

## Salmonella enterica against commonly prescribed antibiotics, to febrile-pediatric cases, in low-income countries

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**Background:** In most low-income countries, febrile-pediatric-cases are often treated empirically with accessible antibiotics without periodic epidemiological surveillance, susceptibility testing, or minimal lethal dose calculations. With this backdrop, the study was undertaken to evaluate the susceptibility trend of *Salmonella enterica* against the commonly prescribed antibiotics.

**Objective:** To study the susceptibility of salmonella enterica against commonly prescribed antibiotics in febrile – pediatric cases in low income countries.

**Methods:** All isolates of *Salmonella enterica* were identified by standard protocols of biotyping and serotyping, then tested against antibiotics by the modified Kirby disk-diffusion method. Minimum Inhibitory Concentration (MIC) of isolates was determined by the agar-dilution method and compared with disk diffusion results and on nalidixic-acid sensitive/resistant strains.

## ACADEMIC P.E.A.R.L.S

Pediatric Evidence And Research Learning Snippet



### Susceptibility pattern of *Salmonella enterica* in children

**Results:** Among 1815 febrile-pediatric patients, 90(4.9%) isolates of *Salmonella enterica* [serovar: *Salmonella* Typhi 62(68.8%) and *Salmonella* Paratyphi A 28(31.1%)] were recovered. The incidence of infection was higher among males, age groups 5 to 9, and patients enrolling in the out-patient department (OPD). On the disk-diffusion test, most isolates were sensitive against first-line drugs i.e.cephalosporins, and macrolides. However, against quinolones, a huge percentile 93.3%, of isolates were resistant [including 58 Typhiand 26 Paratyphiserovar] while nearly 14% were resistant against fluoroquinolones. When MICs breakpoint were adjusted as follows: 4 µg/ml for azithromycin, ≥1 µg/ml for ciprofloxacin, 2 µg/ml for ofloxacin, 8 µg/ml for nalidixic acid, and 1 µg/ml for cefixime, higher sensitivity and specificity achieved. Compared to other tested antibiotics, a low rate of azithromycin resistance was observed. Nevertheless, higher resistance against fluoroquinolones was observed on NARS strain.

**Conclusions:** Higher susceptibility of *Salmonella enterica* to the conventional anti-typhoidal drugs (amoxicillin, chloramphenicol, cotrimoxazole, cephotaxime) advocates for its reconsideration. Although, the lower susceptibility against fluoroquinolones among nalidixic-acid-resistant *Salmonella* (NARS) strain negates its empirical use among the study age group.

**Key-Message:** Study observes very high rates of fluoroquinolones and nalidixic-acid-resistance, but relatively lower rate to first-line drugs.

### EXPERT COMMENT

**“Fortunately in India, these are still sensitive to first line antibiotics like Cephalosporin and Azithromycin in majority, with need to add additional antibiotic only occasionally. A judicious use of antibiotics can prevent us to go back to chloramphenicol era.”**

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With warm regards,

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