Mass Gathering

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Objectives

- Define mass gathering
- List MG characteristics that represent public health risk
- List and understand the steps of MG risk assessment
- Identify risk based on event assessment
- Understand the components of risk identification and characterization
- Understand the components of risk management: surveillance and response

Mass Gathering

- Mass gatherings (MGs) are events attended by large numbers of individuals, concentrated in a specific area for a specific purpose and over a limited period of time.
- Number of participants: >1000 persons, although most literature suggests >25000 persons

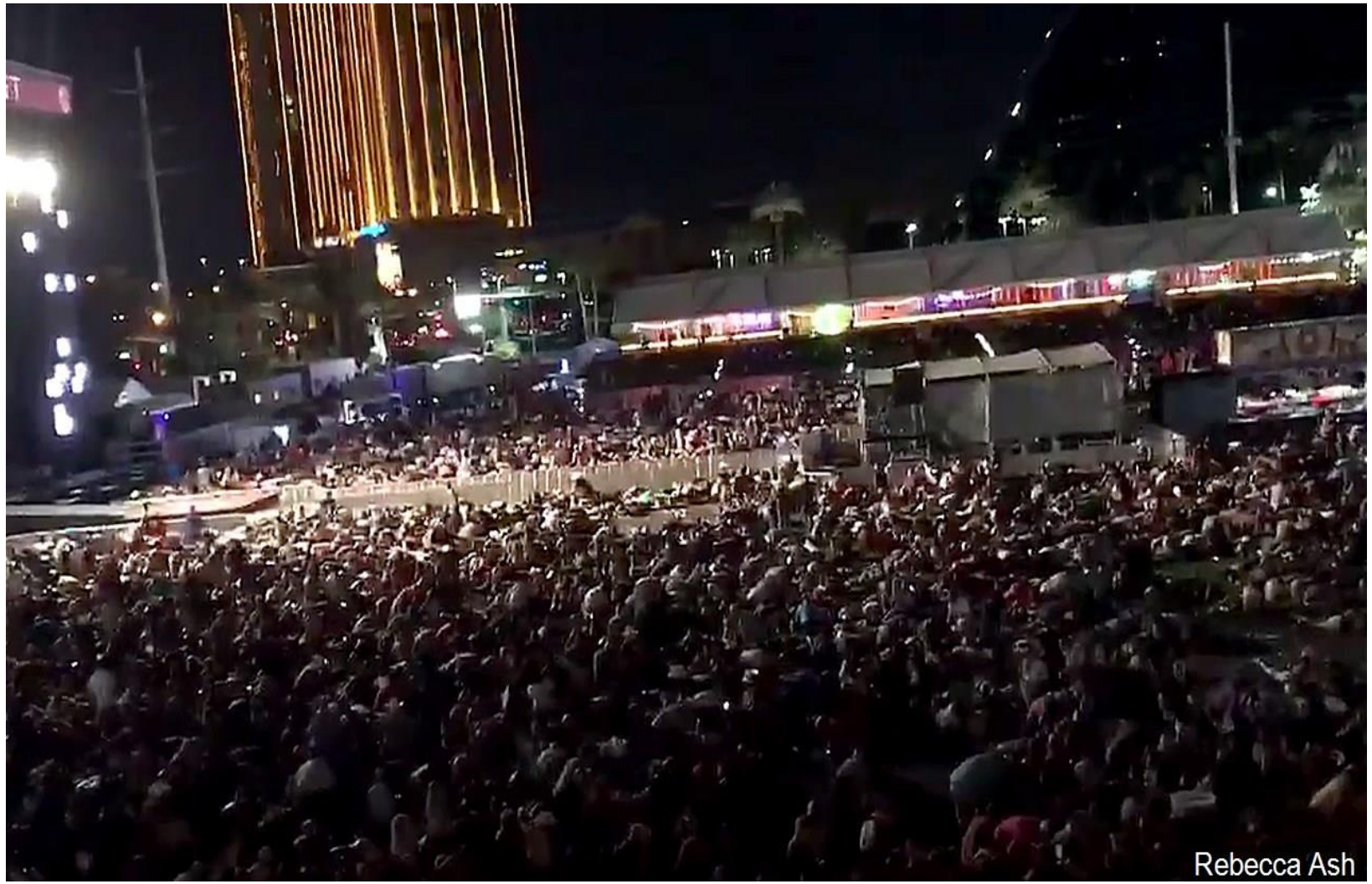
Categories of MG

- Planned
  - Recurrent, same location (Hajj)
  - Recurrent, different locations (Olympics)
  - Not recurrent (political speech)

- Unplanned
  - Unplanned political events
  - Gatherings in natural or man-made disasters, refugees

Types of MG

- Fairs, exhibitions (World Expo Shanghai)
- Concerts, festivals (Glastonebury, UK)
- Sports (Olympics)
- Religious (Hajj)
- Political (G8)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MG characteristics that represent public health risk

- Higher population concentration
  - Diversity of population characteristics
  - Different communities/ parts of the world/ regions
  - Imported diseases
  - Epidemic prone diseases
  - Different health-related behaviors
- Environmental conditions
  - Heat/ cold
  - Vectors of diseases

MG characteristics that represent public health risk

- Pressure on infrastructure
  - Hotels
  - Food sales
  - Healthcare system
- Political attention
  - Terrorism/ bioterrorism

Risk of outbreaks??

Year	Location	Event	Cause	Deaths	Injuries
1993	Madison, WI, USA	Football game (12 000)	Crowd crush	0	69
1994	Athlone, South Africa	Political rally (20 000)	Crowd surge	3	21
1994	Mecca, Saudi Arabia	Religious festival (2 500 000)	Crowd surge	270	Unknown
1994	Baytown, TX, USA	Sports event	Grandstand collapse	1	17
1994	Saugerties, NY, USA	Rock festival (350 000)		2	7500
1995	Rio de Janeiro, Brazil	Rock concert (3 500 000)		Unknown	Unknown
1996	Cleve, Australia	Circus	Stand collapse	0	48
1997	Mecca, Saudi Arabia	Religious festival	Fire	343	2000
1997	Tel Aviv, Israel	Sports event	Bridge collapse	4	Unknown
1997	Ciudad del Este, Paraguay	Political rally	Structural collapse	38	100+

The aim is to:

Know the **risk**,	→Risk Identification
Know **when** it happens,	→Surveillance
Know **what to do** when it happens	→Response

Steps of risk assessment

- Risk identification (depending on event assessment)
- Risk characterization (impact, likelihood)
- Risk management (surveillance and response)

Risk identification

- Event assessment → Risk identification

- Host country context assessment
  - Systems: need for enhancement in surveillance, testing, reporting, response and command, control and communication
  - Training: responsibilities
  - Population factors: immunity (hosts, visitors)
  - Baseline status for CD

Event assessment:

- MG features:
  - Type: sports, religious, political,…
  - Activity level: seated, standing, mobile
  - Duration: =<24h, 1d-1w, 1m, >1m
  - Occurrence: recurrent, single
- Environmental factors:
  - Season: summer, winter, wet, dry
- Participants characteristics:
  - Participants origin: national, international
  - Density of participants: high density
  - Participants health status: elderly, chronically ill, disabled

Event assessment cont.

- Venue characteristics:
  - Venue: indoor, outdoor, contained, uncontained, rural, temporary, permanent
- Alcohol and drug use
- Level of medical services at the venue: 1st aid stations, on-site medical posts, on-site hospitals for participants
- Catering: professional, informal, self-catering
- Hygiene/ sanitation services: none, hand washing stations, latrines (permanent, temporary)

Risk identification based on event assessment

Event assessment	Risk identification
Type: Religious event	Older population with NCD, in-cite medical care
Season: summer	Risk of dehydration, heat stroke,
International	Imported diseases
Venue: indoor	Poor air circulation
Venue: temporary	Poor infrastructure
Catering: informal	Risk of food-born illnesses
Hygiene: hand washing stations	Decreased risk of infections

Risk characterization

- Impact on MG, impact on PH (minimal-severe)
- Risk likelihood

Risk management

- Implementing measures to reduce the probability or impact of each risk.
- Based on the risk evaluation

❖Includes:

- **Surveillance** programs
- Response to risks:
  - Special prevention programs (vector control, health education, food safety, water sanitation, hygiene)
  - Medical services
  - Plans for resources should a crisis occur.

MG surveillance

- Surveillance systems must be sensitive enough to detect potential public health events in a timely manner
- Depends on: event, existing system, resources
- Types: active, passive, enhanced, syndromic

Characteristics of a disease for surveillance

- Outbreak potential
- Enhanced modes of transmission in the MG (e.g. respiratory spread)
- Potential use as bioterrorism agents
- Causes severe illness and require investigation and / or the application of control measures
- Imported diseases
- Endemic diseases
- Highly infectious diseases
- Needs to be reported under the IHR (2005).

MG Planning

- Early
- Multi- sectoral preparation including :
  - event organizers
  - health emergency managers
  - public health authority representatives
  - local hospital emergency departments
  - first-aid personnel
  - Other sectoral partners including police and emergency services.
- Depends on risk assessment and risk identification

References

- *WHO, 2015. PUBLIC HEALTH FOR MASS GATHERINGS : KEY CONSIDERATIONS*.