Extended Spectrum Beta Lactamase (ESBLs)

Cause/Epidemiology

ESBLs are bacterial enzymes with the ability to break down a wide range of beta (β)-lactam antimicrobials, including penicillins and extended-spectrum cephalosporins (e.g., ceftriaxone and/or ceftazidime). These enzymes do not have the ability to break down carbapenems. ESBLs may be produced by many different gram-negative bacteria, but are most commonly found in strains of *Escherichia coli* and *Klebsiella pneumoniae*. Strains which produce these enzymes are frequently also resistant to other antimicrobials, including trimethoprim-sulfamethoxazole and fluoroquinolones, as such antimicrobial treatment options may be limited.

After careful and critical review of information gathered from other jurisdictions in Canada who have discontinued measures for ESBL, Manitoba Health, Seniors and Active Living (MHSAL) Antimicrobial-Resistant Working Group recommended discontinuation of all existing ESBL control measures.

This change in provincial direction does not change the way ESBL is managed in the LTC sector; in fact it aligns the practices in acute care more closely with the management of ESBL in LTC and community settings.

Clinical Presentation

Most individuals with ESBLs are colonized, and therefore have no symptoms. Most colonized Residents are asymptomatic and may be a source of transmission to others which can be effectively mitigated with consistent use of Routine Practices.

In most cases, a person’s immune system is able to successfully resist infection with ESBL producing bacteria, so they become colonized rather than infected. However, people who become infected and have weak immune systems are at risk of antimicrobial treatment failure. This includes neonates, children, the elderly, and people with chronic health conditions.
For the few people who develop infection symptoms, presentation will vary depending on the site of infection.

**Transmission**

Transmission occurs by direct contact on hands of healthcare workers and by indirect contact with inanimate objects or environmental surfaces (e.g., lift slings, bedrails). Healthcare workers hands can become transiently colonized while performing care, when removing gloves, or when touching contaminated equipment/surfaces. If health care workers provide care for other Residents without performing hand hygiene, ESBL can be transmitted.

Preventing transmission of ESBL-producing bacteria requires adherence to Routine Practices, with particular attention paid to hand hygiene. **Additional precautions are not required.**

**Infection Prevention and Control Practices**

Follow Routine Practices ([http://www.wrha.mb.ca/extranet/ipc/manuals-ltc.php#RP](http://www.wrha.mb.ca/extranet/ipc/manuals-ltc.php#RP)). Special precautions are no longer required for ESBL. Current evidence shows the presence of ESBL (i.e., colonization) rarely leads to serious infections. ESBL infections can be treated with antibiotics without isolating the person.

**Occupational Health**

Healthcare Worker

- Healthcare workers colonized with ESBL have no modification or work restrictions required
- Healthcare workers with active ESBL infection should follow the advice of their healthcare provider.
References
