

MASS GATHERINGS: PUBLIC HEALTH IMPLICATIONS AND OPPORTUNITIES

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Mass gatherings (MG) are public events of limited duration, planned in advance and attended by more than 25000 people.¹ According to World Health Organization (WHO), mass gathering, in the context of public health, is “any occasion, either organized or spontaneous, that attracts sufficient number of people to strain the planning and response resources of the community, city or nation hosting the event”.²

Any mass gathering spontaneous or organized presents significant challenges to the public health mechanism owing to shifting populations and an increase in the demand on existing infrastructure of health and other essential services.^{2,3} These challenges are more pronounced in developing countries with limited resources. Unlike developed countries where sports and cultural events account for majority of mass gatherings, traditional and religious mass gatherings predominate in developing countries.³ The major mass gatherings of traditional nature include fairs and festivals and pilgrimages to holy

places such as Hajj pilgrimage, Maha Kumbh Mela and Haridwar-Rishikesh Yatra followed by political meetings, conferences and protests, funeral processions of religious and political heads followed by sports events and other celebrations.³ The Kumbh Mela is one of the largest mass gatherings and is suspected to have contributed to the 1817-24 Asiatic Cholera pandemic.³ Several occurrences of stampedes and clashes with resulting deaths have been reported.³

The common public health risks associated with MGs in both developed and developing countries include extreme weather-related illness,⁴ food-borne and water-borne diseases,^{1-3,5} outbreak of epidemic-prone infections,^{2,4,7} imported diseases,² aggravation of pre-existing chronic illness,⁴ unhealthy behaviours such as drug and alcohol abuse and risky sexual behaviour,⁴ crowd behaviour,⁴ accidents and injuries,^{1,3,4} intentional threats,⁵ environmental risks of air, water and noise pollution^{2,3,4} and unexpected natural calamities.⁴

Table 1. Public health implications- Pre-event and Event, Post-event

Pre-event	<ul style="list-style-type: none">• An all-hazard approach to public health risks as recommended by WHO⁵• Well-defined policy guidelines for event and venue approval by the local government• Strategic risk assessment for identification of probable adverse events specific to the MG based on epidemiological, venue and risk of exposure assessment⁵• Event-based risk assessment using severity-probability analysis for each expected event specific to MG⁵• A unified, central, flexible command post with intersectoral coordination to handle all incidents and emergencies.⁵• Review of records related to management of past events and analysis of health data for unusual occurrences¹• Standard guidelines for improving infrastructure capacity• Preparedness training for all public health responders including mock drills and simulation exercises for different types of contingencies⁷• Community-based mass prophylaxis and vaccination, if required²• Identification of designated laboratories⁵• Optimised distribution of antimicrobials and essential drugs^{4,6}• Facilities should be disabled and special groups friendly• Setting up a toll-free helpline to enable people inform emergencies• Health promotion and awareness campaigns to reinforce protective, healthy behaviours (e.g. hand washing, cough and sneezing etiquette, environmental hygiene);⁵ Well-defined, simple guidelines displayed at strategic places⁵• Waste reduction efforts• Use of mobile phones and application of social networking tools to disseminate health information and rapid communication of health issues⁴• Rumour control mechanism³
	<ul style="list-style-type: none">• Efficient media management with designated media spokespeople⁷• Effective crisis risk communication⁷• Efficient communication with all stakeholders• Securing cooperation from community through community and religious leaders• Immediate decontamination of environment and treatment, if any crisis⁷• Supervised evacuation process• Adequate, well-equipped, emergency shelters⁷• Epidemiological work-up with proper reporting and record maintenance⁵
	<ul style="list-style-type: none">• Consequence phase- risk communication• Sharing and publication of experience¹• Post-event morale improvement measures for the community• Post-event health surveillance• Application of the knowledge gained, for framing policy guidelines in future.

Considering the significant challenges associated with the risks, the major areas of public health responsibility to be focussed include- health care facility capacity; mass-casualty preparedness; disease surveillance and outbreak response, environmental health and food safety;

public information and health promotion; public health preparedness and response to incidents potentially involving explosives, biological and chemical agents or nuclear material; public health preparedness and response to natural hazards including extreme weather conditions and leadership,

coordination and communication.⁴ Table 1 presents an overview of the public health implications of mass gatherings in pre-event, event and post-event settings.

Despite all challenges and associated risks, MGs provide avenues to build sustainable and long-term health improvements in four areas: improved medical and hospital services; a strengthened public health system; an enhanced living environment and an informed and educated community.⁸ They also provide useful lessons in public health management of mass gatherings, unique opportunities to execute new interventions and promote ideal public health behaviours and strengthen routine surveillance measures.^{6,8}

Public health aspects of mass gathering is a discipline in itself and should be included in undergraduate medical curriculum to equip future health care providers with necessary competence in health care management aspects of such events.

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