Mass-gathering and related hazards

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

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Important | Extra | Notes

Editing file

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 تحتمل أكثر من مقولة عشان نقول عن هذا التجمع إنه mass gathering: >1000 persons, although most literature suggests >25000 persons (most literature agreed that it's more than 25000).

Categories of MG

- **Planned**

•Recurrent, same location (Hajj)

•Recurrent, different locations (Olympics)

•Not recurrent (political speech) مثال: وزير يبغى يتكلم عن شي يهم الناس، ماتصير بشكل دوري

- **Unplanned** زي المظاهرات

•Unplanned political events

•Gatherings in natural or man-made disasters, refugees

Types of MG each type with different people and different risks

•Fairs, exhibitions (World Expo Shanghai)

•Concerts, festivals (Glastonbury, UK)

•Sports (Olympics)

•Religious (Hajj)

•Political (G8)

The risks depend on:
1) Diseases.
2) Place.
3) Subject (like in political talks there could be fights or terrorist attacks).

MG characteristics that represent public health risk

- **Higher population concentration**

•Diversity of population characteristics (like age and nationality)

•Different communities/ parts of the world/ regions

•Imported diseases (especially with international events)

•Epidemic prone diseases

•Different health-related behaviors

- **Environmental conditions**

•Heat/ cold

•Vectors of diseases

•Rainy/ dry

- **Pressure on infrastructure**

•Hotels

•Food sales

•Healthcare system

Example: if they did the Olympics here in Saudi Arabia, people are going to live in hotels so we need to provide a lot of them, as well as a good healthcare system and good food, so before deciding whether to do it or not we need to think is the country ready for it or not?

- **Political attention**

•Terrorism/ bioterrorism

Risk of outbreaks??

Does it increase? Yes
Does the risk of injuries increase? Yes
Does the risk of terrorist attacks increase? Yes

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+

This is a schedule showing examples of mass gathering from the year 1993-1997.
الرافعة اللي طاحت في الحرم قبل فترة أيضاً تعتبر مثال لأن كان فيه ناس تحتها عام ١٩٩٧ في مكة كان فيه حريق في منى

The aim is to: manage the risks

Know the **risk** → Risk Identification (in the stage of planning the event, we need to know what can happen?)

Know **when** it happens → Surveillance على طول مجرد ماتحصل لازم أعرف إنها صارت

Know **what to do** when it happens →Response

Steps of risk assessment

•Risk identification (depending on event assessment–characteristics- example: Hajj: timing, place and people attending (their ages and nationalities))

•Risk characterization (impact, likelihood) كم احتمالية حدوثه؟ عشان أعرف أخلي انتباهي لأيش أكثر شي

•Risk management (surveillance and response) أعرف أول مايحصل وكيف أتصرف لو حصل

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Risk identification

- **Event assessment** ⟶ **Risk identification**

- **Host country context assessment**
- Systems: need for enhancement in surveillance, testing, reporting, response and command, control and communication, healthcare system
- 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

- **Venue characteristics:**
- Venue: indoor, outdoor, contained, uncontained, rural, temporary, permanent

- **Alcohol and drug use** increase the risk of fights.
- **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)**

زي مثال كاس العالم: ماهي خصائص الحضور؟ هل جايين من مناطق فيها أمراض؟ وهل هذي الدولة عندها الامكانيات اللي تخليها تتصرف لما يصير فيه مشكلة؟

ليش يفرق؟ لو مثلاً أنا جالسة أشوف مباراة ومعي بداية زكمة وماني حريصة مرة أني أغطي خشمي إذا عطست، فالعدوى بتنتقل للي جالسين حولي بس، لكن لو أنا واقفة عدد اللي حولي بيكون أكثر فبتنتشر العدوى بشكل أكبر ونفس الشي إذا كنت أمشي (زي في الحج) غير طبعاً إن إرهاق المشي يخلي اللي حولي عرضة أكثر للمرض.

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, and exhaustion, hyperthermia.
International	Imported diseases
Venue: indoor	Poor air circulation, if outdoor: climate changes.
Venue: temporary	Poor infrastructure لو كان مؤقت ماراح يكون قوي مثل الدائم، فهذا ممكن يؤدي إلى إنه يطيح وتصير فيه إصابات.
Catering: informal	Risk of foodborne illnesses
Hygiene: hand washing stations	Decreased risk of infections, there are guidelines that assures if there will be 100,000 people coming, there should be 5-10 bathrooms (also by looking at the male to female ratio).

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 and identification.

Includes:

- **Surveillance** programs > has to be strong.
- Response to risks:

•Special prevention programs (vector control, health education, food safety, water sanitation, hygiene)

•Medical services (add and empower them).

•Plans for resources should a crisis occur. مثلاً عندي دكاترة وممرضات بس مو كافين للفعالية هذي فأستعين بأحد من برا

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 (most of the time we use all of them): active, passive, enhanced, syndromic (if a person

came with symptoms of a disease I should immediately report it and start investigations, even if

the possibility was low).

Characteristics of a disease for surveillance

•Outbreak potential (example: flu, measles, food poisoning)

•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 (example: ebola, we report it even if it was one or two cases)

•Imported diseases (if the population is coming from another country and this country is known to have specific diseases).

•Endemic diseases

•Highly infectious diseases (example: measles, if we don't diagnose and treat it early it will infect a lot of people)

•Needs to be reported under the IHR (2005).

MG Planning including all the steps we've talked about before.

- **Early**
- **Multi- sectoral** (including more than one organization) **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**

SUMMARY

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.

>25 000 people

Categories of MGs:

- **Planned**

- Recurrent, same location (Hajj)

- Recurrent, different locations (Olympics)

- Not recurrent (political speech)

- **Unplanned** زي المظاهرات

MG characteristics that represent public health risk: <u>ليش هي خطر؟</u>

- **Higher population concentration:** diverse population, imported/epidemic diseases
- **Environmental conditions:** hot, cold...
- **Pressure on infrastructure:** the hotel, food sales, healthcare system...
- **Political attention**: terrorism...

Steps of risk assessment:

Risk Identification - Risk Characterization - Risk Management

1- Identification: depends on Event Assessment:

- **MG features: type** (sports, political...), **duration**, **activity** (sitting, walking...), **occurrence** (repeated, single).
- **Environmental factors: season:** summer ➤ heat stroke, dehydration...
- **Participants: country, density, health status.**
- **Venue**المكان: **temporary** ➤ poor infrastructure, **indoor** ➤ poor air circulation, **outdoor**, **medical services**, **catering**توفير الطعام (professional, self-catering...), **alcohol availability, hygiene** (bathrooms, hand washing stations ➤ decrease infections...)

2- Characterization: Impact on MG حجم المشكلة لو صارت, **Risk likelihood**. احتماليتها

3- Management: includes:

- **Surveillance:** must be <u>sensitive and able to detect in a timely manner</u>. **Types**(active, passive, enhanced, syndromic) mostly we use all of them.
- **Characteristics of disease for surveillance:** outbreak potential, the mode of transmission, severe illness, imported diseases, highly infectious. Reported under IHR (international health regulations) 2005
- **MG Planning:** Should be **Early**, **Multi-sectora**l cooperation, Depends on risk assessment and identification.

Good luck!