

DATE:	2022 July 11
TO:	All Zones: Microbiology, Alberta Precision Laboratories and DynaLife
FROM:	Alberta Precision Laboratories (APL) – Public Health Lab
RE:	Emergence and Spread of Extensively Drug Resistant (XDR)-<i>Shigella sonnei</i>

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Key Message

- Shigellosis is an intestinal infection characterized by diarrhea, fever and stomach cramps within 24-48 hours from exposure to the bacterium *Shigella*. The most common route of infection is the fecal-oral route.
- On June 6th, the Pan American Health Organization published an alert regarding the emergence and spread of extensively drug resistant (XDR) *Shigella sonnei* in Latin America and the Caribbean (1). This is following a report from the World Health Organization of a cluster of XDR *S. sonnei* cases detected between September 2021 and January 2022 in the UK (2). Similar cases have been reported in other European countries between 2020 and 2022 (2).
- On June 22nd, 2022, through PulseNet Canada and the Antimicrobial Resistance and Nosocomial Infections Lab of the National Microbiology Laboratory, 3 cases of XDR *S. sonnei* were reported from Canadian patients based on genome sequencing, two from Ontario and one from Alberta (Edmonton). These cases are genetically linked to the UK cases and were detected between September 2021 and January 2022.
- The XDR strain is resistant to ampicillin, sulphonamides, fluoroquinolones, third generation cephalosporins, azithromycin, trimethoprim/sulfamethoxazole, tetracycline and streptomycin.
- Direct, person-to-person contact, primarily sexual contact between men who have sex with men has been the most common mode of transmission reported for the XDR *S. sonnei* strain.

Why this is important

- XDR-*S. sonnei* is resistant to the antibiotics normally used to treat *S. sonnei* infection including ciprofloxacin, ceftriaxone and azithromycin. Therefore, treatment can be challenging. Susceptibility testing to agents beyond the routine antimicrobial susceptibility testing panel may be necessary.
- Early detection of XDR *S. sonnei* can limit the transmission and spread of the organism and its antibiotic resistance determinants in the community.

Action Required

- We ask frontline laboratories to flag (on the requisition) any *Shigella sonnei* isolates resistant to all routinely reported antimicrobials when submitting for typing to APL-Public Health Laboratory.
- Isolates will continue to be typed and sequenced per routine processes.

Inquiries and feedback may be directed to

- Dr. Linda Chui, Program Leader, Public Health Laboratory, linda.chui@albertaprecisionlabs.ca
- Dr. Tanis Dingle, Clinical Microbiologist, Public Health Laboratory, tanis.dingle@albertaprecisionlabs.ca

This bulletin has been reviewed and approved by

- Dr. Graham Tipples, Medical-Scientific Director, Public Health, APL



References

1. Pan American Health Organization. 2022. Epidemiological Alert: Emergence and spread of *Shigella sonnei* with extreme resistance to antibiotics. Potential risk for Latin America and the Caribbean. Accessed June 27, 2022: <https://www.paho.org/en/documents/epidemiological-alert-emergence-and-spread-shigella-sonnei-extreme-resistance-antibiotics>.
 2. World Health Organization. 2022. Extensively drug resistant *Shigella sonnei* infections – Europe – European Region (EURO). Accessed June 27, 2022: <https://www.who.int/emergencies/disease-outbreak-news/item/2022-DON36>
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