. Rough calculations of the available space are useful at this stage.

10.1 Venue/Site

You may need to consider a number of alternative venues for an event. Emergency managers may be able to recommend appropriate venues based on health and safety considerations.

Finding a suitable venue or set of venues can be difficult. Answering the following questions during the planning stage can aid in the selection of an appropriate event site:

- Will staging the event require multiple venues?
- Is this kind of event normally conducted at a fixed facility?
- Will a fixed facility be used in ways that may not be considered normal for that facility?
- Is the event regularly conducted at a temporary venue?
- Is the event a "one-of-a-kind" project at a temporary venue?
- What services and utilities are available at the venue?
- What additional services and utilities will be required at the venue?
- Is there a need for backup services or utilities (i.e., redundant systems)?

A universal map/grid referencing system for the entire event footprint should be developed in advance for all attendees and event staff (including public safety personnel) to allow for the rapid identification of event-specific facilities and other locations in an emergency.

- Transport pick-up and drop-off areas?
- Spectator and official viewing areas?
- Seated eating areas?
- Pedestrian thoroughfares?

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- First aid and medical centres?
- Competitors' and officials' marshalling areas?
- What is the duration of the event, and will it continue during the hours of darkness?
- Have you provided for the needs of people with disabilities?
- Does the date of the event conflict with other events to be conducted in the area?
- Will seasonal weather require any special contingency planning?
- Have you surveyed the proposed site (particularly outdoor sites) for inherent hazards associated with the location, and have any been identified?
- Do utility lines that could be brought down by a severe storm traverse the site? Is the site adjacent to a waterway prone to flooding?
- Is the site layout such that, in the event of a mass casualty incident, space is available for an onsite triage area to permit stabilising medical treatment before critical patients are transported to local health care facilities?
- Is such an area accessible to ambulances to eliminate the need for carrying patient's long distances?
- Does the site allow for mass decontamination considerations?
- Have site emergency evacuation considerations been addressed?
- Does the site allow for adequate crowd regulation by means of, for example, existing regimented seating areas or flow barriers?
- Are spectator overflow areas available to prevent crowd crush if spectator turnout significantly exceeds expectations, a common phenomenon at rock concerts?
- In an urban setting, as is characteristic of a stadium venue, could the adjacent streets on all sides be closed to other than emergency service, and resident vehicles, creating a perimeter for access as well as a buffer zone?
- Is a staging area for protestors necessary? Is it required?

11. Dealing with disaster

11.1 Planning

The event risk assessment will be a good starting point for any major incident plan. This will help you focus on areas that will need to be considered. Areas include:

- topography;
- fire/explosion;
- terrorism;
- structural failure;
- crowd surge/collapse;
- disorder;
- lighting or power failure;
- weather, eg excessive heat/cold/rain;
- off-site hazards, eg industrial plant;
- safety equipment failure such as CCTV and PA system;
- delayed start, curtailment or abandonment of the event.

11.2 Preparation of major incident plans

Consider the following matters when preparing your major incident plan:

- identification of key decision-making workers;
- identification of emergency routes and access for the emergency services;
- people with special needs;
- geography of the location and venue;
- identification of holding areas for performers, workers and the audience;
- details of the script of coded messages to alert and 'stand down' stewards;
- alerting procedures;
- public warning mechanisms;
- evacuation and containment measures and procedures;
- details of the script of PA announcements to the audience;
- identification of rendezvous points for emergency services;
- identification of ambulance loading points and triage areas;
- location of hospitals in the area prepared for major incidents and traffic routes secured

- to such hospitals;
- details of a temporary mortuary facility;
- an outline of the roles of those involved including, contact list and methods to alert them,
- details of emergency equipment location and availability; and
- documentation and message pads

12. Some specific scenarios

12.1 Event Cancellation or Postponement

From time to time, an event may need to be cancelled, postponed, or interrupted. If a crowd has already gathered, these actions have the potential to create dangerous crowd reactions. Have plans in place to manage an angry crowd appropriately and to address the possible readmission of patrons to the venue.

One major aspect to consider is authority to cancel or postpone an event. During the planning phase, the promoter and the planning team must discuss who has the authority to cancel or postpone an event as well as when and under what conditions the event can be postponed or cancelled. These decisions must be made before the event begins, and everyone must know who has the authority

12.2 Stopping and starting an event

Once the music event has begun, unscheduled stopping of the event could present serious hazards. Any decision to do so must be taken after careful consideration and consultation with the major incident planning team. Likewise, deciding whether or not, and when to evacuate the audience will require fine judgement. Both unscheduled stopping and evacuation are scenarios that must be pre-planned and as far as practicable, tested and rehearsed. The major incident plan must state who it is that makes the decision to stop or start the event.

12.3 Unattended Packages

At every event, people will leave some items unattended. Public safety officials must decide beforehand how to handle these items. Who will respond? Does the community have dogs trained to identify explosives?

Will the area be evacuated? Decide these issues ahead of time and have a written plan for all public safety personnel to follow.

12.4 Concealment Areas

Concealment areas are areas where persons may hide or conceal packages or other weapons. The best way to avoid problems in these areas is to map the event grounds and identify the areas that could be used as hiding places. The venue staff could assist police in this matter.

12.5 Security Sweeps

How often is security going to go through the event site? What are they looking for? How do they handle incidents? Who is going to do the sweep? Venue personnel and security personnel should work together. These are a few areas to address in advance. After a sweep of the area has been completed, the area must be secured.

12.6 Suicide Bombers

Another terrorist tactic currently used frequently in foreign countries involves suicide bombers who carry the explosives concealed on their persons, and detonate them in crowded areas such as restaurants, nightclubs, public transit buses, or areas of mass gatherings. Because suicide bombers are unconcerned with capture, they are difficult to plan for and to respond to. Emergency response planning should carefully consider how to deal with this type of threat at a special event.

Additionally, planners cannot discount the potential for terrorists to employ multiple suicide bombers in which the first attack is designed to cause casualties and draw emergency responders to the scene specifically to expose them to a second suicide bomber attack.

12.7 Criminal and Terrorist Risks

Special events and mass gatherings are a perfect target because of the large number of people, media coverage, and the high-profile impact if a terrorist strikes. Small communities and their events may actually be attractive sites for terrorists because the residents may believe they are not at risk and so do not prepare themselves. However, event planners can take steps to prepare for the same risks that all communities face.

Prepare public safety personnel to protect themselves. Ensure that your community's public safety personnel are adequately trained and equipped with personal protective equipment (PPE) as dictated by their response role to protect themselves as they help others.

Some events may appeal to terrorists for a number of reasons, including an anniversary date, religious holiday, a particular location, the nature of the event, or those who will be included among the participants.

Communities can identify terrorist organisations that may be attracted to their event for any number of reasons and can prepare accordingly.

Knowledge is an advantage. Know the possible risks that the event poses and the audience that the event will attract. Ensure that your public safety teams are prepared and have practiced their response to both terrorism and suspected terrorism, and that they understand how to mitigate any potential terrorist incidents.

13. Threat Assessment

Planning and intelligence gathering are necessary activities for law enforcement personnel during event planning. The level of commitment to these anti-terrorist activities influences the level of response capabilities that should be maintained.

Two terms that event planners should understand are anti-terrorism and counter-terrorism:

- Anti-terrorism is a term used to define actions taken to mitigate potential effects of terrorist activity.
- Counter-terrorism is best defined as operational actions taken or activities planned to prevent a terrorist activity or event.

14. Pre-Event Public Health Survey

Event organisers should conduct a pre-event public health assessment for any venue intended for a mass spectator event. Organizers should consult appropriate health authorities to ascertain the availability of:

- Running water (particularly for hand washing by food service and medical personnel).

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- Sufficient public toilets and hand washing stations in or adjacent to toilets (with provision for pump-out of portables and servicing as necessary during the event).
- Adequate refrigeration for perishable foodstuffs.
- Recognised, approved vendors of bulk food items delivered to the site's food providers.
- Sufficient number of covered containers for the storage of food and solid waste, including removal during the event.
- Appropriate storage and removal of liquid waste.

Public health inspectors should be available onsite during the event to monitor public health compliance.

Public health authorities, onsite should have legislated authority to enforce "cease operation" orders on onsite food providers who are in contravention of standards or are otherwise operating contrary to the public interest.

15. Public Health Contingency Arrangements

The plan should include the following details, as a minimum:

- Contact details, including after-hour information, for principal event personnel (for example, event organisers, environmental health officers, trades persons, and emergency service personnel, including health services personnel).
- Contact details for additional staff.
- Details for 24-hour contact of the food proprietors.
- Arrangements for alternative suppliers of equipment and utilities in the event of a failure or loss of water or power.
- Arrangements to replace food handlers who become ill.
- Arrangements in case of product recall.
- Epidemiological tracking procedures.
- Procedures for handling complaints.
- A debriefing procedure.

16. Planning Medical Care

Some medical logistics questions to consider in planning an event include:

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- How many medical stations will be required onsite?
- Will medical personnel operate in a facility to which the injured must make their way, or will clearly identified medical teams patrol spectator areas?
- How will spectators identify medical personnel on the site (uniforms, vests, etc.)?
- Will vehicles be available to transport spectators to the medical facility?
- Will medical vehicles be appropriate to the terrain? Four-wheel-drive vehicles may be required for off-road areas and golf carts or similar vehicles required for high-density spectator areas.
- Where an ambulance is not required, will a “chauffeur system” be provided to transport persons from the onsite medical facility to their own transport vehicle?
- How will medical personnel be notified of, or summoned to, spectators requiring assistance in vast spectator areas?
- What means of communication will be available to permit attending medical personnel to communicate with offsite medical personnel, event organisers, security, and other support personnel?
- Are there any sponsorship conflicts between the event sponsor and any medical service operators?
- What level of onsite medical care, if any, do you expect to be required, given the nature of the event?
- What mix of medical personnel (first aid providers, paramedics, nurses, doctors) will you require onsite?
- Who will provide the personnel? How will the cost for their services be funded?
- Are the health service providers from the local area? If not, how will their services be integrated with the local services?
- How will security concerns for health care personnel onsite be addressed?

- Are the selected personnel appropriately skilled to respond to anticipated medical problems at the event? They may require additional training.
- Will medical personnel or vehicles need special credentials to allow them access to all parts of the venue, especially to any restricted areas?
- Are medical personnel assigned for public safety workers at the event?
- Are aero-medical services and landing zones available?
- Where is the closest trauma centre?
- Have primary and secondary receiving hospitals been identified?
- Does the area hospital have adequate bed and personnel capacity to respond to the emergency requirements of an event of the size that is being planned?

17. Management and Planning

- Determine which other organisations will be involved. Who will be the lead agency?
- Conduct planning meetings involving health personnel, emergency services personnel, and event organisers.
- Determine what is expected of each organisation involved in the provision of medical care.
- Determine likely levels of care that will be required.
- Determine any local laws, rules, or regulations governing emergency first aid.
- Determine the budget for the provision of medical care services.
- Establish liaison with other emergency services (police, fire, and security).
- Identify the equipment required and potential suppliers. Will the equipment be purchased, hired, or borrowed?
- Will volunteers be used? What accreditation will they be required to possess? What benefits will they be offered?
- Ensure the security of medical stations and the safety of the staff.
- Establish a patient information management system for patients who are treated, including patient care reporting, etc.
- Determine in advance the disposition of patient records after the event.

- Consider the effects of weather conditions on the spectators, such as hypothermia and heat stroke.
- Consult medical literature for information on the numbers of casualties from similar events in the past.

18. Casualties

Experience from other events has shown that most casualties are from:

- Heat stroke, dehydration.
- Cuts from broken glass and drink can ring pulls.
- Injuries from missiles, usually bottles and cans.
- Fainting and exhaustion from a combination of hysteria, heat and alcohol. At concerts, this often occurs at or near the stage barrier.
- Trampling or crushing from crowd pressure.
- Crowd “surfing” and stage diving.
- Illicit drug and alcohol abuse.
- Respiratory problems (asthma and emphysema).
- Epilepsy attacks brought about from strobe lighting.
- Age-related illness.

19. Medical Access to Venue

Consider the risks associated with venue (for example, water in the vicinity).

Agreements must be reached among medical service providers on the following:

- Medical teams must be able to locate individuals in need of attention easily. You should agree on the use of a common reference map or grid system.
- How will medical teams reach or rescue individuals in distress for example, in crowded areas or through fixed seating)?
- How will patients be transported onsite?
- Will you provide a dedicated access route, or emergency service lane, to allow rapid

access to and from the venue for ambulances and other emergency vehicles?

- Will the event itself pose a barrier to medical teams (for example, community runs or a parade)?
- Will you need aero-medical services/landing zones, and if so, what are the associated regulations regarding their operation?

20. Level of Care

Levels of care can be categorised as follows:

- Basic—first aid.
- Intermediate—first aid plus IV therapy and oxygen.
- Advanced—Care and life support and early management of severe trauma.
- Site Hospital—full monitoring, ventilation, and resuscitation capability.

Other level-of-care concerns include:

- Consulting medical personnel with experience in similar events to determine the appropriate levels of care to provide.
- Considering the distance to, and accessibility of, the nearest hospital and its capability.
- Pre-establishing the coordination between venue medical services and those of the local community emergency medical service responders (that is, establish how they will provide mutual aid if required).
- Preparing to treat patients after a release of a chemical, biological, radiological or other material.

21. Medical Aid Posts

Important considerations in the establishment of medical aid posts require that they should:

- Provide easy ambulance access and egress.

- Be located within 5 minutes of all sections of the crowd.
- Have available a mode of transport to them.
- Be clearly marked.
- Have adequate signage for direction to the aid post.
- Be clearly identified.
- Be clearly marked on maps of the venue layout.
- Be in a position known by security and other event personnel.
- Be stocked and staffed for the duration of the event and for spectator arrival and departure periods.
- Provide facilities for injured or sick patients to lie down.
- Ensure privacy in clinical areas.
- Provide some means of communication with the primary medical control point, venue control, and with mobile medical teams in the venue.
- Be located in as quiet a place as possible.
- Ensure that post security staff considerations are addressed.
- Include dedicated disposal containers for ablutions, hazardous wastes, and sharps.

22. Environmental Concerns

22.1 Weather

Weather is a variable that takes on a different significance depending on the event and its location. Extreme high and low temperatures must be part of the contingency planning for an event. These extremes present hazards and risks that are not normally present but must be considered in the event that they do occur.

For outdoor events, many additional concerns may become apparent regardless of location. Lightning strikes, severe thunderstorms and hail, high winds, and other undesirable weather pose threats to event patrons. The influx of patrons may have a severe negative impact on the jurisdiction's mass evacuation and sheltering plan for local residents. Contingency plans drawn up for the jurisdiction may not provide for a transient population (as in the case of some rock concerts with numbers of patrons in the hundreds of thousands) that will negatively impact that community's ability to protect residents and visitors.

During the planning phase, event organisers must adequately consider all potential weather conditions. For example, if event infrastructure (i.e., stages, speaker towers, etc.) are to be erected at the event, special consideration should be given to their composition (i.e., steel versus wood, etc.), height, location, and protection of their surrounding areas. Electrical professionals can be consulted regarding the impact of a lightning strike scenario to this type of infrastructure by a swift-moving thunderstorm. Worst-case scenarios can then be developed to consider the effect of infrastructure energised by a lightning strike. Not only could anyone on the stage or scaffolding be prone to electrocution, but many spectators on the ground around the infrastructure could be in danger, depending on the location of the strike with the scaffolding, any grounding mechanisms in place, and the severity of the storm.

Some planning considerations involving weather awareness are:

- Monitoring the weather using a computer, radio, or television.
- Establishing a dedicated a phone line that is linked with the closest office of the National Weather Service.
- Distributing weather information to the participants.
- Contracting or partnering with a private-sector meteorological prediction service.
- Establishing agreements with the promoter to interrupt a performance and use the festival sound equipment as a public-address system to give information to patrons on protective actions to take if severe weather becomes imminent.
- Leasing and installing a lightning detection system similar to those used at major golfing events to forewarn of impending storms.

Developing severe-weather contingency plans to ensure the safety of event attendees can require a significant amount of time, equipment, planning, and multi-agency participation.

22.2 Site Hazards

In selecting a site, especially for an outdoor event, the planning team should identify the potential hazards in the area, which include:

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- Power lines that could be brought down by a severe storm.
- Structures and equipment that could be prone to lightning strikes.
- Waterways that may be prone to flooding.
- Brushfires.
- High winds.
- Areas of high ground that require management (i.e., security from snipers, etc.).
- Extremes of temperature.

Pests and large animals, including:

- a. Rodents
 - b. Insects—ants, caterpillars, wasps, bees, mosquitoes, flies
 - c. Snakes
 - d. Spiders
- Pollens and poisonous plants, including noxious weeds.
 - Marshes or swamps.
 - Quarries, pits.
 - Scrap piles.
 - Cliffs and steep inclines.
 - Watercourses, including their depth of water, water currents, water temperature, water clarity.
 - Pollution—dust, noise (including the potential need for hearing protection).
 - Water quality (bacteriological), blue-green algae.
 - Darkness.
 - Hazardous chemicals or underground tanks.
 - Use of lasers.
 - Alcohol, drugs, weapons, or potential weapons (for example, broken glass).
 - Ultraviolet (UV) radiation.
 - Neighboring land use.

22.3 Camping

If camping is permitted at the event, you should consider the following:

- Providing for the safety of the campers and their belongings.
- Disposing of solid and liquid waste.
- Clearly marking temporary streets.

- Clearly defining avenues of access for ambulances, law enforcement personnel, and other emergency vehicles.
- Controlling the building of fires.
- Removing fire hazards ahead of time.
- Installing a public address system to communicate emergencies to campers.

Survey proposed camping areas to ascertain their safety, paying particular attention to:

- Low-lying areas subject to flooding.
- Areas adjacent to creeks or rivers.
- Areas near utility lines.
- Trees that may drop branches, especially during a severe storm.

23 Structural Matters

An area of great concern is the physical setup of the event. Planners need to consider what performance facilities are needed, what special structures are needed for indoor or outdoor events, and whether temporary structures can be used. These are just a few primary concerns.

23.1 Stages, Platforms, and Other Performance Facilities

When setting up an event, stages, platforms, and the other performance facilities are an area of major safety consideration. The type of event and its site affect the choice of performance equipment and its stability requirements. Qualified inspectors should perform some type of inspection to ensure that the structure is appropriate for the event and that the structure is safe.

The expected behaviour of the crowd is one of the principal factors determining stage configuration. While classical music and ballet performances usually attract a mature and orderly audience, teenage and pre-teen fans at rock concerts have been known to storm the stage to touch their idols. Such incidents, apart from being disruptive, have caused injuries. Therefore, event planners should understand the emotional and physical character of the audience that a particular performance will attract.

There are three principal ways to gather information about the anticipated crowd:

- Review press reports and contact local public safety officials who were present at previous performances.
- Speak with spectators who have attended adolescent entertainment events such as rock concerts. In the past, spectators have provided valuable insights into what behaviour authorities might expect from audiences for different entertainers.
- Check with the promoter to determine audience behaviour at past events and the type of crowd and the behaviour that can be expected.

Stages are usually elevated to provide the audience a better view of the performance, especially for spectators who are farther back. This elevation is itself a barrier to those who would rush the stage in an attempt to touch a performer. In addition, this increased height can create an area free of spectators at the base of the stage because the audience members will position themselves back from the stage so that their line of sight is not impeded.

At some venues first aid personnel are located under the stage to accept injuries occasioned at the front of the spectator area. A stage or a platform alone is usually insufficient to deter, agile spectators, however, and an additional physical barrier is needed in front of the stage.

23.2 Indoor Events

During concerts held indoors, an effective practice is to erect a “V” shaped barrier in front of the stage to deflect patrons away from the stage area if any surge comes from behind. The “V” shape also provides an additional barrier to prevent spectators from reaching the stage. Security staff can position themselves in this spectator-free zone or should be able to gain access to it quickly from either end of the stage.

Barrier posts must be securely anchored to the floor, not merely mounted to freestanding bases. They should also have some padded protection.

23.3 Outdoor Events

Board fences similar to the “V” shaped barrier described for indoor concerts can be used in an outdoor setting. Board fences have the added benefit of providing a walk space on the spectator side of the fence as well as behind it. Because most outdoor concerts do not provide seating, spectators in the front rows seated on the ground have to take a position several yards back from the fence to permit them to see the stage over the top of the fence.

Any stage protection barrier must be designed to sustain a certain amount of flex in order to prevent the crushing of spectators in the front by a crowd surge from behind. At the same time, it must be sufficiently solid so that it will not collapse and cause injuries. Fences installed as stage barriers often fail to meet this two-fold requirement.

23.4 Emergency Evacuation

There are physical structures designed for use in areas of egress that, in the event of an emergency where evacuation is required, collapse to allow for the maximum pass through.

23.5 Temporary Structures

Because of their transitory nature, many events require easily constructed temporary structures. These include the stage platform itself, as well as towers to house speakers and floodlights, temporary seating such as bleachers, dance platforms, roofs, towers and masts, viewing platforms, marquees and large tents, and decorative items such as archways, overhead signs, and even sideshows.

All such temporary structures must be designed and erected to include a margin for safety and a view to potential hazards. A local government building-codes inspector should supervise the erection of temporary structures and ensure that they conform to local government building or engineering specifications.

Temporary structures are often hurriedly erected because access to the venue may be permitted only a short time before the event opens and they are usually designed for rapid removal at the conclusion of the event. In

addition, these temporary structures are frequently neither designed nor erected to withstand stresses other than from intended use and are therefore not engineered to incorporate safety features. High winds or spectators climbing for a better vantage point can overstress these structures. Personnel should inspect temporary structures periodically during events of long duration. They should post warnings on, or close, a temporary structure whose intended purpose is being violated.

23.6 Load Capacity

All structures have load capacities, and precautions should be in place to prevent misuse through overloading. These precautions apply to any viewing platform or vantage point, such as building walkways or balconies, which can cause a major incident if the number of spectators upon these structures is not properly controlled. The bases of temporary structures must be protected from damage by vehicular traffic through the use of designated buffer zones.

23.7 Seating

Ideally, all seating should be reserved; however, this ideal situation may be difficult to achieve at outdoor events.

If most of the spectators are in their teenage years, provide seating to control surges and crushing at the front of the stage. A security presence to ensure that audience members do not stand on seats is also recommended. Seating should be adequately anchored to prevent its movement.

Another area of concern is the spacing of the seats, and local life-safety codes may define acceptable practices in this area. The seating should be spaced far enough apart to allow emergency crew's access to patients. Often, grouping the seats and providing large walkways between the groups is a way to provide this access.

23.8 Temporary Seating and Anchorage

Seating in a community centre, arena, or similar indoor location often combines 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 any problems with certain audiences, more enthusiastic spectators may pose the following problems:

Persons standing on the seats for a better view are prone to injury because they may lose their balance or become jostled. In such instances, they can adversely affect other spectators, sometimes causing a “domino effect” in closely spaced chairs. The potential for a significant number of injuries exists. If an audience becomes hostile, portable chairs can be used as dangerous missiles. It is not uncommon for hostile fans to become aggressive and throw items. Seats that are not anchored become dangerous projectiles.

Portable, folding, or stacking chairs should be secured to the floor. Where this is not possible, attach the legs of each row of chairs to two long planks, one running under the front pairs of legs and one running under the back, as an alternative solution.

24 General Issues for Consideration

Major crowd issues you should address include:

- Size-Maximum numbers permitted are often established by regulation for safety reasons.
- Demographics-Consider the composition of the audience, including the age and gender mix. If you identify in advance that young children will constitute a high proportion of the audience, consider additional facilities, such as childcare, family bathrooms, and rental strollers. Audiences made up of young children or elderly people tend to require additional medical facilities, and children and the elderly are more susceptible to crush injury than teens or adults.

Different kinds of events may attract certain types of spectators that require special attention. Consider the following:

- Rock concerts, in contrast to other types of concerts, may experience a higher incidence of problems with drug and alcohol abuse, underage drinking, and possession of weapons.
- Religious and “faith healing” events may attract a significant number of ill and infirm people, which may increase the need for onsite medical care.
- Events for senior citizens may also require higher levels of health services.
- Certain sports events may attract over-reactive and violent supporters.
- Cultural events may require special arrangements, including the provision of interpreter services, special food services, and multilingual signposting, brochures, and announcements.

Outdoor Concerts-additional considerations:

- Control and distribution of spectators in the field.
- Suggested minimum space allocation of 4 to 5 square feet per person on grounds with no seats.
- Some form of sectoring and barrier management by security is important.

24.1 Entrances and Exits

Important considerations for the entry and exit of spectators include:

Entrances

The primary function of entrances is to provide:

- For supervision, marshalling and directing crowds.
- Access for emergency services.
- Egress and evacuation routes.
- Initial surveillance and inspection of attendees (i.e., magnetometers).

Entrances should also:

- Be clearly signposted.
- Be in working order.

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- Provide for separation of pedestrian and vehicular traffic.

Entrance Management—Event organisers should:

- Permit flexible opening and closing times. (Advertised times are recommended, however.)
- Stagger entry times by providing supporting activities.
- Keep entrances clear of all other activities.
- Keep lines away from entrances.
- Ensure there are sufficient numbers of suitable barriers, fences, gates, and turnstiles.
- Locate ticket sales and pick-up points in line with, but separate from entrances.
- Arrange to have a public address system or alternative communications system to provide information and entertainment to the crowd waiting at the entrance.
- Consider the potential need for medical and security personnel presence.
- Provide sufficient numbers of personnel who are appropriately trained.
- Ensure that control points for searches to detect prohibited items, such as alcohol, social drugs, glass, metal containers, and weapons, are in place and do not affect movement.
- Provide a secure area for the storage of confiscated goods.
- Provide toilets, if lines are expected to be long.
- Apply metering techniques as appropriate.

Exit Management—Event organisers should:

- Ensure that exit doors are not locked. If personnel are concerned about illegal entry, then doors could be fitted with alarms.
- Ensure that exit doors open in the direction of escape and are confirmed as operational.
- Check the placement, function, and signposting of exits.
- Ensure that doors that do not lead to an exit are so marked, preventing “dead end” entrapment and the potential for panic.

- Ensure that all exit corridors are free of all impediments to crowd movement.
- Ensure that turnstiles are freewheeling or can operate in reverse.
- Ensure that cords, which can create trip hazards, do not cross exit corridors. (If this precaution is unavoidable, the cord should be marked, insulated, and secured to the floor to prevent damage and potential electrical risks.)

Escalator Management—Event organisers should provide for:

- Staff control at the top and bottom, including an emergency stop button.
- Metering of the flow at both ends.

24.2 Security Roles and Responsibilities

Clearly establish the roles and responsibilities of security personnel prior to the event.

Decisions and actions taken by security personnel may affect the way emergency services and health personnel respond to a crisis. In planning, and throughout all stages of the event, maintain a close working relationship among:

- Security personnel
- The promoter
- Health and medical services
- Other police and emergency services
- Other security services (for example, those who are responsible for the performers' personal safety)

Special security considerations include:

- Will the event organisers or promoters use police officers for onsite security, or will they hire private security officers?
- If you use private security officers, what will be their role and functions, and how will their services be integrated with those of the police? Are they permitted to work outside of the venue?

- What policies will security personnel enforce for minor offenses onsite to assure that established policy is enforced consistently during the event and throughout the venue?
- Will there be areas onsite for the collection and storage of significant sums of money, and what security will be established to protect these areas, as well as offsite transfer or banking?
- Are these areas positioned near road access to avoid the risks associated with carrying large sums of money on foot through spectator areas?
- How will security personnel move high-profile persons through crowded areas?
- How will security personnel handle lost or stolen property?
- How will security personnel detect forged credentials?
- How will security personnel deal with lost children and missing persons?

Ensure that equal patron assessment and treatment occurs at entrances and security checkpoints. All attendees must be treated as “equal risks” from a security standpoint. You should clearly define the responsibilities and roles of security personnel before the event.

These may include:

- Crowd management, including measures taken to prevent crushing.
- Control of access to stage or performance areas.
- Security control at entrances and exits.
- Area patrol to minimize the risk of fire.
- Control of vehicle traffic and marshalling.
- Searches for alcohol, drugs, and weapons.
- Security of large sums of money and confiscated goods.
- Assistance to emergency services, if necessary.

24.3 Pre-Event Briefing of Security Personnel

To enable security personnel to perform their duties effectively, you must brief them appropriately prior to the event. This briefing should provide security personnel with:

- Details of the venue footprint and grid map, including entrances, exits, medical aid posts, and any potential hazards.

- Clear direction on the management of unacceptable behaviour.
- Basic information about the event, such as the locations of medical aid posts and lost-person stations, information, parking, transportation matters, and other pertinent spectator information.
- Details of emergency and evacuation plans, such as procedures for raising alarms, protocols for requesting assistance, and evacuation procedures.
- Instructions for the operation, deactivation, and isolation of any onsite machinery and utility supply in case of emergency.
- Details of the incident communications plan and the equipment to be used.

The attitude of security personnel has a major influence on crowd compliance. Security personnel are charged with not only controlling a crowd, but also with making them feel welcome. Every individual staff member who comes into contact with the spectators plays a role in crowd control. The dress, demeanour, and actions of staff may set behavioural expectation levels, and you should consider this fact in planning and pre-event briefing of staff.

24.4 Deployment

You should consider strategic deployment of security staff. All venues will have areas that are particularly suited to crowd monitoring and problem areas where particular attention is required. The type and size of the venue may control what method of transportation the security personnel use. Using bicycles or golf carts may be more practical than deploying in vehicles or on foot. Indoor events are usually patrolled on foot, while a large outdoor area may be patrolled using bicycles, golf carts, or automobiles. The amount of time during which the personnel must patrol also may be a factor. Deployment considerations include:

- Identification of strategic deployment points, such as entrances and exits, barriers, and general thoroughfares.
- Establishment of strategic observation points to monitor crowd movements and behaviour
(A central control room with video surveillance may be required.)

- Use of video pole cameras in densely populated areas.

24.5 Information Centre

A well-identified, well-publicised information centre onsite, staffed with knowledgeable personnel, can reduce pressures on security, medical, and other event staff, by providing a full range of informational services to patrons. Reduction of uncertainty among spectators defuses the kind of tension that can lead to behavioural problems.

Event Management

Measure of likelihood

Table 1 ASA Likelihood Rating

Level	Descriptor	Description
A	Almost certain	Incidents expected to occur in most circumstances
B	Likely	Incident will probably occur in most circumstances
C	Moderate/possible	Incident should occur at some time
D	Unlikely	Incident could occur at some time
E	Rare	Incident may occur only in exceptional circumstances

Measure of Severity or Consequence

Level	Descriptor	Detail Description
1	Insignificant	No injuries, low financial loss
2	Minor immediately	First aid treatment, on-site release contained, medium financial loss
3	Moderate site release	Medical treatment required, on- contained with outside assistance, high financial loss
4	Major production	Extensive injuries, loss of capability, off-site release with no capability, off-site release with no detrimental effects, major financial loss
5	Catastrophic detrimental	Death, toxic release off-site with effect, huge financial loss

Risk Management Matrix

Likelihood	Consequences				
	Insignificant	Minor	Moderate	Major	Catastrophic
A - Almost certain	H	H	E	E	E
B - Likely	M	H	H	E	E
C - Possible	L	M	H	E	E
D - Unlikely	L	L	M	H	E
E - Rare	L	L	M	H	H

Category:

E - Extreme risk, immediate action required

H - High risk, CEO attention needed to develop strategy

M - Moderate risk, specific strategies needed. Management responsibility must be specified

L - Low risk, manage using existing controls.

Event Management

By rating and categorising risks this way, there is a means of evaluating the risks and deciding how to treat the risks in order to manage them. Some options for managing risks might include the following:

- cancel and avoid the risk
- diminish the risk
- reduce the severity of the risks which do eventuate
- devise back ups and alternatives
- distribute the risk
- transfer the risk.

From the risk management meeting, it is helpful to draw up a Risk Register, listing what are perceived by the group to be the most common or serious risks, how these might be treated and by whom. The Risk Register might look like this:

Event Name		Event Date		Date register Compiled	
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Risk	Likelihood	Consequence	Category	Treatment	Responsibility
Negative media coverage	Moderate/Possible	Moderate	High	Develop media management strategy	CEO
Some one trips on cords	Unlikely	Minor	Low	Tape down and cover cords	Stage manager

A risk management strategy can now be written which incorporates a common language to decide the likelihood and severity of risks, how they should be treated and by whom.

This strategy can be used to monitor, reduce and report, ie to manage the event risks. This process also encourages staff to be risk aware and contributes to the creation of a risk resilient event.