

Current major event

Cholera in Yemen: Key questions

The cholera outbreak in Yemen continues to rage and from April to 28 October 2017, a total of 880,987 suspected cholera cases including 2,183 associated deaths with a case fatality rate of 0.25% were reported from Yemen. The cases were reported from almost all governorates (96% of the governorates were affected) and almost all districts (92% of the districts were affected).

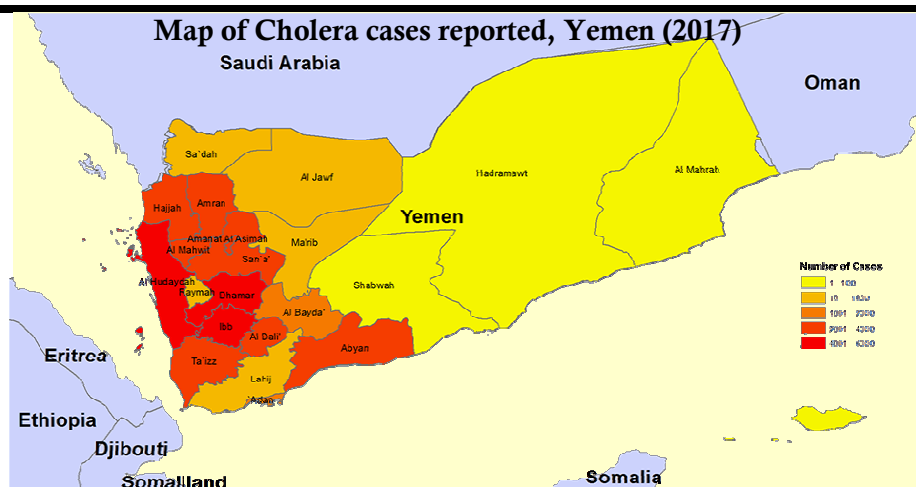
Editorial note

This has been one of the worst cholera epidemics not only in the history of Yemen but by looking at the cholera case counts reported so far, this could be the biggest and the worst cholera epidemic on record since the seventh cholera pandemic began in 1961.

Notwithstanding the fact that the total case counts may soon reach the “million” mark in less than 7 months since the second wave of the outbreak began in April this year, there are considerable gaps in our understanding of the nature and characteristics of this outbreak. There is an urgent need to explore the causes of this massive outbreak, such intense geographic spread and such a prolonged span of this outbreak.

This outbreak is raising a number of key questions which need to be addressed. For example, it is not known why the case counts continue to surge despite the fact that the beginning of the outbreak was 10 to 11 months back from now. It is not sure if the cases have been “over-reported”. The number of laboratory-confirmed cases is very low compared to the total case counts. It is also not sure if the outbreak has already peaked as data are inconsistent with an outbreak of cholera which has been reported elsewhere. The geographic spread of this outbreak is very intense which raises additional questions regarding the risk factors and transmissibility of the *Vibrio cholerae* strains currently circulating in the country.

This is not the first time that cholera outbreak has been reported in Yemen. Therefore it is plausible that the country's population are not immunologically naive and as such high transmission rate of cholera would be rather unusual. The other key question that remains unanswered is that despite the surge in cholera cases and all difficulties one can perceive



Cholera cases and deaths reported during the second wave, 27 April - 30 September 2017

Governorate	Cases	Deaths	CFR (%)	Cumulative attack rate (per 10 000)
Amman	76,425	167	0.22	658.52
Al Mahwit	44,100	140	0.32	603.52
Al Dhale'e	41,815	79	0.19	571.64
Abyan	26,523	35	0.13	464.64
Hajjah	85,146	399	0.47	365.47
Dhamar	67,794	153	0.23	336.9
Al Bayda	23,183	28	0.12	305.29
Amanat Al Asimah	76,925	66	0.09	272.03
Al Hudaydah	102,294	253	0.25	315.9
Sana'a	57,097	122	0.21	368.32
Aden	18,026	62	0.34	195.3
Raymah	12,095	113	0.93	199.33
Lahj	20,535	20	0.10	203.55
Ibb	49,854	276	0.55	168.59
Al Jawf	10,969	21	0.19	189.58
Taizz	46,076	180	0.39	153.67
Marib	4,729	7	0.15	131.9
Al Maharah	1,162	1	0.09	75.8
Sa'ada	5,376	5	0.09	58.98
Shabwah	1,293	3	0.23	20.33
Mokilla	514	2	0.39	6.64
Say'un	14	0	-	0.21
Total	774,945	2,182	0.28	274.27

regarding access to health care in a security compromised situation, why the case-fatality rate remains so low from the beginning of the outbreak to date. Until now no information is also available on the bio and sero-types of the currently circulating *Vibrio cholerae* strains causing the epidemic.

These “knowledge gaps” need to be addressed as quickly as possible in order to better understand the nature and characteristics of this outbreak in Yemen and the reasons behind such a high transmission rate and massive geographic spread. Better analysis of the data, reconciliation of the collected data for better consistency, better use of case definition to capture “true” cholera cases, scaling up of laboratory confirmation of currently reported cases and molecular testing of the circulating *Vibrio cholerae* strain can help in addressing these knowledge gaps. It is time, therefore, that the whole cholera situation in Yemen would be looked into from these perspective of addressing “unanswered” questions.

Update on outbreaks in the Eastern Mediterranean Region

MERS in Saudi Arabia; **cholera** in Somalia; **cholera** in Yemen; **dengue** in Pakistan.

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)]

Avian influenza A (H7N9): 2013-2017

China [1,564 (612), 39.1%]

Chikungunya: 2016-2017

Pakistan [8,217 (0)]

Cholera: 2016-2017

Somalia [77,783 (1,159), 1.5%]

Yemen [880,987 (2,183), 0.25%]

Plague: 2017

Madagascar [1,309 (93), 7%]

Dengue fever: 2017

Pakistan [99,053 (61), 0.1%]

MERS: 2012-2017

Saudi Arabia [1,726 (674), 39%]

Wild poliovirus: 2014-2017

Pakistan [5 (0)]

Afghanistan [8 (0)]

Zika virus infection: 2015-2017

84 countries and territories have reported transmission so far.