

## Correspondence

### Pitfalls of interpreting ciprofloxacin minimum inhibitory concentrations in *Salmonella enterica* serovar Typhi

Sir,

We read with interest the article on emergence of fluoroquinolone resistance in *Salmonella enterica* serovar Typhi in Andaman and Nicobar Islands<sup>1</sup>. As fluoroquinolones are widely used in the empirical therapy of enteric fever, it is important to determine the minimum inhibitory concentrations (MIC) of this group of antimicrobials in an endemic area. However, there were certain points in the article that needed clarification, which we would like to highlight:

(i) CLSI 2007 guidelines have been used though the study was conducted in 2009-2010.

(ii) The Table showed that five out of six isolates had an MIC of 0.25 µg/ml. Based on CLSI guidelines till 2011<sup>2</sup>, MICs of <1 µg/ml have indicated that the organism is susceptible to ciprofloxacin. The 2012 CLSI guidelines have reduced the MIC indicating ciprofloxacin susceptibility to <0.06 µg/ml, probably making most of our strains resistant to ciprofloxacin<sup>3</sup>.

(iii) The authors have interpreted that five isolates of *S. Typhi* with MICs of 0.25 and 1 µg/ml showed intermediate level resistance to ciprofloxacin and norfloxacin, respectively. As per CLSI guidelines (2011) MICs of 2 and 8 µg/ml for ciprofloxacin and norfloxacin, respectively, indicate intermediate resistance. The authors probably implied "reduced susceptibility" to ciprofloxacin based on their molecular data. Nalidixic acid resistance in salmonellae indicates reduced susceptibility to fluoroquinolones (MICs 0.125-1 µg/ml) and may be associated with clinical failure or delayed response in fluoroquinolone treated patients<sup>4</sup>. It should not be confused with intermediate level resistance to fluoroquinolones.

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## References

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