

Extensively Drug-Resistant *Salmonella Typhi*: A National Disaster

Sir,

A lot of work has been done on extensively drug-resistant *Salmonella typhi*, (XDR *S. Typhi*)¹ however, strict and practical steps are now needed to address this disaster. Not only do we need to formulate national guidelines, but we also need to implement them strictly at all levels. Almost all the children we see with typhoid fever are XDR *S. Typhi*. We need to fight this disaster at multiple levels.

1. First, diagnosing the typhoid fever is challenging. The gold standard is blood or bone marrow culture.² However, in routine practice, most patients with fever are advised widal or typhidot test. This has resulted in over diagnosis of typhoid fever and unnecessary treatment.³ Second, the favourite drugs for typhoid treatment have been fluoroquinolones and third-generation cephalosporins. This irrational use of these drugs has led to drug resistance and the emergence of XDR *S. Typhi*. Third, widal and typhidot tests have been banned as diagnostic tests for typhoid fever in the Army medical set-up. The same should be implemented in all the civilian medical settings. All laboratories, whether civilian or government, should be held responsible for implementing the new guidelines.
2. The only oral drug available for XDR typhoid is azithromycin. However, its use has increased significantly after the COVID-19 pandemic, despite a lack of evidence to support its use for this purpose. This trend must be strictly curbed at the national level.⁴ In our hospital, we only reviewed a one-month record of azithromycin prescriptions and found that up to 50 adults and 34 children had been prescribed azithromycin in a primary care setting. In most of the cases, azithromycin was either prescribed unnecessarily, or when other alternative antibiotics were available. This highlights the need for antibiotic stewardship awareness and implementation.
3. Several effective vaccines are available for typhoid prevention. The effectiveness of these vaccines against drug-resistant typhoid fever has been established. The World Health Organisation recommends typhoid vaccines for children above the age of six months. These vaccines have been tried in multiple countries and have been found to provide

protection against typhoid for three years after the first dose. This is where the lawmakers can play a role. They can include these vaccines in our routine immunisation programme. The Global Alliance for Vaccines and Immunisation (GAVI) has already committed millions of dollars for these vaccine introductions in fund-eligible countries.⁵

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The authors declared no conflict of interest.

AUTHORS' CONTRIBUTION:

SAS: Concept and design and critical review of the manuscript.

SA: Data collection and drafting.

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