

Antimicrobial Susceptibilities of *Salmonella* and *Shigella* species isolates in stool culture in British Columbia, Canada, 2020-2023

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INTRODUCTION & AIM

- Hospital microbiology laboratories do not routinely allow for testing for community gastrointestinal stool pathogens in hospitalized patients who develop diarrhea after day 3 of hospitalization.
- In contrast, community microbiology laboratories routinely collect data on gastrointestinal stool pathogens, including their antimicrobial susceptibility profiles.
- To assist community antimicrobial stewardship, the current study aimed to summarize the susceptibilities of *Salmonella* and *Shigella* isolates in stool cultures performed in regional community microbiology laboratories in British Columbia (BC), Canada.

METHOD

- LifeLabs BC microbiology laboratories, connected with 129 collection centres in urban and rural communities in the province, provided the laboratory data for the *Salmonella* and *Shigella* species that were isolated in stool cultures.
- An audit was conducted from January 1, 2020 to December 31, 2023.
- The VITEK 2 System was used for antimicrobial susceptibility testing as per the manufacturer’s manual instructions, which had been previously validated with the Clinical Laboratory Standard Institute (CLSI) approved methods.
- The clinical breakpoints for interpretation of susceptible, intermediate, and resistant results were from the CLSI M100 Performance Standards for Antimicrobial Susceptibility Testing.
- Data were collated using the guidance from the CLSI Analysis and Presentation of Cumulative Antimicrobial Susceptibility Test Data.

RESULTS & DISCUSSION

Table 1: Antimicrobial Susceptibilities of *Salmonella* and *Shigella* species isolates in stool culture in British Columbia, Canada, 2020-2023

ORGANISM	Ampicillin	Trimethoprim-Sulfamethoxazole	Ciprofloxacin	Azithromycin	Ceftriaxone
<i>Salmonella</i> Paratyphi A, % susceptible	100	100	0	100	100
n =	6	10	8	6	11
<i>Salmonella</i> Typhi, % susceptible	100	100	0	100	100
n =	2	9	7	8	9
Other <i>Salmonella</i> species, % susceptible	91	94	89	0	98
n =	318	273	303	1	318
<i>Shigella boydii</i> , % susceptible	36	62	36	71	86
n =	14	13	11	7	14
<i>Shigella dysenteriae</i> , % susceptible	0	0	0	0	50
n =	2	2	1	1	2
<i>Shigella flexneri</i> , % susceptible	5	22	27	40	92
n =	95	87	92	45	95
<i>Shigella sonnei</i> , % susceptible	27	1	15	20	91
n =	131	122	125	59	131

(Results could be skewed for antimicrobial susceptibility results with <30 isolates.)

CONCLUSION

- *Salmonella* Paratyphi A and *Salmonella* Typhi isolates in stool were universally susceptible to ampicillin, trimethoprim-sulfamethoxazole, azithromycin, and ceftriaxone.
- Choosing an oral antimicrobial agent for *Shigella* species is a challenge, as the sensitivities of oral agents were <50%.
- However, *Shigella boydii*, *Shigella flexneri*, and *Shigella sonnei* were >80% susceptible to intravenous ceftriaxone.

REFERENCES

- Clinical and Laboratory Standards Institute. CLSI M100: Performance Standards for Antimicrobial Susceptibility Testing 34th ed 2024. Available from: <https://clsi.org/standards/products/microbiology/documents/m100> [Last accessed on 2024 Jul 04]
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