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## Mass Gathering Medicine: An Indian Perspective

**Dr. Harinder Sekhon**

Chief Medical Officer (Psychiatrist), Composite Hospital  
Group Centre, Central Reserve Police Force, Bantalab, Jammu, Jammu & Kashmir, India

**Dr. Sukhmeet Minhas**

Reader, Department of Community Medicine, Armed Forces Medical College, Pune, India

### **Abstract:**

According to the World Health Organisation, a mass gathering is a gathering of persons that is usually defined as the congregation of more than a specified number of people at a specific location for a specific purpose for a defined period of time. Due to the sheer number of people involved, it is an important public health challenge. Therefore, certain considerations for health promotion and prevention activities have to be taken care of, in context with mass gatherings. These include, amongst others, identifying, through risk assessment and historic surveillance, the most probable public health and communicable disease threats; development of appropriate health promotion and prevention education messages and tools; travel health recommendations – including for immunizations and safe practices. In the Indian context, this topic is very relevant both from the point of view of modern events like concerts as well as the age old traditions of Melas. The largest annual mass gathering in the world is the hajj or pilgrimage to Mecca, while the Kumbh Mela is the biggest and the most important mass gathering in India, taking place periodically. Although the estimate of the number of pilgrims who come for bathing in the holy waters on the most auspicious day varies, yet it is important to calculate the requirements for this public health challenge, based on approximate numbers and be prepared at all times.

### **1. Background**

According to the World Health Organisation (WHO), a mass gathering or a mass gathering event is a gathering of persons that is usually defined as “the congregation of more than a specified number of people (this may be as few as one thousand persons; although most of the literature available, describes these as gatherings that exceed 25000 people) at a specific location for a specific purpose (a social function, a large public event, a sports competition) for a defined period of time”<sup>1</sup>. An organised or an unplanned event can also be classified as mass gathering if the number of people who are attending it is sufficient enough to strain the planning as well as the response resources of that particular community, state or nation hosting the event<sup>1</sup>. The WHO had come out with the International Health Regulations 2005, (IHR 2005) that are based on the international legal agreement and is binding upon 194 states and parties throughout the world. This is to prevent, control as well as respond to the international spread of disease<sup>2</sup>. Mass gathering medicine, in part, works towards preventing any outbreak from gaining such large proportions, as to impact the international scenario.

### **2. Introduction**

Mass gatherings are events that are attended by a sufficient number of people that put a strain on the planning as well as the response resources of a particular community, state or nation. The decision to host any mass gathering will, in all likelihood, be made well in advance by all the key agencies involved. This would ensure effective prior planning. Such planning is of significant importance. Addressing the needs to prevent as well as respond to communicable diseases figure among the most important of all aspects considered. Planning as well as preparing the public health systems and the services for management of a mass gathering, is, in itself a complex procedure. Advanced risk assessment and the enhancement of all systems, are critical for identifying most potential public health risks – which may be natural and/or manmade. It is important for preventing, minimizing as well as responding to most public health emergencies

### **3. Risk Assessment**

Risk assessment is a systematic process that involves the gathering, assessment and documentation of information, so as to assign a specific level of risk<sup>1, 2, 3</sup>. This, in turn, provides basis for taking action so as to manage as well as reduce certain the negative

consequences of the acute public health risks<sup>3</sup>. Over a period of time, it has been proven that attention to certain factors has been valuable in assessment of risks/outbreaks during mass gatherings held in the past. These factors include – identification of communicable disease risks, historical case data (both yearly and seasonal), risk of importation of certain infectious agents, historical data pertaining to outbreaks, medical and health intelligence, reviews of international data, relevant data related to animals (epizootics with human cases), identification of population as well as environmental risk factors (e.g. access to health services, displacement, overcrowding, vaccination, food and water quality, vectors). It also entails the identification of bioterrorism risks, if any; prioritization of healthcare needs, community needs assessments, provision of decision-making bodies with required objective information for guiding the prevention, alert as well as response to the disease<sup>1</sup>.

#### 4. The Risk

'Risk is mainly a function of two variables: firstly, the probability of an event occurring, and secondly the effects of that event'<sup>3,4</sup>. In an mass gathering event, the risks may be amplified by a wide range of factors that include high visibility of the event, the time or duration of occurrence, defined locations, the range of visitors or participants (e.g. athletes) and VIPs. Besides, the fact that routine surveillance systems and the clinical as well as public health services will be stretched by the large number of attendees<sup>3,4</sup>. 'Hazard identification', in this context, is the process of identifying known or potential communicable disease agents, their presence in a host nation or border nations, or their potential or actual presence as imports<sup>3,4</sup>. 'Vulnerability analysis', in this context, is the process of reviewing threats as they relate to risk factors and vulnerable populations associated with the mass gathering (e.g. through analysis of population demographics, crowding, environmental factors, weather, etc.)<sup>3,4</sup>. As the event progresses, a still further refinement in the risk assessment may be required. This process of refinement of the risk factors is, in addition, valuable in the assessment and monitoring of the development of certain specific incidents (e.g., an outbreak of disease). The continued assessment of risk is essential throughout in ensuring appropriateness of the responses. Risks should always be assessed in the light of the factors, including the numbers as well as types of visitors/ participants. To further simplify, e.g., different types of mass gatherings attract different types of spectators who might require certain special considerations. For example - sporting events or rock concerts do pose particular problems concerning drug and alcohol abuse, underage drinking and aggressive behavior. Most religious mass gatherings attract a large number of old, ill and infirm people. This may lead to an increased need for on-site medical care. It is especially so in events that includes large numbers of senior citizens and obviously, may require higher levels of health services. On the other hand, political or cultural events may require some special arrangements in the form of provision of interpreter services, high security, special catering services, multilingual signposting, brochures and announcements. Very often, political events can also spark violence. Events that draw international crowds, may lead to issues for certain individuals like climate acclimatization, thereby leading to a wide variety of ailments for those not acclimatized. These may include altitude sickness, respiratory problems in polluted areas, dehydration in conditions of extreme heat or cold).

WHO assesses the risks posed by communicable diseases events against five benchmarks<sup>1</sup>

- Outbreak with an unexpectedly high mortality or morbidity.
- Outbreak with potential international repercussions.
- Potential or actual international disease spread.
- Interference with international travel or trade.
- Outbreak in which international assistance is likely to be needed for disease control.

#### 5. The Challenges

Certain considerations for health promotion and prevention activities have to be taken care of, in context with mass gatherings. These include - identifying, through risk assessment and historic surveillance, the most probable public health and communicable disease threats; development of appropriate health promotion and prevention education messages and tools; working with event organizers to promote and make available health information in event information packages for participants or visitors; identifying recommended, but not prescriptive, travel health recommendations – including for immunizations, safe practices (regarding sex, sharing water bottles, etc.), hand washing, cough etiquette, etc.; offering practical advice on how to access medical assessment or services in the event of illness, and specific directions for doing so (e.g. call first before visiting hospitals, etc.); establishing, and advertising the availability of, a toll-free health information line with interpretation capacity; consider utilization of mobile public health intervention/response teams throughout the duration of the event; producing educational tools in multiple languages as required; utilizing multiple approaches for risk communication, including use of the Internet – and link online risk communication information to the main event website.

The scope of the International health regulations 2005 is quite broad, including international public health risks/events which may be biological, chemical or radio-nuclear in origin, and which may be naturally-occurring, accidental, or deliberately caused. The IHR (2005) provide many rights and obligations for States that are potentially relevant in the context of mass gatherings.

#### 6. The Indian Context

The largest annual mass gathering in the world is the hajj or pilgrimage to Mecca, while the Kumbh Melais the biggest and the most important mass gathering in India, taking place periodically. It is a mass Hindu pilgrimage of faith in which Hindus from all over the world, gather to have a dip in a sacred river. It is, in fact, considered to be the largest of all peaceful gatherings in the world with over a hundred million persons visiting the sacred river during the last Maha Kumbh Mela in the year 2013. It is held after every three

years at one of these four places by rotation: Haridwar, Allahabad (Prayaga), Nashik and Ujjain. Thus the Kumbh Mela is held at each of these four places every twelfth year. *Ardha* ("Half") *Kumbh Mela* is held at only two places, Haridwar and Allahabad, after every six years. The rivers at all these four places are: the Ganges (*Ganga*) at Haridwar, the confluence (*Sangam*) of the Ganges and the Yamuna and the mythical Saraswati at Allahabad, the Godavari at Nashik, and the Shipra at Ujjain.

The name Kumbh Mela comes from Hindi, and in the original Sanskrit. *Kumbha* means a pitcher and *Mela* means *fair* in Sanskrit. This pilgrimage is held for a period of about one and a half months at these four places. It is believed in Hinduism that the drops of nectar fell down from the kumbha carried by the gods after churning of the sea. The festival is termed as the largest congregation of religious pilgrims in the world. There is no established scientific method of calculating and ascertaining the number of pilgrims. The estimate of the number of pilgrims, who come for bathing in the holy waters on the most auspicious day, varies. An approximate number of eighty million persons attended this ritual on 14 February 2013. Mauni Amavasya traditionally attracted the largest of the crowds at the mela that is held here every 12 years. The last Kumbh Mela was held on the 14<sup>th</sup> of January 2013 at Allahabad. This day marked the second as well as the biggest Shahi Snanam (royal bath) of this event, with 13 akharas taking to the Sangam. 10 Feb 2013 was the biggest bathing day at this Maha Kumbh Mela and probably the largest human gathering on any single day. Over 30 million devotees and ascetics took holy dip on the occasion of Mauni Amavasya<sup>5</sup>.

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