

Current major event

Multidrug-resistant typhoid fever in Pakistan

Since November 2016, there has been an increase in the number of cases of multidrug-resistant *Salmonella* Typhoid (MDR *S. Typhi*) fever in Pakistan. Up to epidemiological week 48 of 2018 a total of 5,174 cases of MDR *S. Typhi* have been reported from different districts of Sindh province (please see table) in Pakistan.

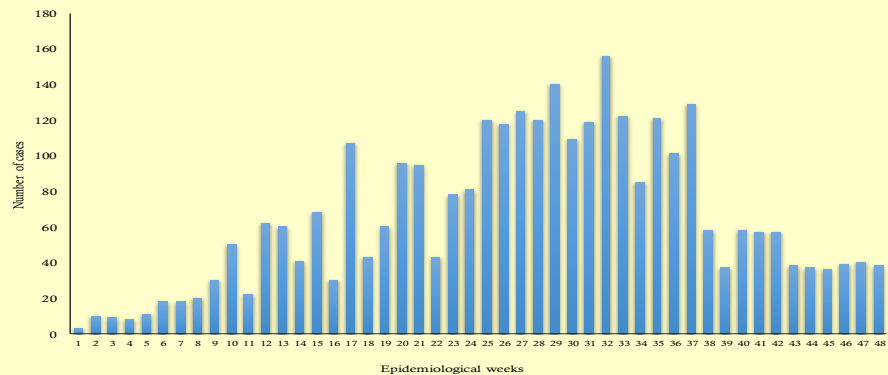
Editorial note

Typhoid fever is a severe nonspecific illness caused by the bacterial pathogen *Salmonella enterica serovar Typhi* (*S. Typhi*). The human-to-human transmission occurs through the fecal-oral route, often through contaminated water or food. The MDR serotype- H58 is resistant to first line of treatments (ampicillin, chloramphenicol, and trimethoprim-sulfamethoxazole) as well as fluoroquinolones and third generation cephalosporins (e.g. Ceftriaxone). This multidrug resistance type of *S. Typhi* has been prevalent across South and Southeast Asia and parts of Africa and Oceania. In Pakistan, this MDR *S. Typhi* has, first, been detected in a district called Hyderabad of Sindh province. Most of the cases (3594/5174) have, however, been reported from the Karachi district of Sindh province. There has been a declining trend of MDR *S. Typhi* cases starting from week 33 (please see graph).

The national and provincial governments of Pakistan have been collaborating with multiple international partners to control this outbreak. Upon the request of the national ministry of health, the WHO Regional Office for Eastern Mediterranean Region conducted a mission to assess the situation on the ground. On the basis of the situational analysis and in coordination with the relevant stakeholders, the team developed a National Action Plan (NAP) for the prevention and control of the outbreak. This NAP will assist the country in implementing activities in a targeted manner with multi-sectoral involvement.

The WHO mission identified a number of key knowledge gaps which need to be addressed urgently. Such as understanding the magnitude, scale and geographic spread of the current outbreak of MDR *S. Typhi*; what case definition is being used

MDR typhoid fever reported from Karachi (Sindh), 2018 (up to W48)



Districts reporting MDR cases in Sindh

Districts	MDR typhoid fever
Karachi	3594
Hyderabad	1378
Tando Alha Yar	4
Badin	36
Dadu	9
Kashmore	3
Ghotki	3
Mirpurkhas	70
Sukkur	5
Tharparkar	1
Sanghar	26
Nau sheroferoz	2
Shikarpur	2
Tando M Khan	2
Jamshoro	26
Umar Kot	2
Jacobabad	2

to recognize and detect cases; what are the risk factors including the underlying factors contributing to such upsurge; what is the clinical efficacy of the drugs currently being used as preferred line of treatment for MDR *S. Typhi*. The use of Azithromycin for the treatment of MDR *S. Typhi* which is the current practice in Pakistan in view of the extensive drug resistant pattern of typhoid fever may lead to losing this drug which is the drug of choice for many other health conditions.

This MDR *S. Typhi* outbreak serves as a forewarning for Pakistan and other developing countries globally to ensure implementation of appropriate measures such as durable water and sanitation infrastructure and promotion of adequate hygiene practices for prevention and control of these water-borne diseases.

Update on outbreaks

in the Eastern Mediterranean Region

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

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) [500(298), 59.6%]

Rift Valley fever : 2018

Uganda [23 (8), 34.78%]

Cholera: 2017-2018

Somalia [6 637 (45), 0.67%]

Yemen [1 343 363 (2 751), 0.20%]

Tanzania [4 599 (83), 1.8%]

Diphtheria: 2018

Yemen [2 810 (161), 5.72%]

Bangladesh [8 327 (44), 0.52%]

MERS: 2012-2018

Saudi Arabia [1 899 (732), 38.5%]

West Nile fever: 2018

Tunisia [377 (2), 0.53%]