

# Health Emergency and Disaster Risk Management

## MASS GATHERINGS

### Key Points

- A mass gathering involving large numbers of people has the potential to cause wide-scale health effects.
- By working with event organizers and other stakeholders, health personnel can reduce health risks before the event, plan for health care needs and prepare for any emergency requiring a health response.
- Planning for health services for a mass gathering is based on risk assessments of a range of factors, e.g. event type, crowd size and environmental conditions.
- A multi-agency team, including health, should develop a major incident or emergency response plan that should be tested before the event.
- Plans for the safe evacuation from venues, with clearly-marked and unobstructed exit routes, are needed. Clear, concise messages to participants will assist evacuation.
- An environmental hazard assessment of the event site should consider measures for extreme weather conditions, e.g. early warning systems, shelter.
- If a major incident occurs, the mass casualty management plan should be activated for on-site management of multiple medical casualties and transport of patients to health facilities.
- The assessment of security threats to the event is coordinated with police and emergency services, followed by joint planning and training of emergency medical services personnel in the management of acts of violence and terrorism.
- Documenting mass gathering events, including incidents, will support the development of future guidance for safe and healthy events.

### Example – Cambodia Water Festival

On 22 November 2010, millions of people gathered in Phnom Penh, Cambodia, in celebration of the three-day Water Festival known as Bon Om Touk. On the final day, thousands of participants were crossing back and forth on a narrow suspension bridge. As the crowd grew denser on and near the bridge, people were crushed, drowned and electrocuted, resulting in 347 deaths.<sup>1</sup>

### Why is this important?

A mass gathering is an organized or unplanned event where the number of people attending is sufficient to strain the planning and response resources of the community, state or nation hosting the event.<sup>2</sup> Sporting events, music festivals, political demonstrations and religious pilgrimages can be mass gathering events.

A safe and healthy mass gathering requires early multi-sectoral preparation involving event organizers, health emergency managers, public health authority representatives, local hospital emergency departments, first-aid personnel and other sectoral partners, including police and emergency services. A risk assessment informs the selection and implementation of risk reduction measures, response planning, and capacity development for health functions, including:

- Mass casualty management
- On-site trauma care and local hospitals
- Disease surveillance and outbreak response
- Environmental health and food safety
- Public information and health promotion
- Leadership, coordination and communication
- Emergency preparedness and response to natural hazards, transport crashes, stampedes, and security incidents

### What are the health risks?

High crowd density, restricted points of access, limited crowd control, inadequate on-site medical care, and poor preparation for extreme weather events, including sudden changes of temperatures, are among the risk factors for incidents at a mass gathering. The diversity of spectators and participants (e.g. youth, people with limited mobility, high profile political and social figures, etc.) affect the risk assessment for the event.

Most on-site medical care is required for minor injuries and can be effectively treated on scene.<sup>3</sup> Increased risk of communicable disease is due to close contact of people with diverse immunological status, and potentially unsafe food and water.<sup>4</sup>

### Presentations to Medical Centres in Mass Gatherings<sup>5</sup>

Common Complaints	Uncommon Complaints
Injuries	Hypothermia
Heat-related illness	Head injury
Intoxication	Loss of consciousness
Gastrointestinal illness	Asthma
Respiratory disorders	Cardiac chest pain

## Risk management considerations

Undertake, prior to the event, a risk assessment to identify population-related, visitor-related and environmental risk factors, including:

- Event type, duration and location
- Time, day and season of the event
- Expected crowd numbers; age of crowd; mood of crowd
- Availability of alcohol and drugs at the event
- Weather and local environmental hazards
- Surveillance for communicable diseases

Evaluate, plan and prioritise healthcare needs for the mass gathering including:

- Planning for the number and location of on-site first aid posts and medical facilities
- Human resource planning e.g. ambulance paramedics, emergency physicians, nurses, first aid volunteers, safety/security officers
- Planning for provision of medicines, diagnostics, beds, etc.
- Education and training of healthcare personnel
- Co-ordination with local hospitals for additional medical assistance
- Implementation of Standard Operating Procedures (SOPs) that define a chain of command and communication strategy (public and media), and should be routinely used and tested.

Mass-casualty preparedness<sup>6</sup> (see also Mass Casualty Management Fact Sheet) including:

- Adaptation of the standardized, tested and practiced mass casualty management system
- Capacity for rapid and timely deployment of trained personnel to areas of need
- Ongoing monitoring of weather and other hazards, and early warning systems to alert participants and organisers of dangers
- Enhanced site management, pre-hospital and hospital systems for emergency response
- Site access for emergency vehicles
- Tested communication systems and back-up

Assess communicable disease risks and plan for disease surveillance and outbreak response:

- Enhancement of surveillance indicators and systems for early detection and monitoring of diseases
- Involvement of local public health agencies
- Advice on pre-event health requirements made available to attendees, e.g. vaccinations
- Disease outbreak response plans and measures

Food and water safety and hygiene recommendations including:

- Food hygiene standards applied by food vendors and enforced by health officers
- Safe supply of drinking water
- Access to adequate numbers of toilets, hand-washing facilities

Identify security risks, including acts of violence and terrorism, and plan for emergency response including:

- Co-ordinated risk assessment, surveillance and response activities with emergency services, law enforcement, and government agencies
- Planning and implementation of venue and crowd safety measures to reduce security risks
- Planning for response to person-to-person violence, explosive devices and chemical and biological incidents
- Planning, training and exercising for surveillance, on-call assessment, decontamination and medical management of chemical and biological incidents

Assess local risks, prepare and respond to natural hazards, including extreme weather conditions:

- Implementation of early warning systems
- Assessment of extreme weather vulnerability
- Adequate provision of shelter if required
- Development and testing of evacuation plans
- Passing information to event attendees in a clear and concise way via flyers or local media

Crowd safety provided by:

- Training of stewards/security in crowd control
- Specific entrance and exit points clearly identified at site
- Establishment of unidirectional flow of attendees
- Avoidance of overcrowding with adequate ticketing systems and public address measures
- Adherence to fire safety protocols Emergency exits free from obstruction Available fire and site evacuation plans

Prepare for and provide post-disaster mental health care including:

- Training of emergency services personnel in mental health and psychosocial support
- Assessment of the psychological and psychosocial wellbeing of the local affected population and responding emergency healthcare workers
- Facilitation of community self-help and support

## References

1. Hsu E. Human Stampede: An unexplained Threat. Emergency Physicians Monthly (2011). Available at: <http://www.epmonthly.com/features/current-features/hu-man-stampede-an-unexamined-threat/>
2. Public health for mass gatherings: key considerations (2015). Available at: [http://www.who.int/ihr/publications/WHO\\_HSE\\_GCR\\_2015.5/en/](http://www.who.int/ihr/publications/WHO_HSE_GCR_2015.5/en/)
3. Varon J, Fromm RE, Chanin K, Fillbin M, Vutpakd K. Critical Illness at mass gatherings is uncommon J Emer Med 2003;25409–413.
4. Ahmed QA, Barbeschi M, Memish ZA. The quest for public health security at the Hajj: Travel Medicine & Infectious Disease 2009;7:226-230.
5. Steffen, R., Bouchama, A., Johansson, A., Dvorak, J., Isla, N., Smallwood, C. and Memish, Z.A., 2012. Non-communicable health risks during mass gatherings. The Lancet infectious diseases, 12(2), pp.142-149.
6. Disaster Management Guidelines WHO (2007). Available at: <http://www.who.int/surgery/publications/EmergencySurgicalCareinDisasterSituations.pdf>
- 7.