Mass Gatherings, Emergency Preparedness, and Best Practice

Sheila Turris, PhD
Adam Lund, MD, MEd, FRCPC
Western Disaster Medicine Conference
November 6-8, 2012
Audience Composition

Those with a background in:

Health policy
Management
Education
Clinical practice
Other
You are all “event goers” and so all have a stake in the following discussion.
Acknowledgements

• Thank you to the planning committee for the invitation to present today.

• Members of our research and medical teams who could not be present.

• Research Support
  – Pre-UBC Department of Emergency Medicine
  – Columbian Emergency Physicians’ Association
  – Vancouver Coastal Health Research Institute
  – Justice Institute of British Columbia
  – Fraser Health Authority
  – Michael Smith Foundation for Health Research/MITACS
  – BC Ambulance Service – Special Operations
Conflict of Interest

• None declared.
Objectives

• Briefly introduce the Mass Gathering Medicine Interest Group, UBC.
• Explore key issues in relation to planning the medical response for mass gatherings.
• Critically analyze best practice in relation to mass gatherings and disaster preparedness.
Mass Gathering Medicine Interest Group (MGMIG)

http://www.ubcmgm.ca
Mass Gatherings, Emergency Preparedness, and Best Practice
Why be prepared for mass casualty incidents at mass gatherings?
Defining Our Terms

Mass gathering:

- an activity that brings together large numbers of people
- the potential to overwhelm local health and community infrastructure
Canadian MGM Scope

• Mega/Compound – 3 x Olympics hosts
  – 1976 Summer - Montreal
  – 1988 Winter – Calgary
  – 1986 World Fair and Exposition
  – 2010 Winter – Vancouver/Whistler
  – 2009 World Police & Fire Games

• Large (50,000-500,000)
  Fireworks, parades, fun runs

• Medium (5000-50,000)
  Festivals, concerts, air shows, adventure races

• Small (500-5000)
  Ubiquitous in all Canadian communities
Defining Our Terms

Mass casualty incident:

– Generates multiple casualties occurring due to a single event or series of events
– Overwhelms local infrastructure
– Scale may vary
Examples of mass casualty incidents during mass gatherings…
Hajj, A Religious Festival
November 4-8, 2011

- Source: Muhammed Muheisen/AP. Available at: http://www.guardian.co.uk/science/blog/2010/oct/11/disease-mass-gathering
- http://www.youtube.com/watch?v=NAIpoMgxO10
Reno Air Show Crash
Sept 16, 2011
Sugarland Stage Collapse
August 11, 2011

• http://www.youtube.com/verify_age?next_url=/watch?v=3DSRkdwrnzYXg
Hockey Riot
Vancouver, March 2011

- http://www.youtube.com/watch?v=1q5V6DKH3bw
What do we know about mass gatherings and emergency preparedness?
Gaps in MG and Disaster Literature
Pause for thought…
Best Practice Point #1

Practice makes perfect.
PREPAREDNESS 101:
Zombie Pandemic

© CDC
© AP
Mass Gatherings as a Disaster Management Training Proxy
An Untapped Opportunity
“We propose that a synergy exists between mass gathering medicine and disaster medicine.”

Lund, Gutman & Turris, 2011
Best Practice Point #2

Those who do not study history are doomed to repeat it.
The “History” of Mass Gatherings

- Event reports are mostly anecdotal and often single event summaries (Arbon, 2004).
- Reports are descriptive versus explanatory, for the most part (Lorenzo, 1997).
- Virtually no academic papers regarding MCIs at mass gatherings; commonly limited to media reports (manuscript in preparation).
Mass Gatherings, Mass Casualty Incidents and Best Practice

- 30 years of MCIs (1971-2011)
- 156 reports in published literature
- Only 21 were analytical
- General lack of available evidence providing support for event planners

Soomaro & Murray, 2012
Our questions:

- What types of MCIs occur at mass gathering events?
- What are typical factors associated with MCIs at certain types of events?
- What, if any, are common themes between event type, event demographics, and MCI type?
Methods

- A systematic review of the mass gathering medicine literature, mainstream media, and grey literature (published in English) to identify MCIs at mass gathering events on a global scale from 1980 to 2012.
What is the most “dangerous” category of event to attend?

Skill Testing Question
Results

Percent of Mass Casualty Incidents at Mass Gathering Events

- Non-Sporting Stadium Events: 5%
- Air Shows: 5%
- Miscellaneous: 6%
- Sporting Events: 36%
- Nightclubs/Dances: 10%
- Cultural Festivals and Events: 10%
- Music Concerts/Festivals: 13%
- Religious Events: 15%
# Results


<table>
<thead>
<tr>
<th>Mass Gathering Event</th>
<th>Stampede</th>
<th>Fire</th>
<th>Riot/Violence</th>
<th>Crowd Surge</th>
<th>Failed Infrastructure</th>
<th>Vehicle Crash</th>
<th>Miscellaneous</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sporting Event</td>
<td>27</td>
<td>1</td>
<td>16</td>
<td>1</td>
<td>7</td>
<td>1 (Boat)</td>
<td>0</td>
<td>53</td>
</tr>
<tr>
<td>Religious Event</td>
<td>20</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>22</td>
</tr>
<tr>
<td>Music Concert/Festivals</td>
<td>10</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>1 (Heat exhaustion)</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Cultural Festivals and Events</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>1 (Car)</td>
<td>1 (Electrocution)</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5 (Trample)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nightclubs/dances</td>
<td>7</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2 (Substance abuse)</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 (Dehydration)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air Shows</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7 (Plane)</td>
<td>1 (Falling debris)</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Sporting Stadium Events</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1 (Motorcycle)</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1 (Explosion)</td>
<td>9</td>
</tr>
<tr>
<td>Casino (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Band appearance (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dance competition (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Film festival (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free gift giveaway (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hiring fair (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Store opening (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>76</strong></td>
<td><strong>12</strong></td>
<td><strong>19</strong></td>
<td><strong>3</strong></td>
<td><strong>14</strong></td>
<td><strong>10</strong></td>
<td><strong>12</strong></td>
<td><strong>146</strong></td>
</tr>
</tbody>
</table>
Best Practice Point #3

Chance favors only the prepared mind. Louis Pasteur
"You're wrong! ... Rules are not just rough guidelines."
Resources for Planning

- **Experience**
  - Anecdotal evidence (most commonly used)

- **Grey literature**
  - Event guides
  - Practice guidelines from professional organizations
  - World Health Organization (WHO)

- **Published literature**
  - Event reports for similar events
Best Practice, Guidelines for Mass Gatherings
London Riot
July, 2011
Best Practice Point #4

An ounce of prevention is worth a pound of cure.
How do we classify events?

– bounded or unbounded (e.g., Ride to Conquer Cancer versus a football game at a stadium)
– seated or mobile (e.g., classical concert versus folk festival)
– size of gathering (e.g., more than 1,000, more than 10,000)
– type of gathering (e.g., parade versus air show versus sport versus ???)
How do we classify events vis a vis risk?

Examples of event risk classification systems:

- Western Australia Health, 2008
- Hartman et al, Annals of Emergency Medicine, 2009
Risk Mitigation
MCIs in “slow motion”
Best Practice Point #5

Many hands make light work.
Germany, 2010 Love Parade
MCI – Germany’s Love Parade
Exciting Initiatives
Best Practice Point #6

The single biggest problem with communication is the illusion it has taken place.

George Bernard Shaw
Governance
Case Example #2
Running Event
The Challenges…

• Governance

• Disaster management capacity
Governance: Who is Responsible?

- Europe
- Britain
- Australia
- USA
- Canada
- Developing world
Exciting Initiatives
Best Practice Point #7

No crowd ever waited at the gates of patience.
Final Thoughts
References

For more information, please contact:

Dr. Sheila Turris, BHS, MSN, PhD, NP (Family)
Adjunct Professor, Schools of Nursing, University of British Columbia, University of Victoria
Mass Gathering Medicine Interest Group, Department of Emergency Medicine, UBC

Research Associate, Justice Institute of British Columbia
Nurse Practitioner, Population Health and Chronic Disease, Vancouver Coastal Health

www.ubcmgm.ca

604-983.6828 (o) | 604.983.6883 (f) | Sheila.Turris@vch.ca