MANAGEMENT OF EXTENDED SPECTRUM BETA LACTAMASE (ESBL)

Extended spectrum β-lactamase (ESBL) producing organisms are bacteria that are found in the bowel, urine, blood, skin wounds or sputum. There are several different types of ESBLs, most commonly *Klebsiella pneumonia* and *E. coli*. They produce enzymes that are transmissible to other strains and bacterial species. These enzymes break down beta-lactam antibiotics, rendering them useless. The groups of antibiotics in this category include penicillins, cephalosporins, carbapenems and monobactams.

Persons colonized with ESBLs should be assessed carefully before antibiotics are prescribed. Only those with symptomatic infections should be treated and the advice of an infectious disease specialist should be considered.

Risk factors for acquisition of an ESBL include previous antibiotic use, catheters, length of hospital stay, frail health, and admission to an intensive care unit. The risk of ESBL microbes to the general public is low. Appropriate use of all antibiotics is important to ensure effective treatments are available should the need arise.

1. Screening for ESBLs
   - Routine screening for ESBLs is not recommended
   - Residents returning from an acute care setting who have been identified as being colonized/infected with an ESBL may be screened to determine the continued presence of the organism.

2. Resident Accommodation
   - Single room
   - If this is not possible, then residents colonized with an ESBL should not be placed in the same room with other residents who have poor personal hygiene practices, open skin lesions or invasive devices (e.g. gastrostomy tube, indwelling catheter).

3. Management
   a) Infected Resident
      Consultation with an infectious disease specialist should be considered to determine the most effective treatment for residents infected with an ESBL.
   
   b) Colonized Resident
      The use of antibiotics to clear colonization is not recommended.
Routine infection prevention practices must be reinforced for all personnel providing care to colonized residents.

Additional Precautions for Residents Colonized/Infected with an ESBL

1. Hand Hygiene
   - Hands must be cleaned with soap and water or alcohol based hand rub:
     - after going to the washroom and before eating or preparing food
     - prior to entering and upon leaving the resident’s room/bed space
     - before performing aseptic technique
     - after handling body secretions
     - after handling contaminated equipment/environment
     - and after removing gloves
     - prior to assisting a resident with feeding

2. Protective Apparel
   - Gloves should be worn when providing direct personal care or cleaning the environment. Gloves must be changed and hands cleaned between procedures and between resident contacts.
   - No masks are required
   - Gowns are only required if the environment is grossly contaminated and giving care may result in soiling the clothing of staff and family.

3. Environmental Cleaning
   - Dedicate equipment to the colonized/infected resident (e.g. stethoscope, BP cuff, commode chair, wheelchair, cane, walker, geri chair, dressing supplies, creams/lotions)
   - Any equipment that must be removed from the resident’s room must be disinfected with an appropriate disinfectant before being used with another resident
   - Daily routine cleaning of room with special attention to frequently touched surfaces
   - Routine health care cleaning practices for laundering linens/laundry
   - The room should be thoroughly cleaned when precautions are discontinued or the resident is moved. Cleaning should include routine terminal cleaning plus changing of privacy curtains and string/cloth call bells or light cords.

4. Resident Movement Within the Facility
   - Consideration should be given to maintaining the quality of life for the resident, balanced against the risk of transmission of the organism. The goal is to allow the resident to participate in their daily activities and still minimize the risk of transmission through the use of good infection prevention practices.
Residents who are colonized/infected with an ESBL may leave their room if:
- Continent of bowel and bladder, or
- Incontinent but excretions contained in a leakproof brief, or
- Personal hygiene of resident is good and contamination of the environment is unlikely,

AND
- Resident demonstrates good hand washing prior to leaving the room.
  Confused residents may require a system of regular assisted handwashing using an antibacterial soap and/or alcohol hand rinse.

5. Meals/Group Activities
- Clean the resident’s hands before going to the dining room or group activity
- Use of disposable dishes and cutlery is not required
- Regular dishwashing cycles will clean dishes sufficiently

6. Visitors
- Staff must provide education to the visitor regarding appropriate use of the protective apparel and the importance of good hand hygiene
- All visitors should clean their hands upon entering and leaving the resident’s room.

Recommended Investigations Once ESBL Has Been Identified

The need for further investigation will depend on the likelihood of transmission. Peel Public Health should be consulted regarding the need for further investigation.

Additional Resources:
