Extensively Drug-Resistant *Salmonella enterica* Serovar Typhi outbreak in Pakistan

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**Sources:**  
- ASM  
- The News International  
- The Scientist

Since November 2016, in the area of Hyderabad in Pakistan, more than 300 extensively drug-resistant cases of typhoid have been reported. Moreover, a single case of travel-associated XDR typhoid has recently been identified in the United Kingdom. In a recent study published in the February 20\(^{th}\) issue of mBio, the open access journal of the American Society for Microbiology, the organism causing this ongoing outbreak is a strain of *Salmonella enterica* Serovar Typhi that has become resistant to multiple antibiotic treatments. Indeed this strain acquired a plasmid carrying resistance to chloramphenicol, ampicillin, and trimethoprim-sulfamethoxazole – considered as first-line drugs against typhoid- as well as to fluoroquinolones and third-generation cephalosporins. Whole-genome sequencing of over 80 of the XDR isolates revealed remarkable genetic clonality and sequence conservation, identified a large number of resistance determinants, and showed that these isolates were of haplotype H58. Besides the shortage of antibiotic options, a concerning problem is represented by the ability of XDR clones to spread globally.

In January 2018, the provincial health department began a vaccination campaign in the Hyderabad area, aiming to give about a quarter of a million children in the worst-affected areas the Typbar-TCV vaccine.

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