Incidence of *Salmonella* species Isolation Among Children with Diarrhea Admitted to a Tertiary Paediatric Center in Sri Lanka

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BACKGROUND

Bacterial diarrhea remains a major cause of childhood morbidity in developing countries. Bacterial pathogens such as *Salmonella*, *Shigella*, and *Campylobacter* species contribute significantly to moderate-to-severe diarrhea.

This study aims to determine the incidence of common bacterial enteropathogens and their antimicrobial susceptibility among pediatric patients with diarrhea.

METHODS

A descriptive cross-sectional study was conducted among 384 children admitted with diarrhea. Stool microscopy, culture and ABST were performed according to standard microbiological techniques. Sociodemographic data were collected via a structured questionnaire. Sequencing of bacterial isolates was done by ONT technology using MinION MK 1D platform.



OBJECTIVES

- The general objective of the current study was to determine the Incidence of *Salmonella* spp. as pathogens in children presenting with diarrhea admitted to lady Ridgeway Hospital for Children (LRH), Sri Lanka.
- To determine the antimicrobial susceptibility patterns of *Salmonella* species for selected antimicrobials.
- Sequencing of bacterial isolates by ONT technology using MinION MK 1D platform.

RESULTS

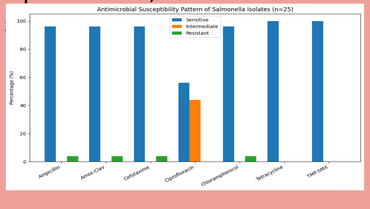
Of 384 samples, 32 (8.33%) were positive for *Salmonella*, *Shigella*, and *Campylobacter* species. *Salmonella* species were the most predominant (6.5% of total samples; 78.12% of positive isolates), followed by *Campylobacter* (1.04%; 12.5%) and *Shigella* (0.78%; 9.3%).

No significant association was observed between culture positivity and gender (p=0.936) or age group (p=0.182). However, a significant association was found with consumption of food prepared outside the home (p=0.011).

Clinical features such as fever, abdominal pain, and vomiting were more common among culture-positive patients. Stool macroscopy and microscopy can be used as powerful clinical predictors of bacterial gastroenteritis. Positive stool microscopy demonstrated a strong association between presence of pus cells/red blood cells with bacterial isolation (p<0.001).

ABST

Regarding antimicrobial resistance, *Salmonella* isolates showed 96% sensitivity to ampicillin, amoxicillin-clavulanate, cefotaxime, chloramphenicol and 100% to both tetracycline and trimethoprim-sulfamethoxazole. Notably, only **56%** of isolates were sensitive to ciprofloxacin, with **44%** showing intermediate



MIC

Ciprofloxacin MIC patterns

Among *Salmonella* isolates (n=25), the MIC distribution was particularly revealing. All isolates had MIC values ≤0.5 µg/mL, with 76% fully susceptible (MIC ≤0.06 µg/mL) and 24% showing intermediate susceptibility (MIC 0.12-0.5 µg/mL). No *Salmonella* isolates had MIC ≥1 µg/mL.

Colistin MIC patterns

All 25 Salmonella isolates tested for colistin demonstrated full susceptibility, with no intermediate or resistant isolates detected.

Of the 17 *Salmonella* isolates sequenced, 14 passed quality control.

CONCLUSION

Salmonella was the leading bacterial pathogen in the pediatric population. Although most isolates showed good susceptibility to commonly used empiric antibiotics, emerging resistance, particularly to ciprofloxacin highlights the importance of continuous antimicrobial surveillance and rational antibiotic use in resource-limited settings.