



## Editorial

## Preparedness for communicable /infectious diseases outbreak in resource poor settings

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### 1. Introduction

An outbreak of infectious disease is defined as an unusual increase in the number of cases of an infectious disease in a specific geographic region, time or season of the year than would be normally expected. Infectious disease outbreaks occur due to interplay of various factors that favor the disease transmission and its development. The most noticeable ones which enables outbreak occurrence is known as the infectious disease triad; which includes environment, host and pathogen related factors. Infectious disease outbreaks usually occur due to spread of infectious agent from person to persons, environment to person, or from animal to person. The most devastating OB heard and observed from past to present are of plague, H1N1 Flu, and Covid -19 pandemic. In developing nations, we are challenged with repeated OBs of diarrheal illness, hepatitis, flu, dengue fever and chikungunya, malaria of which some are seasonal in nature. Off late in 2024 India has also witnessed Zika virus, Monkey pox and Nipah virus in human beings and lumpy skin disease outbreak in cattle.<sup>1</sup>

In order to efficiently deal with these healthcare emergencies and curtail the spread of infectious agent and also to reduce the associated morbidity and mortality, the public health care system has to be prepared to handle such situations. Therefore, the emergency outbreak preparedness plan has to be with every health care system in today's era let it be local, regional, national or international bodies. Review of literature from international guidelines on health care system [World Health Organization, Center for disease

prevention and control] and updated data from scholarly articles on PubMed and Elsevier on the current topic provides one with sufficient and good quality of information and knowledge to deal with such emergencies. Basically, the outbreak preparedness plan includes six primary steps which are depicted as flow chart and discussed below briefly.



### 2. Surveillance and early warning

The lead health agency of the region holds the responsibility to establish an effective surveillance system and monitor the disease trends and also identify the potential future challenges at the earliest. This is possible by conducting a

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rapid assessment of the situation by the OB team comprising of the experts; an epidemiologist, a physician [clinical infectious disease specialist], a microbiologist, OB officer or administrator and water & sanitation expert who will conduct a preliminary field visit and collect data. Following which data analysis will happen and interventions will be designed and implemented. More so, the most vulnerable population will be identified. The Indian government has several programs in place to deal with these emergency situations like the integrated disease surveillance program [IDSP] as one example which works 24x7 and 365 days as an online disease reporting, notification portal across the country which helps in early detection of index cases, and timely management and implementation of infection control measures when required. Further it also has the additional responsibility of analysis of the data gathered by surveillance and identify the risk of OB in future and identify the most vulnerable population.<sup>2</sup>

### 3. Stakeholders' identification and coordination

Stakeholders' identification and coordination is essential for planning, implementation and monitoring of OB as they are key role players for developing guidelines and protocols for OB management. The list includes public health care authorities, hospitals and health care professionals both private and public, government agencies and community organizations [non-governmental].

### 4. Resource allocation and mobilization

The next crucial steps for effective control of an OB includes identifying securing, mobilization and supply of essential and adequate resources [man and material, budget or funding] to the needy irrespective of the age, gender, cast, creed, religion, socioeconomic status and educational status of the individual. Stock piling of testing kits and equipment's needed for it, drugs and vaccines for managing the cases and protecting the exposed. Availability of the required personal protective equipment for implementing effective infection control measures.

### 5. Intervention and Strategies

Data gathering and analysis will help to design the interventional strategies for early detection of exposed and at risk of infection through contact tracing. Simultaneously planning and implementation of prevention strategies like quarantine & isolation of exposed and diseased by identifying the hospitals/wards or creating emergency camps for the purpose. If disease in question is vaccine preventable organize vaccination booths for vaccination of the unprotected. Nevertheless, prime focus to be on effective treatment of already diseased and effort to prevent

complications in them. Last but not the least is to train the healthcare providers to deliver emergency services effectively.

### 6. Communication and community engagement

sharing and education of the community during OB, epidemics and pandemics forms an important component not only to curb its spread but also to clear associated anxiety and fear in the minds of the common man, myths and misconceptions on disease using IEC material through newspaper, social media, or by organizing camps etc. on OB related aspects like the causative agent involved, the mode of transmission, sign and symptoms of disease, preventive measure available [resources] and treatment options.

### 7. Review and adaptation

Field report to be prepared and disseminated to all the stake holders and active disease surveillance and regular review of the situation to be continued as per the disease pathogenesis and transmission dynamics. Always update the disease surveillance plan based on the lessons learnt from previous OBs and changing epidemiological pattern.

With the ever-changing ecology and epidemiology of the infectious diseases the pathogens keep emerging and reemerging and lead to either disease outbreaks, epidemics or pandemics. Therefore, it is the responsibility of the health care system of the country and its professionals to be prepared on the above-mentioned points to reduce the devastating effects it carries. Which is possible by having an effective and continuous disease surveillance and monitoring program in place and updating the knowledge of its professionals on infectious diseases by continuous education and training programs.

### 8. Conflict of Interest

None.

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