

12 February 2018 - Throughout 2017, the Eastern Mediterranean Region of WHO faced a number of emerging infectious diseases, some of these turning into explosive outbreaks. The emerging infectious diseases that have been reported in the Eastern Mediterranean Region in 2017 include: 1) acute watery diarrhoea; 2) avian influenza; 3) cholera; 4) Crimean-Congo haemorrhagic fever; 5) chikungunya; 6) chickenpox (varicella); 7) diphtheria; 8) Middle East respiratory syndrome; and 9) Travel-associated Legionnaire's Disease.

The Regional Office continued to provide technical support to the affected countries to contain the outbreak and prevent geographic spread through application of appropriate public health interventions using a science-based control measure.

The likelihood of the emergence and rapid transmission of high-threat pathogen diseases has increased in recent time, as there are many countries affected directly or indirectly by acute, protracted humanitarian emergencies, which have led to an unusually high number of internally displaced persons (IDPs) and refugees living in overcrowded, overburdened spaces, with little or no access to basic health care services and environmental infrastructure. The other risk factors contributing to the emergence and rapid spread of epidemic diseases in the Region include rapid urbanization in the Region, climate change, weak surveillance and limited laboratory diagnostic capacity, and increased human–animal interaction.

1. Acute watery diarrhoea

Sudan

The wave of acute watery diarrhoea cases seen in Sudan in 2017 was unprecedented. Beginning on 21 August 2016 in Kassala state, the outbreak spread rapidly to 10 states by May 2017, 12 states by June 2017, 16 states by July 2017 and to all 18 states in the country by August 2017. The outbreak has resulted in a total of 36 460 suspected cases, including 818 associated deaths (case–fatality rate 2.24%) (Fig. 1). Some states have reported high case-fatality rates such as West Kordofan (9.62%), South Kordofan (9.96%), East Darfur (5.55%), South Darfur (4.79%) and North Darfur (4.30%).

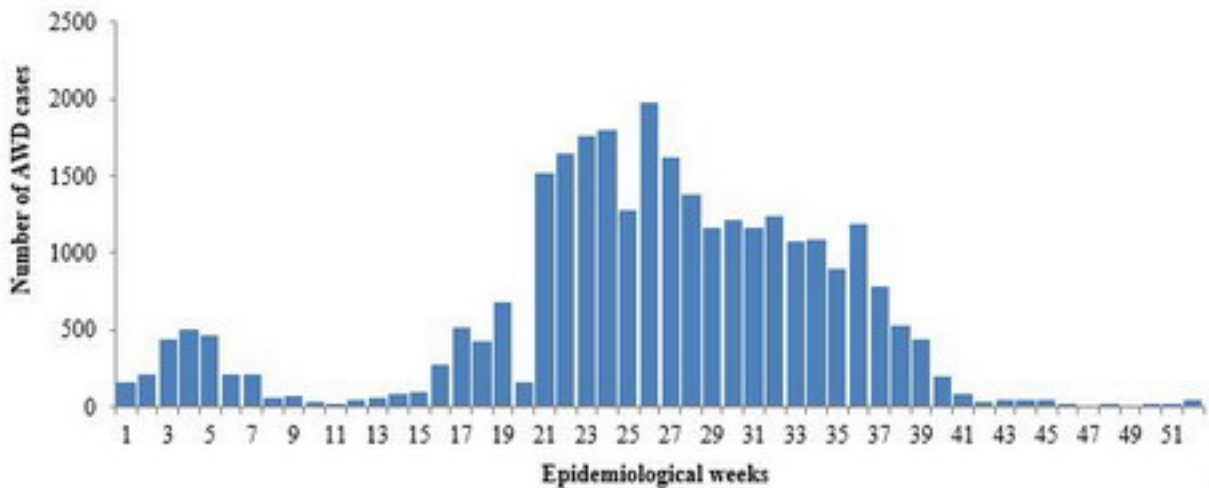


Fig. 1. Acute watery diarrhoea cases reported during Epi week 01–52, 2017, Sudan
2. Avian Influenza A(H5N1)
Egypt

Egypt is the only country in the WHO Eastern Mediterranean Region that continues to report human cases of avian influenza A(H5N1) since the virus was first reported in the country in March 2006 (Fig. 2). A total of 359 laboratory-confirmed human cases of avian influenza A(H5N1) were reported in the country between March 2006 and December 2017. Of these cases, 122 were fatal (case–fatality rate 34%). In the year 2017, only 3 human cases of avian influenza A(H5N1) were reported including one death (case–fatality rate 33.3%).

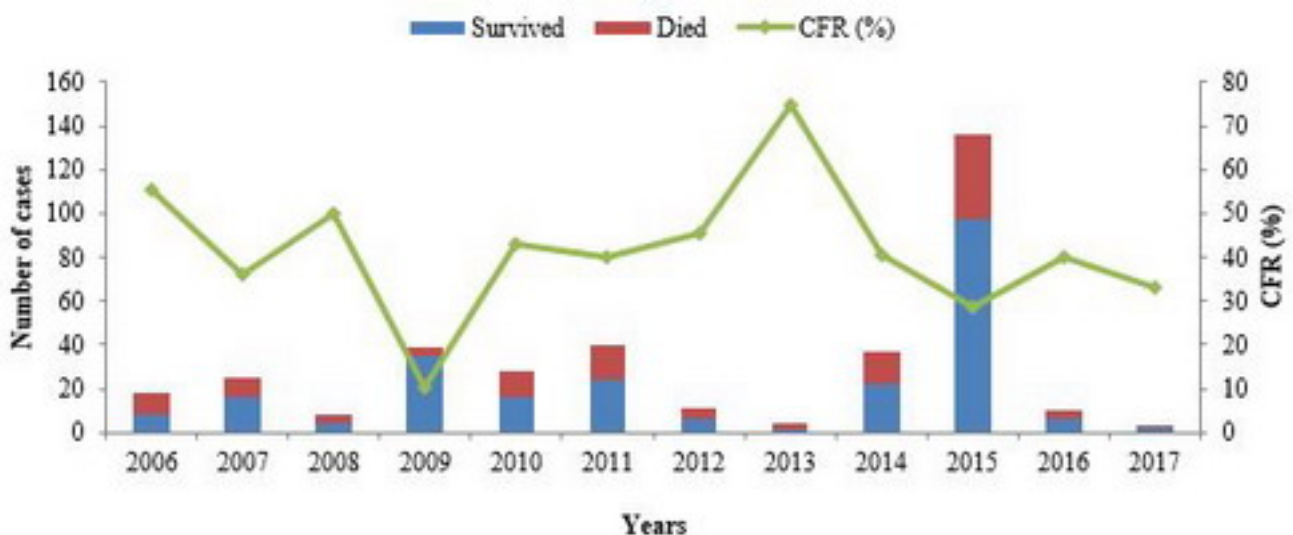


Fig. 2. Human cases and deaths from avian influenza A(H5N1) and case-fatality rate in Egypt, 2006–2017

3. Chickenpox (varicella) Pakistan

In the beginning of the year, the Ministry of National Health Services, Regulations and Coordination of Pakistan reported 76 suspected cases of chickenpox (varicella) including 15 deaths (case–fatality rate 19.7%) and these cases were reported from Faisalabad city, a highly populous city in Punjab province in the eastern part of the country. Afterwards, during and after May 2017, suspected cases were also reported from other districts of the Punjab Province. From April to December, 2017 a total of 14 246 suspected varicella cases with 21 associated deaths (case–fatality rate 0.14%) were reported from Punjab province. The affected districts of Punjab were: Attock, Rawalpindi, Layyah, Bhawalpur, Lahore, Faisalabd, Jhelum, Kasur, Mandi Bhauddin, Multan, Mianwali, Nankana sahib, Narowal and Sargodha. (Fig. 3). A number of cases were also laboratory-confirmed both by rt-PCR and by serology.

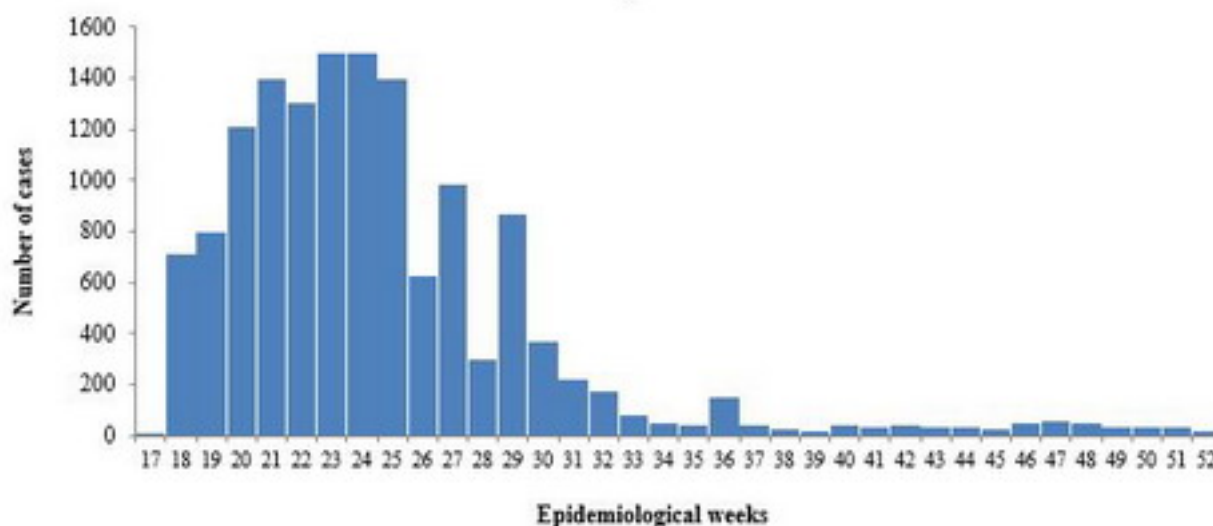


Fig. 3. Number of suspected chickenpox cases reported from Epi week 17-52, 2017, Pakistan

4. Chikungunya Pakistan

This was the first time in its history that Pakistan reported laboratory-confirmed cases of Chikungunya. The first case was laboratory-confirmed during the second week of December 2016 by real-time PCR and since then until the end of December 2017, a total 8375 suspected cases of Chikungunya were reported from several areas of the country. The most affected provinces were Sindh and Balochistan which reported 64.3% and 33.8% of the total cases,

respectively. The other affected provinces/areas which also reported cases were: Khyber Pakhtunkhwa (136), Punjab (18) and one case each from Azad Jamu Kashmir and FATA (Table 1).

Table 1. Suspected Chikungunya cases reported from December 2016 to December 2017, Pakistan

Province/area	
Karachi	4600
<u>Balochistan</u>	2834
<u>Tharparkar (Sindh)</u>	785
<u>Khybe Pakhtounkhwa</u>	136
Azad Kashmir	1
Punjab	18
Federally administrated tribal area (FATA)	1
Islamabad capital territory (ICT)	0
<u>Gilgit Baltistan</u>	0
TOTAL	8375

5. Cholera Somalia

Cholera remains an endemic disease in Somalia for the past two decades. Somalia experienced multiple outbreaks from cholera during this period which were associated with significantly high mortality. In the year 2017, a total of 78 784 suspected cases of Cholera, with 1159 associated deaths (case–fatality rate 1.47%) were reported in 10 out of 18 regions in Somalia. The regions include, Middle Juba, Lower Juba, Banadir, Hiraan, Lower Shebelle, Middle Shebelle, Gedo, Bay, and Bakool Regions. (Fig. 4). The country introduced two-dose oral cholera vaccine (OCV) to contain the outbreak and between March to October 2017, a total of 1 024 948 people aged 1 year and above, were vaccinated against 2 doses of OCV. The laboratory test result confirmed the circulation of *Vibrio cholerae* 01 serotype Ogawa.



Fig. 4. Suspected cholera cases and deaths reported in Somalia, January to December 2017
Yemen

After a gap of 5 years, Yemen reported its first cholera outbreak in 2016. A second wave of this outbreak started during April 2017 and continued until the end of the year. During the second wave in 2017, the Ministry of Health and Population reported 1 019 044 suspected cases, including 2237 associated deaths (case-fatality rate 0.22%) from 22 governorates in the country (Fig. 5). The laboratory result of stool samples tested at the Central Public Health Laboratory in Sanaa confirmed *Vibrio cholerae* 01 serotype Ogawa as the strain causing the outbreak.

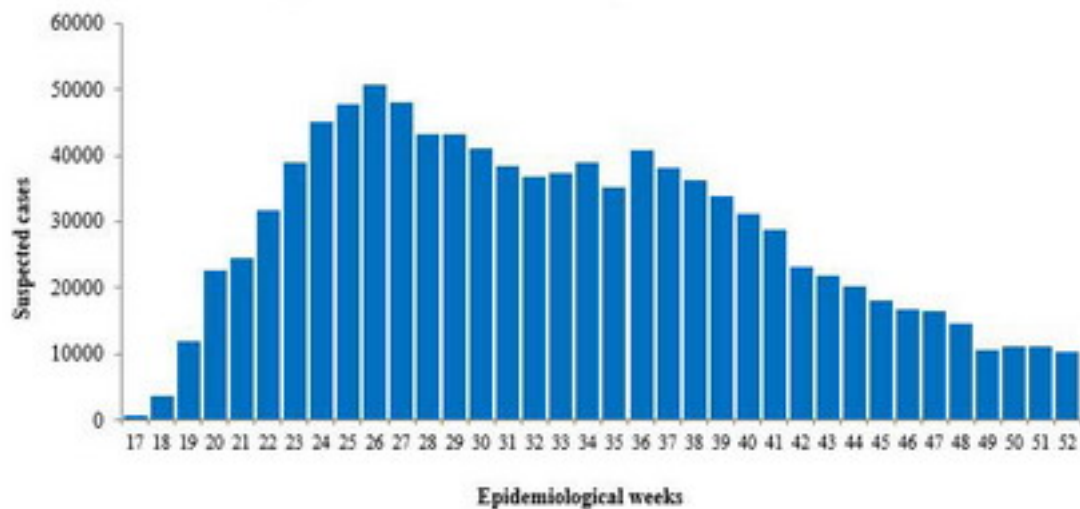
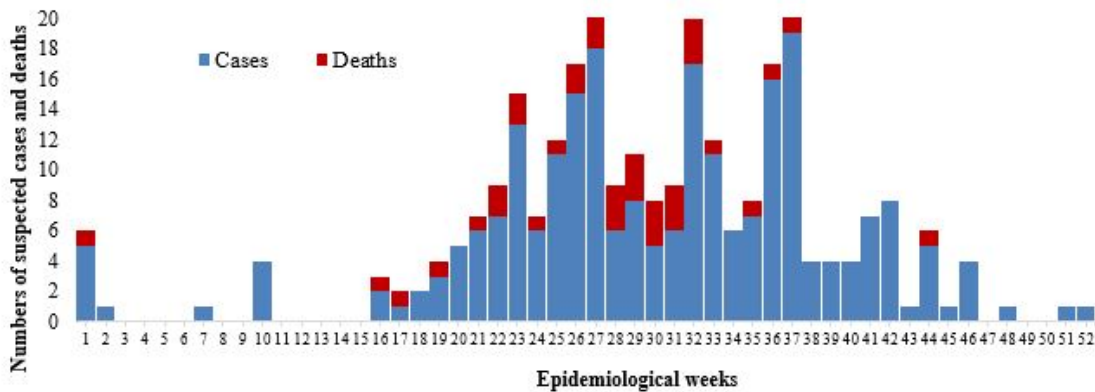


Fig. 5. Epidemic curve of suspected cholera cases reported in Yemen, EPI weeks 17–52, 2017

6. Crimean-Congo haemorrhagic fever Afghanistan

The Crimean-Congo haemorrhagic fever is endemic in Afghanistan. During the last few years, the country has seen an increasing trend and cases have spread from its established foci to all other provinces as well as to the capital city-Kabul. From January to December 2017, the number of cases recorded a dramatic rise and the number exceeded those reported in previous years. A total of 242 suspected cases, including 41 deaths (case-fatality rate 16.9 %) were reported during 2017. These cases were reported from 27 out of 34 provinces in the country. The majority of the cases reported from Kabul (74 cases with 12 deaths), the capital of Afghanistan. The second province with high number of cases and deaths (66 and 8 respectively) was Herat (Fig. 6).



**Fig. 6. Suspected cases and deaths from Crimean-Congo haemorrhagic fever reported during 2017, Afghanistan
Pakistan**

Crimean-Congo haemorrhagic fever remains a public health problem in Pakistan. During the last few years, the country has encountered a number of outbreaks. Initially, cases Crimean-Congo haemorrhagic fever were reported from its established foci such as Balochistan and but now it is reported from other provinces/areas. The frequent unmonitored movement of animals and animal products remained the major cause of the spread of the virus throughout the country. From January to October 2017, a total of 194 suspected cases with 31 associated deaths were reported throughout the country. Of these total, 55 cases were laboratory-confirmed. Majority of the laboratory-confirmed cases (23) and deaths (13) were reported from Balochistan province (Fig. 7).

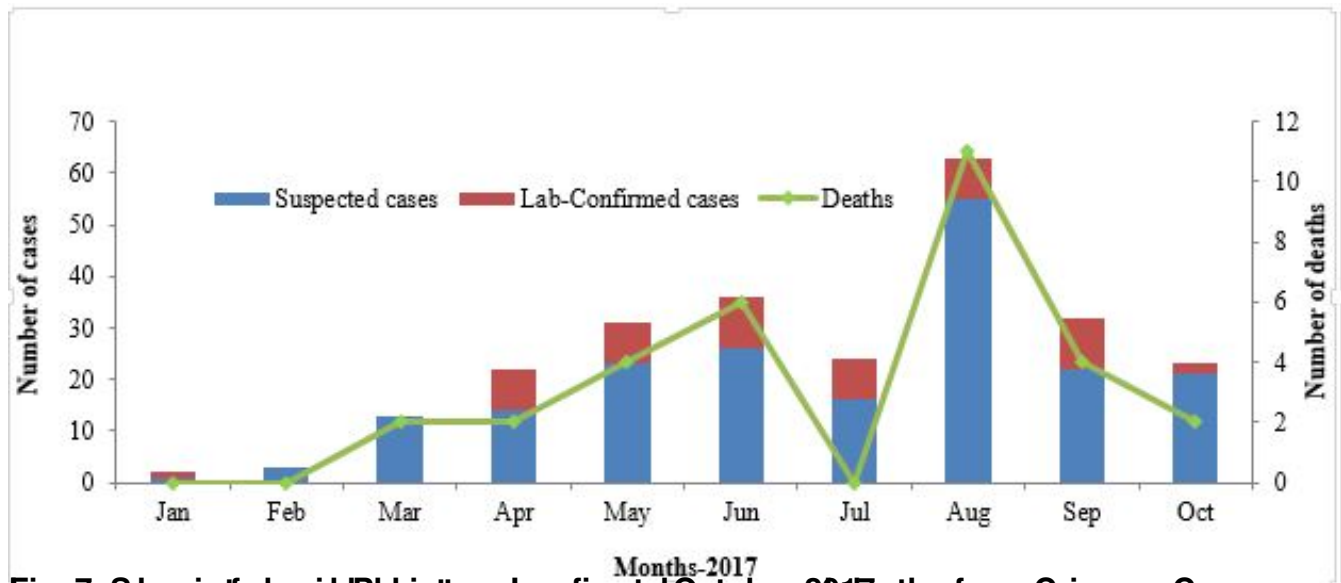


Fig. 7. Suspected and lab-confirmed cases and deaths from Crimean-Congo hemorrhagic fever in the Eastern Mediterranean Region, January to October 2017

7. Dengue fever Pakistan

Dengue fever is endemic in Pakistan. The first outbreak of DF was detected in Karachi (Sindh Province) during 1994. After this outbreak, the country faced a number of repeated outbreaks in different provinces. The biggest outbreak that the country faced, so far, was in 2011 in Lahore (Punjab province) immediately after the floods in 2010. Over 550 000 suspected/clinically diagnosed cases were reported during that outbreak. The recent outbreak of 2017 started during the epidemiological week of 28 in Peshawar district of the Khyber Pakhtoonkhwa province. Between 28 to 47 epidemiological week of 2017, a total of 25 872 laboratory-confirmed cases of dengue with 69 associated deaths (case-fatality rate 0.2%) were reported by the provincial health department of Khyber Pakhtoonkhwa province. The majority of the cases were reported from the provincial capital city- Peshwar; 23 809 laboratory-confirmed cases and 64 associated deaths. (Fig. 8). The dengue virus sero-type-2 (DENG-2) was detected as the causative strain of this outbreak.

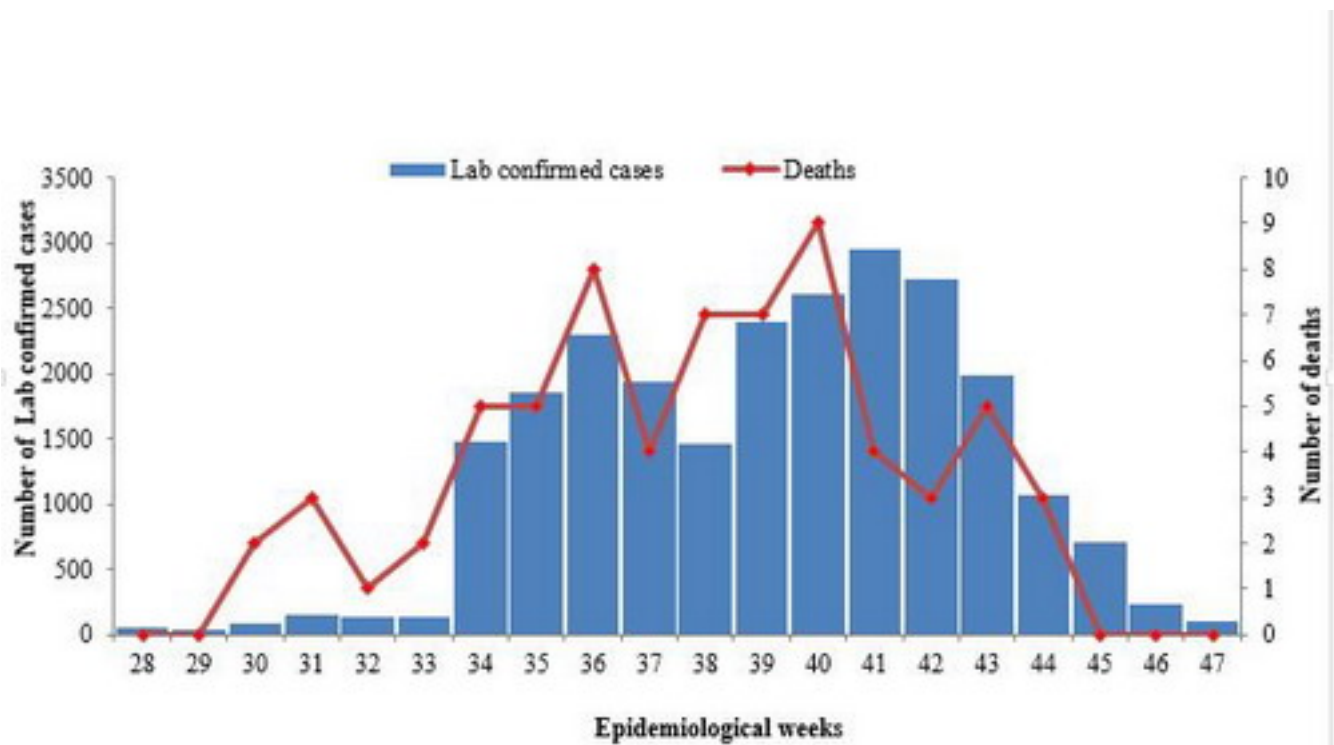


Fig. 8. Laboratory-confirmed cases and deaths from dengue fever reported in Pakistan, Epidemiological week 28-47, 2017
Sudan

The country has faced a number of dengue fever outbreaks in the past. In 2017, the cases of dengue fever was, first, reported from Kassala, East Darfur, West Darfur, South Kordofan and Red Sea states during early October 2017. A total of 179 suspected case and three associated deaths (case–fatality rate 1.6%) were reported by end of December 2017. The most affected area with more than 89% of the reported case load is Kassala state (Table 2).

Table 2. Suspected cases and deaths from dengue fever in Sudan 4-Oct-2017 to 13-Jan 2018

State	Locality	Suspected Cases	Deaths
Khartoum	Jabal Awlia	1	0
	Kassala	128	0
Kassala	West Kassala	7	0
	Rifi Kassala	25	0
East Darfur	Assalya	1	0
	Elddeain	1	1
West Darfur	Habila	1	1
	Kerink	4	0
South Kordofan	Abu Karshola	1	0
Nile River	Al Damar	3	0
Al Jezeera	24 Al Qarshi	1	1
Red Sea	Swakin	2	0
	Port Sudan	4	0
Total		179	3

8. Diphtheria

Yemen

During 2017, a significant increase in probable diphtheria cases was reported between epidemiological weeks 33 and 52. A total of 429 clinically diagnosed cases, including 42 associated deaths (case–fatality rate 9.79%), were reported from 19 governorates in the country. Majority of these cases were reported from Ibb governorate (175 cases, including 12 associated deaths with a case–fatality rate of 6.8%) (Fig. 9).

In 2016, a total of 27 suspected cases were reported from the country and since the year 2000, the country used to report, on an average, 50 suspected/probable cases of diphtheria annually.

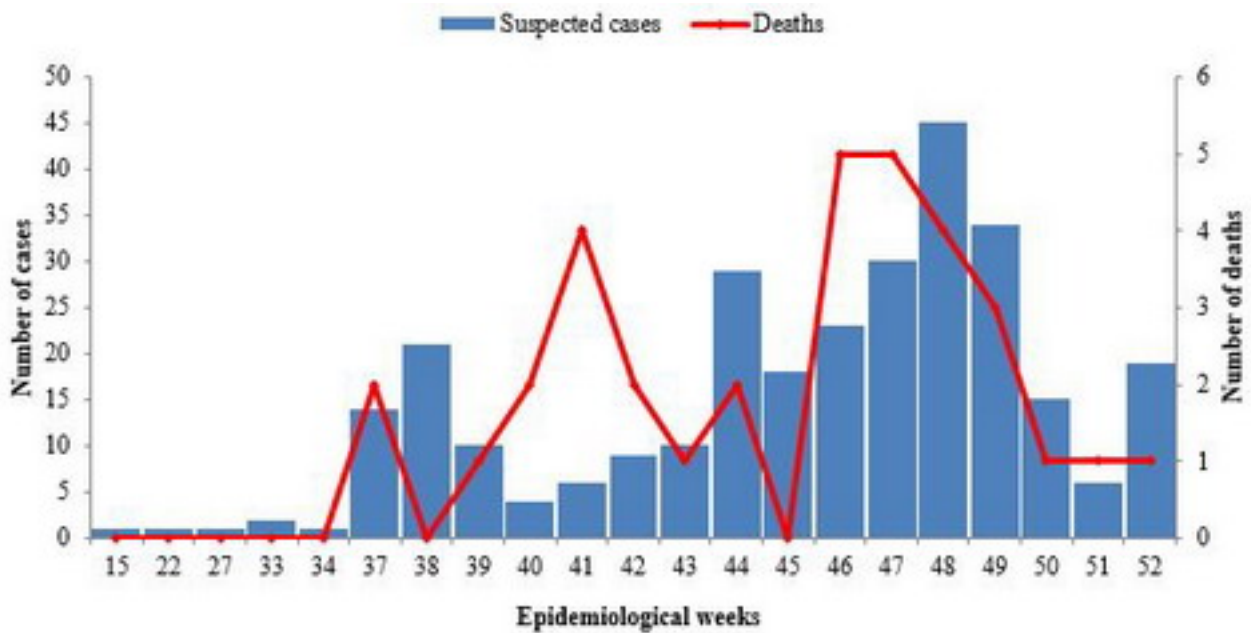


Fig. 9. Probable cases and deaths from diphtheria in Yemen, 2017

9. Middle East respiratory syndrome (MERS)

Oman, Qatar, Saudi Arabia, United Arab Emirates and Lebanon

During 2017, a total of 247 laboratory-confirmed cases of MERS were reported compared to 259, 677, 756 reported during 2016, 2015 and 2014, respectively. Of these total cases reported in 2017, Saudi Arabia reported 234 cases. Other countries reporting laboratory-confirmed cases of MERS in 2017 include United Arab Emirates (7 cases), Qatar (3 cases), Oman (2 cases) and Lebanon (1 imported case) (Fig. 10).

In 2017, a total of 8 hospital outbreaks from MERS was also reported from Saudi Arabia (Table 3 and Figs 11, 12, 13, 14, 15, 16).

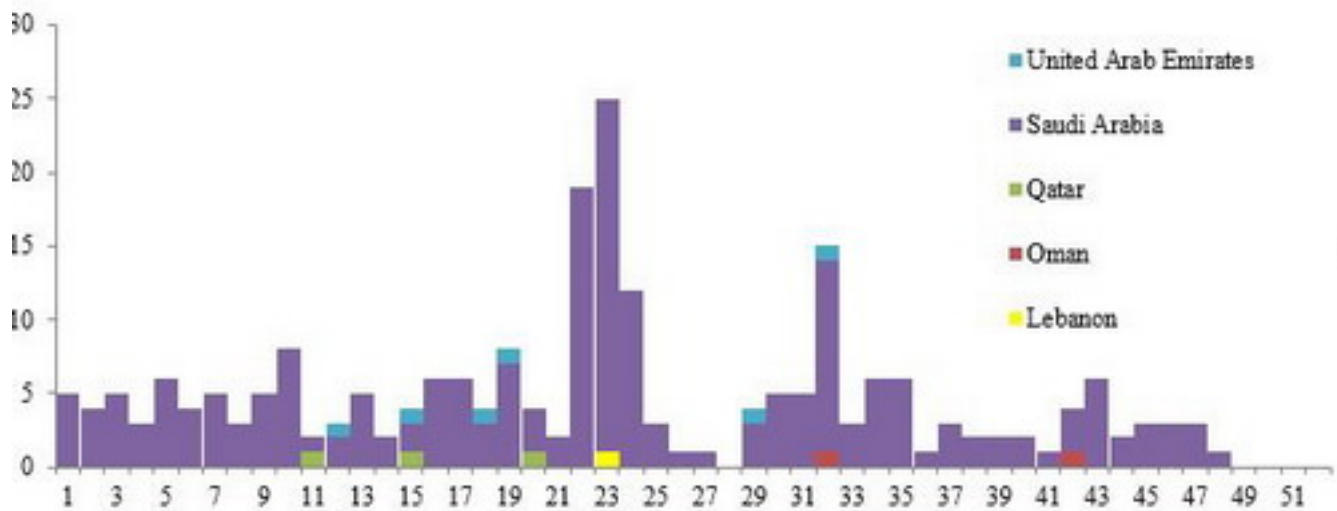


Fig. 10. MERS cases reported in the Eastern Mediterranean Region by week of illness onset, 2017

MERS hospital outbreaks reported from Saudi Arabia

In 2017, 8 hospital outbreaks from MERS was reported resulting in 91 cases, including 12 deaths (case–fatality rate 13.2%). Out of these, 55 cases were asymptomatic.

Table 3. MERS Hospital outbreaks reported during 2017

	Outbreak	Hospital	Date of first reported case	Date of last reported case	Survived	Died	CFR (%)	Asymptomatic cases	Grand Total
1	Hospital outbreak 1	Wadi Al-Dawasir General Hospital, Riyadh	26-Feb-17	26-Apr-17	14	1	6.7	8	15
2	Hospital outbreak 2	King Abdullah Hospital, Asir/Bisha	3-May-17	13-May-17	1	2	66.7	1	3
3	Hospital outbreak 3	Specialized Medical Centre Private Hospital, Riyadh	24-Apr-17	15-May-17	4	1	20	3	5
4	Hospital outbreak 4	King Salman Hospital, Riyadh	1-Jun-17	5-Jun-17	5	1	16.7	4	6
5	Hospital outbreak 5	King Saud Chest Hospital, Riyadh	2-Jun-17	15-Jun-17	9	0	-	4	9
6	Hospital outbreak 6	King Saud Medical Hospital, Riyadh	26-May-17	17-Jun-17	27	6	18.2	21	33
7	Hospital outbreak 7 (a)	Dawmet Aljandal General Hospital, Al-Jawf	27-Jul-17	10-Aug-17	12	1	7.7	9	13
8	Hospital outbreak 7 (b)	Dawmet Aljandal General Hospital, Al-Jawf	17-Aug-17	31-Aug-17	7	0	-	5	7
Total					79	12	13.2	55	91

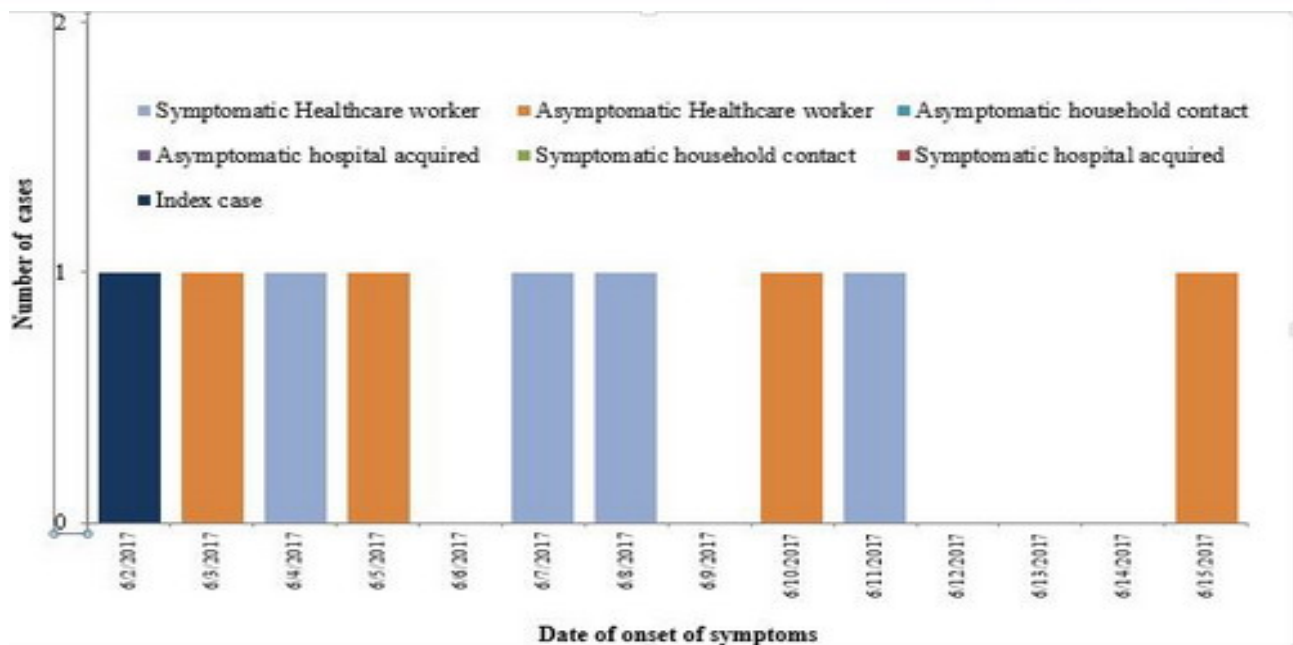


Fig. 11. MERS hospital outbreak 1, February-April 2017

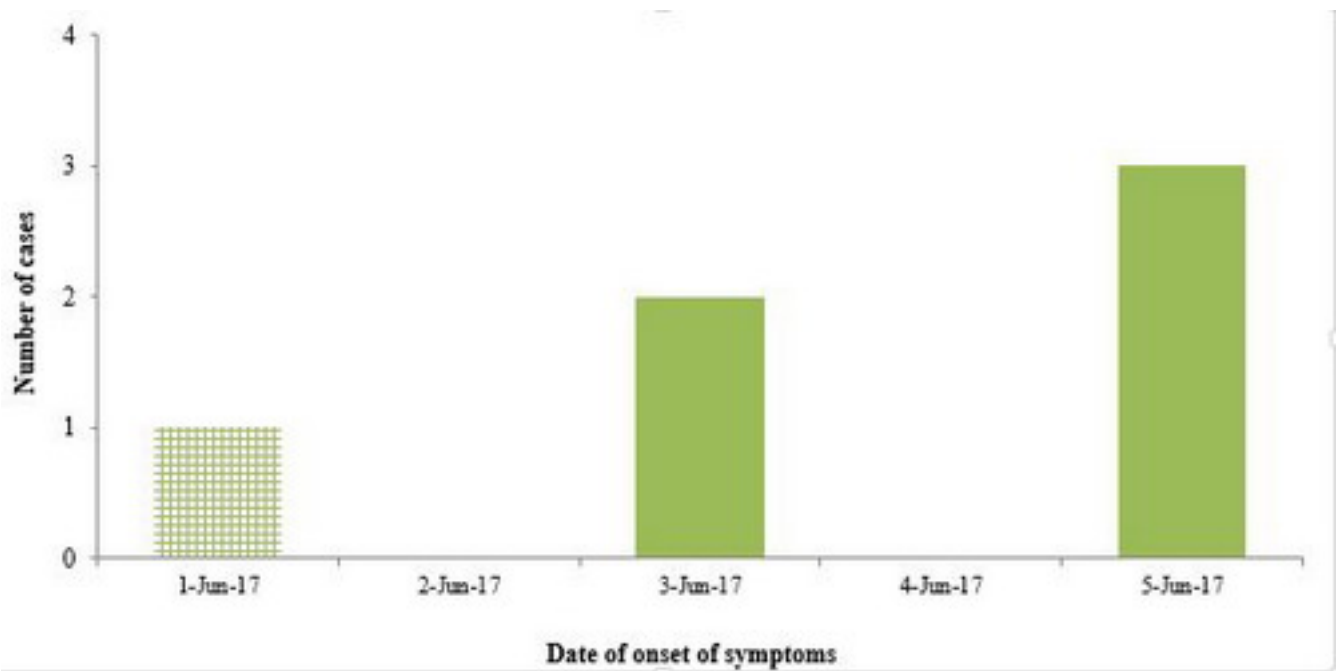


Fig. 12. MERS hospital outbreak 4, May 2017

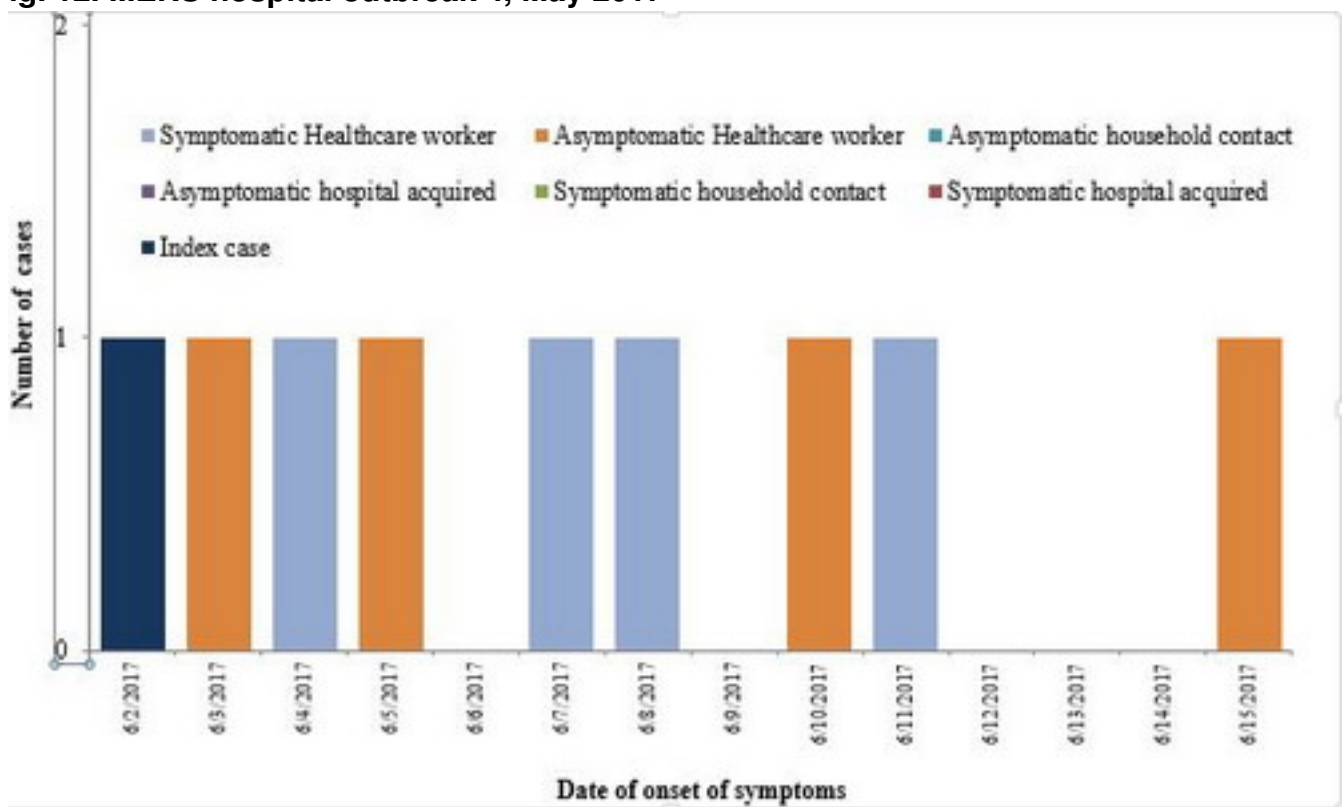


Fig. 13. MERS hospital outbreak 5, June 2017

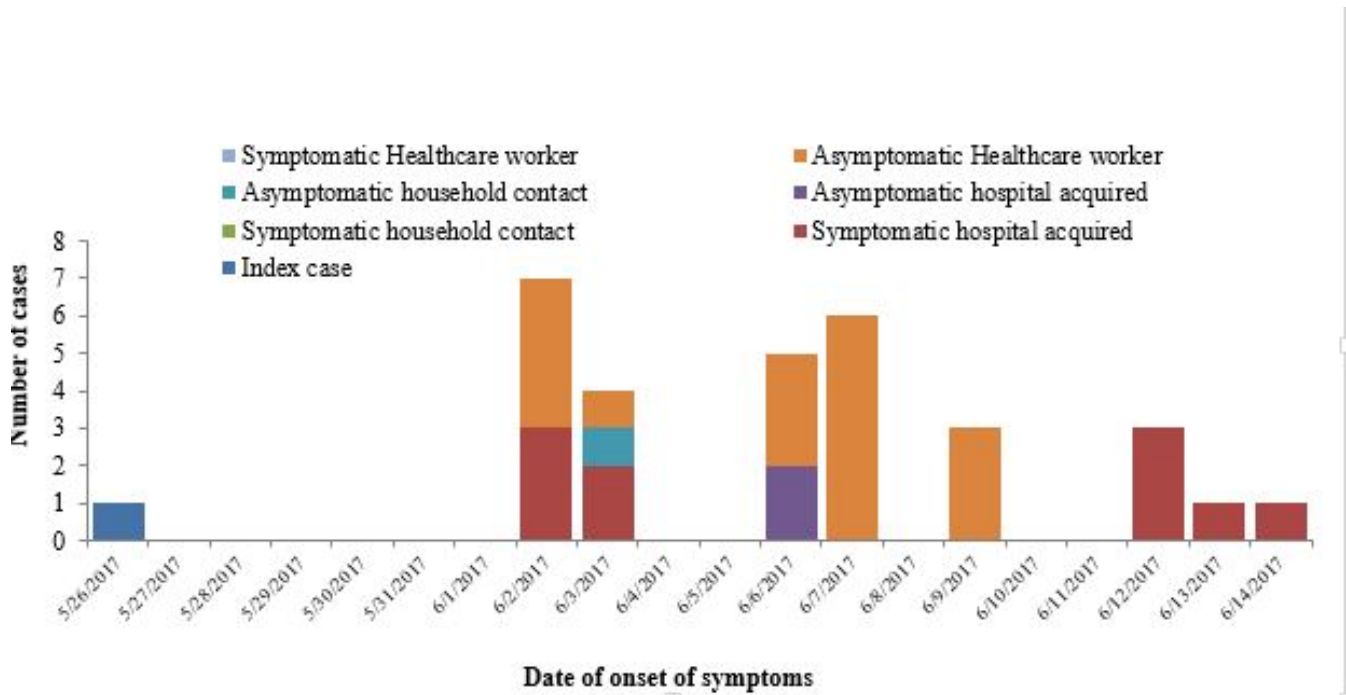


Fig.14. MERS hospital outbreak 6, May to June 2017

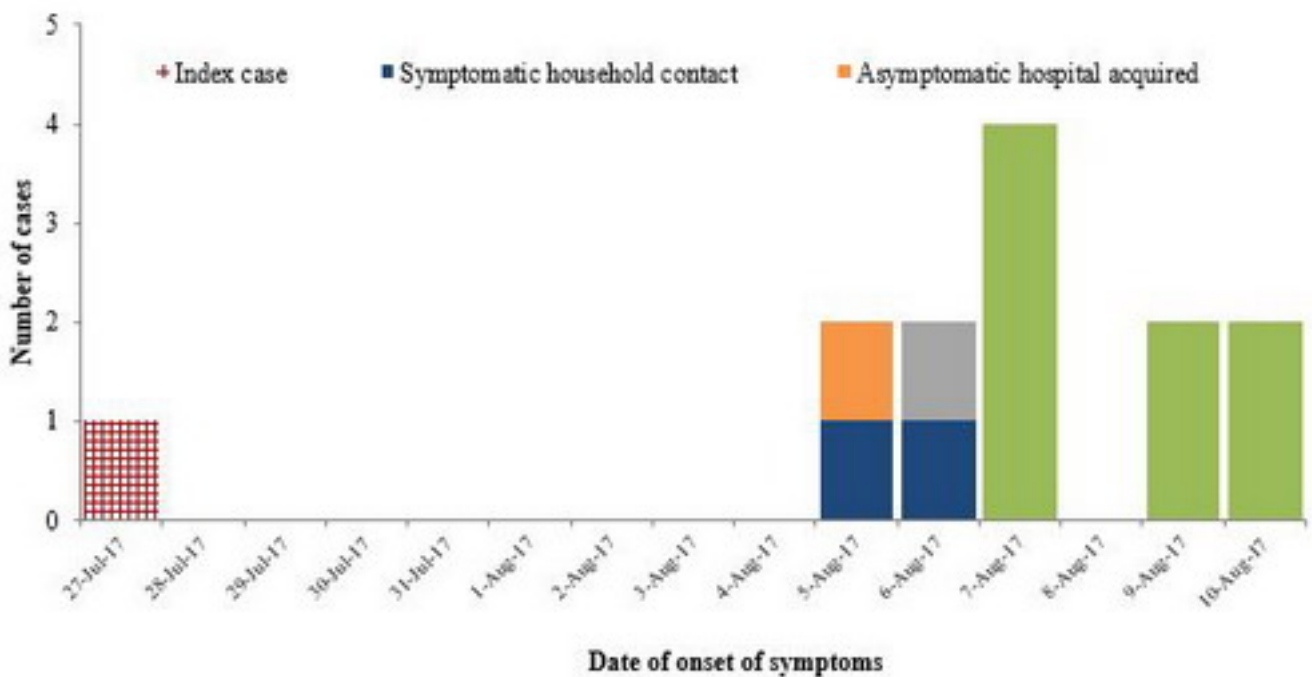


Fig. 15. MERS hospital outbreak 7(a), July to August 2017

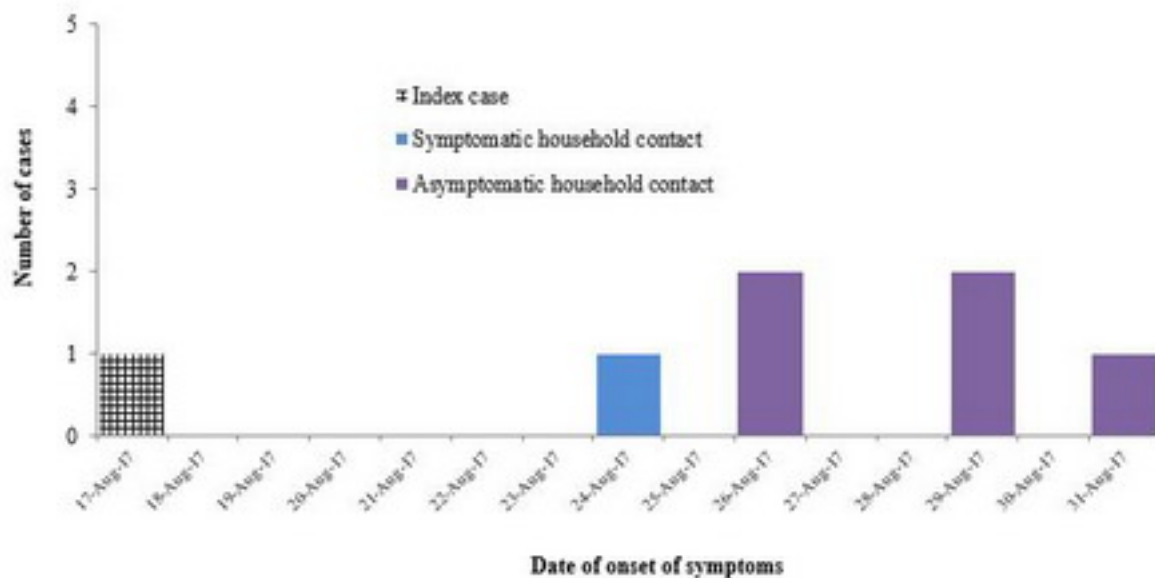


Figure 16. MERS hospital Outbreak 7(b), August 2017

Table 4. Emerging infectious disease outbreaks reported from the countries of the Region in 2017

Disease	Country	First reported case	Last reported case	Total cases*	Deaths	CFR (%)
Acute watery diarrhoea	Sudan	Jan-2017	Dec-2017	36 460	818	2.2
Avian influenza/ A(H5N1)	Egypt	02-Feb-2017	13-Apr-2017	359	122	34
Chickenpox (Varicella)	Pakistan	29-Apr-2017	Ongoing	14 246	21	0.14
Chikungunya	Pakistan	13-Dec-2016	Ongoing	8375	0	0
	Somalia	01-Jan-2017	Ongoing	78 784	1159	1.47
Cholera	Yemen	27-Apr-2017	Ongoing	1 019 044	2237	0.22
	Iraq	23-May-2017	13-Dec-2017	505	3	0.6
Crimean-Congo haemorrhagic fever	Afghanistan	Jan-2017	Ongoing	242	41	16.9
	Pakistan	Jan-2017	Oct-2017	194	31	15.97
	Pakistan	14-Jun-2017	04-Dec-2017	25 872	69	0.2
Dengue	Sudan	04-Oct-2017	Ongoing	179	3	1.6
Diphtheria	Yemen	14-Aug-2017	Ongoing	429	42	9.79
	Oman	03-Aug-2017	13-Aug-2017	02	0	0
	Qatar	15-Mar-2017	14-May-2017	03	0	0
Middle East respiratory syndrome (MERS)	Saudi Arabia	03-Jan-2017	Ongoing	234	65	27.7
	United Arab Emirates	24-Mar-2017	11-Aug-2017	07	0	0
	Lebanon	08-Jun-2017	08-Jun-2017	01	0	0
Travel-associated Legionnaires' disease	United Arab Emirates (Dubai)	30-Apr-2017	26-Oct-2017	76	0	0
	Saudi Arabia	02-Jun-2017	02-Jun-2017	01	0	0

*includes both suspected and laboratory-confirmed cases

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