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Research Article



A report on Syndromic surveillance during mass gathering event during Kala-chakra in Bodh Gaya, Bihar and planning perspectives for health emergencies

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Abstract

This paper explores the public health response to mass gatherings in Bodh Gaya, Bihar; the factors that influenced the extent of deployment of resources and the utility of planning for mass gatherings as a preparedness exercise for other health emergencies. In December 2011, a daily Syndromic sentinel surveillance system was implemented to monitor disease and injury among approximately 2 lakh pilgrims attending a 10-day camping event held every 4 years by a religious organization. Camp activities began on December 31, 2011 and ended on Jan 10, 2012. This report describes public health surveillance and response activities during the 10-day event and presents recommendations for health surveillance at large outdoor events. Public health surveillance should be implemented at mass gatherings to facilitate rapid detection of outbreaks and other health-related events and enable public health teams to respond with timely control measures.

Keywords: Syndromic Surveillance, Kala-Chakra, Mass gathering events, Sentinel surveillance, Outbreak, Health emergencies

Introduction

Mass gatherings have been defined by the World Health Organization as "events attended by a sufficient number of people to strain the planning and response resources of a community, state or nation"[1]. Kala-chakra is a mega-gathering religious event in which there is huge conglomeration of people from around the world [2, 3, 4 & 5].The event was organized in Bodh Gaya, Bihar from 31st Dec 2011 to 10th Jan 2012. Around 2 lakhs pilgrims visited during the event. In such huge conglomeration, as there is always a likelihood of occurrence of unusual disease incidence/outbreaks, a daily syndromic sentinel surveillance system was implemented to monitor disease and injury among approximately 2 lakh pilgrims attending a 10-day camping event held every 4 years by a religious organization [6, 7].Camp activities began on December 31, 2011 and ended on Jan 10, 2012. This report describes public health

surveillance and response activities during the 10-day event and presents recommendations for health surveillance at large outdoor events. Public health surveillance should be implemented at mass gatherings to facilitate rapid detection of outbreaks and other health-related events and enable public health teams to respond with timely control measures. Syndromic surveillance was undertaken to detect disease outbreaks before they occur. It is useful application in order to predict health trends and prevent disease outbreaks [8]. Syndromic surveillance as preparedness, which is one of the earliest and most effective weapons is useful in the fight against disease. Analyzing health information can help reveal emerging regional, national, international, and even demographical disease outbreaks. Syndromic surveillance helps leaders across the health landscape

to prioritize and target public health threats with confidence [9, 10].

Materials and Methods

This was a record based study where syndromic data was collected from all the health camps on a daily basis. The collected data was compiled and descriptive epidemiological interpretations were made. Based on disease trend, patients were treated in respective camps and rational allocation of drugs and other resources were done in coordination with Health Department and Kala-chakra committee.

Results and Discussion

During the mega-gathering event, many disease/syndrome/illness precipitated of which most prominent was acute febrile illness with rash and non bloody/watery stool. Data was collected and compiled daily in a specified format. There was lack of coordination between the health

camps organized by the Kala-chakra committee and the camps organized by the Health Department Gaya. Both camps with common objectives were working in isolation. People from all over the world appeared in the gathering and collection of line list was strenuous. Epidemiological analysis of data on different syndromes showed that during the event, 22667 cases of different syndromes/illness/disease occurred. Incidence of various syndromes/illness in order of severity was: Acute febrile illness with rash> Gastrointestinal illness (non-bloody/watery stool)> Temperature related illness>Respiratory distress without fever & Acute respiratory infection with fever> Gastrointestinal illness (bloody stool) [Figure 1]. Incidence of syndromes/illness was higher in females as compared to males [Table 1]. No deaths were reported from the health camps from where the data was collected.

Figure 1: Date wise cases of different syndromes during Kala-chakra at Bodh Gaya from 31st Dec 2011 to 10th Jan 2012.

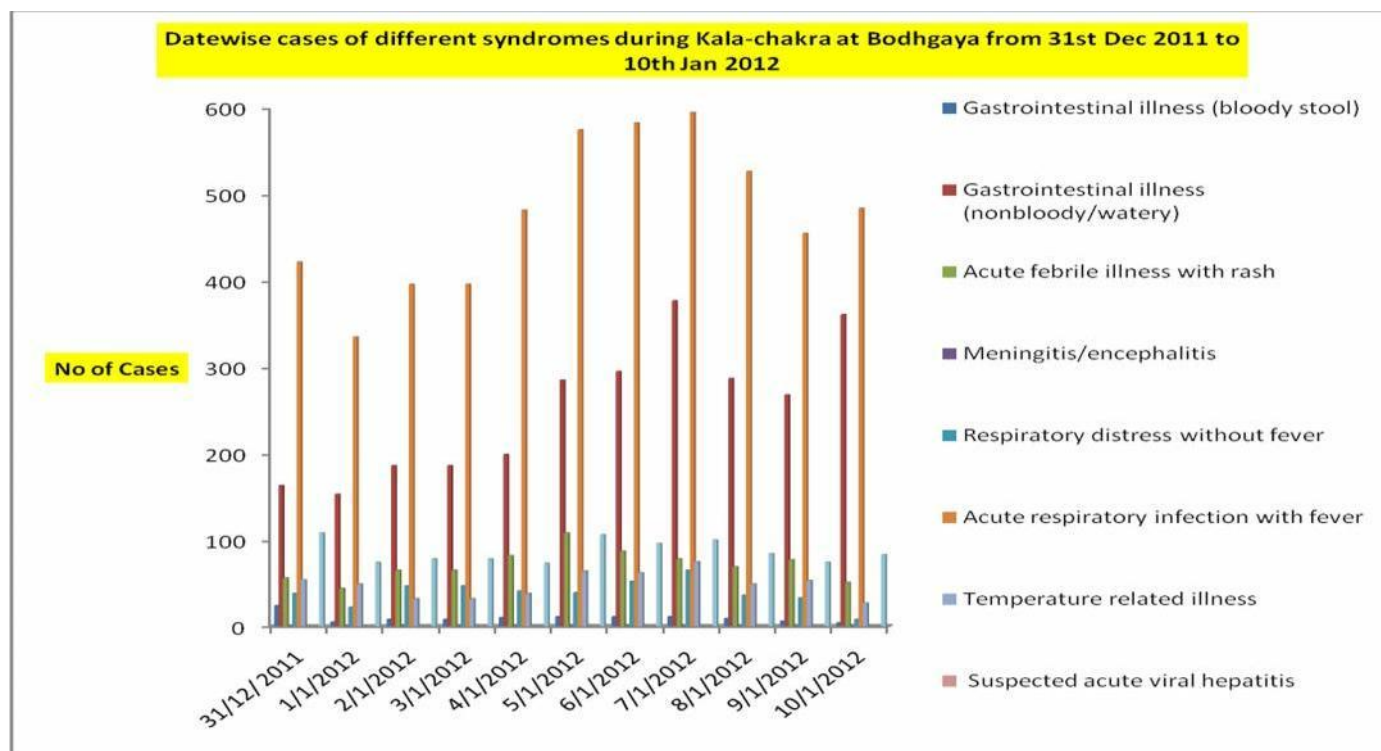


Table 1. showing sexwise incidence of different syndromes during Kal-chakra in Bodhgaya from 31st Dec 2011 to 10th Jan 2012

| Syndromes | Male | Female |
|--|-------|--------|
| Gastrointestinal illness (bloody stool) | 246 | 418 |
| Gastrointestinal illness (nonbloody/watery) | 5724 | 9593 |
| Acute febrile illness with rash | 3110 | 5899 |
| Meningitis/encephalitis | 0 | 0 |
| Respiratory distress without fever | 1999 | 3818 |
| Acute respiratory infection with fever | 18776 | 35725 |
| Temperature related illness | 1638 | 3058 |
| Suspected acute viral hepatitis | 3559 | 0 |
| Botulism-like syndrome (cranial syndrome (cranial Nerve impairment and weakness) | 0 | 0 |
| Unexplained death | 0 | 0 |
| Others | 3559 | 6738 |
| Total OPD | 5793 | 7153 |

Pre-planning for risk assessment before the event & inter sectoral coordination would prove effective public health action. Syndromic surveillance is an important application during such mass gathering events as it helps to predict early warning signals of impending disease outbreaks. The geographical spread, number of international visitors, event duration and political and religious considerations should be considered for better public health action. Planning the public health response is the third step in preparing for mass gatherings. If the existing public health workforce has been regularly trained in emergency response procedures then less effort and resources will be needed to prepare for each mass gathering event. Analyzing the disease data endemic to the place (where the event is being organized) is also helpful for proper allocation of resources.

Conclusion

During the mega-gathering event, many disease/syndrome/illness precipitated of which most prominent was acute febrile illness with rash and non bloody/watery stool. Early preparedness for risk assessment and involvement of Health as well as other departments in such gathering is crucial to manage the

unusual incidence/outbreaks and proper allocation of resources.

1. Some of the recommendation, as below, is entirely on the basis of this research paper. Such kind of recommendations could be useful for policy decisions and better execution of health related issues in our State.
2. Pre-planning of Action Plan at least one month before such mega-gathering event.
3. Trend of diseases locally prevalent during the last 3 years where the event is going to be organized should be pre-analyzed & evaluated so that proper resource/drug allocation can be done.
4. Integration of health-related planning with the overall planning structures for the gathering.
 - i. Formation of a planning committee or steering group that includes representation from the Mass Gathering organizers, public health planners, security organizations, health care organizations, media and communications experts, and other local key stakeholders
5. Development of several issue-specific planning committees that report to the high-level committee. Communicable disease prevention and control should be one such issue

6. Cross-representation between the groups planning the health care response and those responsible for emergency preparedness and disaster planning
7. Clear delineation of roles and responsibilities for persons to lead, and groups to contribute to plans, for each of the above issues.
8. Clear delineation of the command, control, coordination and communication structures necessary for managing the planning, operational, and evaluation phases of the Mass Gathering.
9. Better co-ordination between District Health Department, Organizers of such events and other sectors for optimal resource utilization and proper allocation of resources.

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