

# Infection Control Guidelines

## *Extended Spectrum Beta Lactamase (ESBL)*



**ESBLs** are enzymes that may be produced **by** gram negative bacteria (especially those found in the bowel) – e.g. *Klebsiella* sp. and *E. coli*.

**ESBLs** can **inactivate** certain antibiotics and

**ESBLs** have the ability to transfer their resistance to the other gut flora.

Although **ESBL's** are no more virulent than other organisms, they are capable of causing infections either locally eg. UTI or wound infection; or systemically eg bacteraemia / septicaemia.

### **Transmission**

Transmission is by the faecal – oral route.

ESBLs colonise the bowel of patients, usually without signs of infection. They can then be spread by contact with the hands of health care workers or contaminated items or equipment.

### **Who is at risk?**

- Immunocompromised patients - post transplant and premature babies.
- Inpatients in high risk areas such as ICU and NNU.
- Patients who have had frequent or long term antibiotic therapy, intravascular lines, indwelling urinary catheters or surgical procedures.

Staff are unlikely to become colonised or infected provided they adhere to appropriate hygiene measures.

### **What antibiotics are affected?**

ESBL carrying organisms are resistant to the beta-lactam antibiotics (eg. penicillins and cephalosporins) and may also be resistant to other antibiotics such as aminoglycosides (eg. gentamycin and tobramycin) and quinolones (eg. ciprofloxacin).

Reliably effective antibiotics are the carbapenems (eg. meropenem) and amikacin.

### **Prevention**

The spread of these organisms can be restricted by:

- Admitting a patient to a single room or cohorting colonised or infected patients.
- Avoid placing known ESBL positive patients with surgical patients or patients with central lines.
- Strict **hand hygiene**
- **Standard precautions** including meticulous line management
- Careful **cleaning** of all communal equipment including stethoscopes, X-ray and ultrasound machines must be wiped over with soap and water or alcohol towelettes.
- **Correct** handling of waste and linen.

### **Hand Hygiene**

- Decontaminate hands **before leaving** the patient's room, with aqueous chlorhexidine gluconate 2% (green), or with Microshield Alcohol Gel

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- Hands should **always** be decontaminated **after** glove use.
- Hands should be decontaminated again, **immediately after leaving** the patients room in case of recontamination with the door handle.

### ***Personal Protective Equipment (PPE)***

- Gowns or plastic aprons **should** be worn when assisting with toileting and close patient contact.
- Remove and discard gowns **before** exiting the room.
- A new gown should be used **each** time.
- Non-sterile gloves should be used when changing nappies or assisting with toileting.
- Remove gloves **immediately** after use and discard inside the room.

### ***Room stock and equipment cleaning***

- **Minimal** stock of non-critical items should be stored in the room - Only take in enough stock for **ONE** shift.
- All equipment **must** be decontaminated with a neutral detergent and water upon leaving the room or an alcohol towlette.
- All single use equipment that cannot be cleaned should be discarded on discharge.
- Any items that are left in the room for prolonged periods should be included in the daily clean of the patients' room.
- Feeding bottles should be rinsed and placed directly into the receptacle for return to the Infant Formula Room.

### ***Linen***

- Place all soiled linen directly in a linen bag,
- Do not place soiled linen on the floor, counter tops or bedside table.
- Keep soiled linen away from own clothing and clean linen.
- If the outer surface of a linen bag is contaminated, it should be placed in a second bag outside the room (double bagged) and thereafter be handled in the normal manner.

### ***Waste***

- General waste, i.e. paper towels, should be placed in a black general waste bag.
- Waste that is contaminated with infectious matter or body fluids should be placed into a yellow clinical waste bag.
- If the outer surface of a waste bag is contaminated, it should be placed in a second bag outside the room (double bagged) and thereafter be handled in the normal manner.

### ***Toileting***

- Where nappies are required, families should be given disposable nappy bags and asked to place nappies immediately into the nappy bag.
- No pans or nappies are to remain unattended in the pan room.

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### **Family and Visitors**

- Visitors need to be aware of the need for strict handwashing after contact with patients.
- However they **do not** need to wear gowns unless their clothes are likely to be soiled.
- Visitors **must** wash their hands before and after leaving the room.
- Items can be removed from the patients room (crockery and cutlery etc), but must be immediately cleaned or placed into dishwasher. Items that cannot be cleaned- magazines etc, must be taken home in a bag or disposed of in the room.
- Room items **must not** be placed on communal shelves in the ward without first being cleaned.

### **Screening**

- Routine screening is not required.
- Should screening be required, Infection Control will notify the AUM.

### **Daily Cleaning of Patient's Room**

- The room should be cleaned with warm water and detergent, paying particular attention to all horizontal surfaces, bed rails, door handles, hand basins and taps.
- Cleaning cloths and mop heads used in these rooms should not be used elsewhere and must be laundered after use.

### **Cleaning on discharge**

- Routine terminal cleaning is sufficient for ESBLs
  - Areas to be included are:**
    - All horizontal surfaces or fittings
    - Walls that may have been contaminated
    - Doors
    - Door handles/knobs
    - Mattress, pillows, bedside lockers, over-bed table
    - Bed rails, IV pole
    - Bathroom, toilet, shower, hand basins
    - Call bell, blinds, telephone, remote control for television
    - Monitors, et cetera.
    - Rinse with clean water.
    - Blinds should be cleaned and curtains and drapes should be changed.
    - All re-usable equipment (for example wash bowl, respiratory equipment) should be disinfected in a washer/sanitiser or sterilised prior to re-use for another patient.
    - All single use equipment that cannot be cleaned should be discarded.

### **Transfers**

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### **Internal**

- Inform receiving wards or departments that the patient is infected or colonised.
- Inform the receiving staff of the precautions required.
- Minimise movement around the hospital as appropriate.

### **External**

- Inform Ambulance service if the patient is infected or colonised.
- Inform any receiving hospitals if the patient is infected or colonised.

### **Further Information**

**Multi-Antibiotic Resistant Organisms:** [http://www.rch.org.au/policy\\_rch/index.cfm?doc\\_id=6471](http://www.rch.org.au/policy_rch/index.cfm?doc_id=6471)

**ID Table** [http://www.wch.org.au/infection\\_control/infectious/index.cfm?doc\\_id=926](http://www.wch.org.au/infection_control/infectious/index.cfm?doc_id=926)

Please contact Infection Control, x55740, for additional information as required.