

Epidemiological Characteristics, Seroprevalence, and Antimicrobial Susceptibility Pattern of *Salmonella spp.* Isolated from the Enteric Fever Patients in the Philippines

Authors:

Gonzales, Jeremy Christian N.
Patajo, Daniella T.
Nera, Margauth Marie C.
Boque, Daenah Jenina A.
Gamboa, Angela Lorraine C.
Paredes, Jayson J.

Affiliation of the authors:

University of Santo Tomas, Faculty of Pharmacy, Department of Medical Technology

E-mail address of the author:

jeremychristian.gonzales.pharma@ust.edu.ph

ABSTRACT

Enteric fever has been a global and public health concern for decades. It remains troubling especially in developing countries of Asia. In the Philippines, this infection has yet to be controlled and remains to be underreported. Moreover, alarming cases of antimicrobial resistance by *Salmonella enterica* serovars against multiple lines of drugs have been reported. Thus, the occurrence of multidrug and extensively-drug resistant strains have reduced treatment options. The study aimed to provide an updated Filipino-centric base knowledge and to examine the antimicrobial susceptibility testing (AST) pattern of *Salmonella spp.* from the diagnosed patients. Retrospective and cross-sectional study was performed. Data sets were collected from the Department of Health's Epidemiological Bureau and selected hospitals to determine the (1) prevalence, incidence rate, and demographic analysis and (2) AST pattern, respectively. Prevalence and incidence rates were declining with 30.02% in 2016 to 28.03% in 2021 and 21.65% in 2016 to 4.24% in 2021, respectively. Lowest rates were found during the pandemic in the years 2020 and 2021. There was a significant difference among age groups (p -value = 0.000) while no significant difference was found between males and females (p -value = 0.756). Majority of enteric fever cases were observed among age group 5 to 9 while age group 55 to 59 reported the lowest. Most of the isolates were still sensitive to the drugs tested. However, third generation cephalosporins were ineffective to all clinical isolates while Ampicillin/Sulbactam and Piperacillin remained effective to 50% and 40% of clinical isolates, respectively. Overall, there was a decrease in the antibiotic resistance rates (p -value = 0.000). Majority of the cases were observed among the children and teenagers (<1 to 19) regardless of sex. *S. typhi* accounted for most cases and exhibited higher antibiotic resistance in contrast with *S. paratyphi*. Nevertheless, decreased antibiotic resistance to multiple lines of drugs is promising.

Keywords: Enteric fever, *Salmonella spp.*, *Salmonella typhi*, *Salmonella paratyphi*, Epidemiological characteristics, Seroprevalence, Antimicrobial susceptibility pattern, Antibiotic Resistance, Public health