

Current major event

Early warning system for reporting of health threats during hajj

The hajj of 1439/2018 is expected to begin during the third week of August. Approximately 3 million people are expected to gather in the holy sites of Saudi Arabia during this year's hajj. This year, the Ministry of Health of Saudi Arabia is introducing an early warning system for reporting of health threats amongst the pilgrims.

Editorial note

Hajj and Umrah stand out as the largest perennial mass gatherings event with over 3 million people from over 180 countries attending the Hajj pilgrimage in Mecca in Saudi Arabia and over 5 million people visiting Mecca and Medina for Umrah.

Mass gatherings (MGs) are usually large, pre-planned events and are known to amplify the risk of infectious disease. Although, the risk and pattern of diseases at mass gatherings vary depending on the features of the event such as crowding, shared accommodation, possibilities of the participants to prolonged exposure and close contact with infectious individuals, type of activities, and also the characteristics of the participants including their age and immunity to infectious agents.

This year, the Ministry of Health of Saudi Arabia is introducing an early warning system for reporting of health threats amongst the visiting pilgrims using a combination of syndromic and event-based surveillance system. The system will allow the local health authority to monitor the health threats as well as to early detect any potential event with health consequences. For this purpose, the ministry of health has detailed out a list of syndromes with case definition (*Please see above*) which will be used for surveillance purpose. In addition, the ministry of health has also identified a list of events (*Please see the box*) which will be monitored by this early warning surveillance system and early detect any such event which might have major health consequences.

Timely detection and response is the key to the effective prevention of communicable disease outbreaks in such mass gathering settings. For this purpose, syndromic and event based surveillance system can play a crucial role to early detect any increasing number of cases of a specific syndrome and institute rapid field investigation to deter-

Disease syndromes	Case definition	Alert threshold
Acute Febrile Syndrome without rash	Acute onset of fever of less than one week duration with no identified source	Five or more cases with epidemiological link (Being reported from same location/camp) In case of neurological manifestations: One case
Acute Febrile Syndrome with rash	Any person with fever AND maculopapular (non-vesicular) generalized rash AND ONE of the following: cough, runny nose (coryza) or red eyes (conjunctivitis)	One case
Acute Flaccid Paralysis (AFP)	Any child < 15 years with acute flaccid paralysis OR any paralytic illness in a person of any age if poliomyelitis is suspected	One case
Acute Hemorrhagic Fever	Acute onset of fever of less than 3 weeks duration in a severely ill patient with epidemiological link and haemorrhagic manifestations	One case
Acute Jaundice Syndrome	Acute onset of jaundice (yellowing of whites of eyes or skin or dark urine) AND severe illness with or without fever AND the absence of any known precipitating factors	Five or more cases in geographically linked (one location/camp)
Acute Respiratory Infections	An acute respiratory illness with measured temperature of $\geq 38^{\circ}$ C. AND cough with onset within the last ten days.	Clustering in particular geographic settings or exposure groups (for example, among individuals with close contact with animals or animal products)
Acute Watery Diarrhoea diseases	Countries not known endemic for cholera: severe dehydration or death from Acute Watery Diarrhoea in a patient aged 5 years or more; Countries known endemic for cholera : Acute Watery Diarrhoea with or without vomiting in a patient aged 2 years or more	Countries not known endemic for cholera: Five or more cases with epidemiological link (Being reported from same location/camp) Countries known endemic for cholera : One case
Acute Bloody Diarrhoea	A person with diarrhoea (three or more abnormally loose or fluid stools in the past 24 hours) with visible blood in stool (preferably observed by the clinician)	Five or more cases with epidemiological link (Being reported from same location/camp)

Events with health consequences

Event	Case definition	Alert threshold
Usual events	events with health consequences such as fires, accident, stampede, structural collapse,	One event
Adverse events following drug/medication consumptions	An individual or clustering of cases has an anaphylactic/allergic reaction to a specific medication.	
Cluster of cases or unusual health events	A high number of cases with similar clinical manifestations Or At least one case with unusual clinical manifestations (e.g. respiratory diseases with fast deterioration, bleeding manifestations, sudden death with unknown cause.)	
Food poisoning	Cluster of patients with diarrhoea and/or vomiting who have a common food	
Unusual increased prescription of certain drugs	Surveillance of pharmacy prescription reveals increased prescription of specific medicine such as antibiotics	
Detection of unusual pathogens	Laboratory detects unusual pathogens (e.g. wild poliovirus, novel influenza virus)	
Heat related illness	Clustering of cases with heat related illness	

mine the reason for this unusual increase. The Ministry of Health of Saudi Arabia has also set "alert thresholds" for each of these syndromes and events. When a particular syndrome or event will exceed the alert threshold set for that syndrome or event, this will trigger an early investigation and response. These alert thresholds have been developed by the ministry of health following consultation with its partners, including WHO as well as drawing reference from the historical trend or values of these syndromes which have been included in the surveillance for early warning system. This system will be embedded within the already existing surveillance system for infectious diseases in the country but will only cover the places where the pilgrims assemble and stay to perform their religious rites and practices.

Although no major outbreak or events of potential health concern associated with hajj was ever detected in recent time, the public health risks need to be assessed carefully as the health situation in many countries sending pilgrims for hajj is rapidly changing. Is in the best interest of global health security that the hajj of 1439/2018 remain free from any potential health event like what has been seen over the past.

Update on outbreaks in the Eastern Mediterranean Region

MERS in Saudi Arabia; **cholera** in Somalia; **cholera** in Yemen; **Diphtheria** in Yemen.

Current public health events of international concern [cumulative N° of cases (deaths), CFR %]

Avian influenza: 2006-2017

Egypt (A/H5N1) [359 (122), 34%]

Egypt (A/H9N2) [4 (0)]

Ebola virus disease (EVD): 2018

Democratic Republic of Congo (DRC) [54 (33), 61.1%]

Rift Valley fever : 2018

Kenya [94 (10), 10.6%]

Uganda [8 (3), 37.5%]

South Sudan [10 (3), 30.0%]

Cholera: 2017-2018

Somalia [5 968 (41), 0.6%]

Yemen [1 121 143 (2 316), 0.2%]

Tanzania [3 287 (64), 1.9%]

Diphtheria: 2018

Yemen [1 904 (98), 5.1%]

Bangladesh [8 031 (44), 0.5%]

MERS: 2012-2018

Saudi Arabia [1 853 (717), 38.7%]

Yellow Fever: 2017-2018

Brazil [1 266 (415), 32.7%]