Control of Extended Spectrum Beta Lactamase (ESBL) Policy

<table>
<thead>
<tr>
<th>Author(s) &amp; Designation</th>
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<tbody>
<tr>
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<td>Mary Lewis, Director of Nursing</td>
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<td>In consultation with</td>
<td>Control of Infection Group</td>
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<td>To be read in association with</td>
<td>Hand Hygiene Policy, Cleaning Policy for Infected Clinical Areas, Isolation Policy</td>
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<td>June 16</td>
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<td>Review date</td>
<td>June 18</td>
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<td>Safe</td>
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<td>NHSLA Risk Management Standard(s):</td>
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If you require this document in a different format, please contact the Governance team on 01275 546831
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1. Introduction and Purpose

The main cause for the spread of resistant organisms including Meticillin Resistant Staphylococcus aureus (MRSA), *Clostridium difficile*, Vancomycin Resistant *Enterococci* (VRE) and Extended Spectrum Beta Lactamase (ESBLs) is poor hand hygiene. Isolation is also an important aspect of the control of these organisms; however it is becoming apparent that the control of certain broad spectrum antibiotics is also crucial. The reduction of cephalosporin and quinolone usage to a minimum can now be regarded as a cornerstone for the control of all these resistant organisms. These agents should only be used in situations where the clinical benefit outweighs the risk associated with their use.

ESBLs are increasingly being seen in hospitals and the community, in patients who have not had medical contact. The main factor appears to be residential care.

The purpose of this policy is to guide North Somerset Community Partnership (NSCP) employees in the management of patients with ESBLs and minimise the spread of these organisms within the organisation.

2. Definitions

**Beta-Lactams** – are a group of antibiotics that include penicillins and cephalosporins

**Beta-Lactamase** – is an enzyme produced by an organism that breaks down beta-lactams

**Third Generation Cephalosporins** – include cefotaxime, ceftazidime and ceftriaxone.

3. Roles and Responsibilities

**Infection Control Doctor (ICD) / Microbiologist**
- To phone preliminary results to the Infection Prevention and Control (IPC) team at the Acute Trusts who then inform staff at North Somerset Community Hospital.
- To advise medical staff/GP’s on treatment of ESBL infections in the Community.

**Infection Prevention & Control Team (IP&CT)**
- To advise ward staff/community staff on nursing management and location of patients with known ESBL
- To investigate potential outbreaks and take appropriate action with the ward team.

**Ward Staff**
- To inform patients with known ESBL and isolate as appropriate.
- To ensure toilets / commodes are cleaned after each use.
To ensure appropriate Personal Protective Equipment (PPE) and hand hygiene measures are taken when nursing patients with ESBL infection

**CQC Registered Managers** are responsible for ensuring that people are cared for safely and with acceptable standards of care. They are legally responsible for ensuring that national standards for safety and quality are met. They are also responsible for any notifications to the CQC.

**Locality Leaders** have an overall responsibility for their area and for ensuring that all staff, guided by line managers, adheres to the correct procedure and process.

### 4. Executive Summary

Extended Spectrum Beta-Lactamase producing coliforms (ESBL) are resistant to the actions of all cephalosporins, and to penicillin/beta lactamase combinations such as Augmentin and Tazocin. They are usually susceptible to carbapenems such as menepepenem; and they are variably sensitive to nitrofurantoin (suitable for uncomplicated urinary tract infections (UTI) only), ciprofloxacin, gentamicin and trimethoprim.

Patients may be colonised or infected: the commonest site of colonisation is the gastrointestinal tract. Routine screening is not necessary, and there are no recommendations for decolonisation. Patients who have an ESBL should probably be regarded as ESBL positive for one year since last positive isolate for the purpose of empirical antibiotic treatment and isolation.

Specific infection control measures include:

- **Hand decontamination** after patient contact: both alcohol gel and hand washing with soap and water are equally effective.
- **Isolation**: Refer to isolation policy
- **Environment cleaning**: daily using a chlorine-based disinfectant cleaning product e.g. Actichlor Plus® in a hospital setting. When the patient is discharged the room must be terminally cleaned. Refer to the cleaning policy for infected clinical areas.

### 5 ESBLs Classification

Extended-spectrum beta-lactamase producing coliforms (ESBLs) are Gram-negative organisms that produce an enzyme (Beta-lactamase), which renders the organism resistant to all cephalosporins and (for clinical purposes) penicillin/beta-lactamase inhibitor combinations such as Augmentin and Tazocin.
6  Spread

The ESBL is introduced into the gut flora via the faecal-oral route and establishes itself in small numbers as a result of a break down in infection control measures within the hospital or community. Selective antibiotic pressure leads to greatly increased colonization of the patient’s bowel and skin with a risk of subsequent infection. Faecal colonization may play a critical role in facilitating spread. Outbreaks associated with procedures, e.g. catheterization, and contamination of medical devices have also been reported.

Secondary spread in health care settings can readily occur via the hands of healthcare personnel. Endemic strains may persist in health care settings for years because of patient colonization, environmental contamination, and hand transmission.

Proper infection prevention and control practices are essential to prevent spread and outbreaks of ESBL-producing coliforms. There are few expert recommendations to direct management of these microbes in healthcare settings and this policy will be re-evaluated on a regular basis to incorporate developing best practices.

7  Prevention and Control

Health care workers (both hospital and community based) will undertake practices known to reduce the spread of ESBLs. These fall into two broad groups.

- Good hand hygiene and cleanliness
- A restrictive approach to antibiotic prescribing, especially in the limitation of third generation cephalosporin and quinolone use.

These simple interventions can have a major influence on the impact of ESBLs in healthcare setting.

Appropriate use of antibiotics will greatly reduce the selection pressure for colonisation and infection with ESBLs:

- Antibiotics must be prescribed according to the NSCP Antimicrobial Policy and detailed Antimicrobial Prescribing Guidelines.
- Where there is more than one case on a ward, the prescriber should consider avoiding cephalosporin use altogether in other patients on the ward.
- In an outbreak situation, the IP&CT, a Consultant Medical Microbiologist and the Antimicrobial Pharmacist will suggest interim alternative antibiotic prescribing guidelines on a ward / unit.
8 Hand Hygiene and Environmental Measures

Patient to patient transfer of micro-organisms via the hands of healthcare workers is thought to be the main mode of transmission for ESBLs, although some ESBL outbreaks have been attributed to contaminated medical devices (e.g. ultrasound gel).

Hand hygiene is a simple and effective infection prevention and control intervention. Hand washing with soap and water is effective; however alcohol hand rubs are a quick and accessible alternative when hands are not visibly soiled and are very effective at killing ESBLs when used correctly. Improving hand hygiene compliance will significantly reduce the risk of healthcare associated infections.

Commodes, toilets, wheelchairs, floors, sinks, linen and medical devices may all become contaminated. ESBL producing coliforms survive best in moist environments. Following discharge or transfer, through terminal cleaning of furniture and the room is required. The curtains must also be changed or cleaned.

9 Isolation

Use of Standard Precautions

Duration of Isolation
Isolation (where deemed appropriate) should be continued for all cases of ESBL until the patient is discharged or a patient with a higher infection risk requires isolation. If the patient is in stricter isolation due to the presence of diarrhoea, then they may be moved out of isolation once their symptoms settle, if a patient with a greater need for isolation is on the ward.

Main sites of colonisation/infection
Urine, skin (moist sites), wounds, sputum and faeces

Pathology specimens
Standard precautions required.

Disposal of faeces / urine
Use a side room toilet if possible. Otherwise use a designated commode.

Disposal of clinical waste
Orange clinical waste bags

Cutlery / Crockery
Normal ward issue – machine dish wash on ward or in central kitchen.

Medical equipment
Patients must use designated equipment, which must be cleaned and disinfected on discharge. If unable to designate for the sole use of the patient, then equipment must be
cleaned and disinfected prior to removal. Always ensure that the manufacturer’s instructions are followed.

**Linen**
Use a water-soluble red bag then put into the laundry’s white bag.

**Room cleaning**
Rooms must be cleaned daily using a chlorine-based disinfectant cleaning product e.g. Actichlor Plus®, paying special attention to dust-collecting areas and horizontal surfaces. When the patient is discharged the room must be terminally cleaned.

**Visitors**
Visitors do not need to wear protective clothing but should wash their hands on leaving the room. Alcohol based hand rubs are also effective against ESBL producing coliforms.

### 10 Screening

Screening for ESBLs is not done routinely. The IP&C Team or a Consultant Microbiologists will decide when screening is required. Screening of health care workers (HCW) is not indicated. However staff should be aware that these organisms may cause UTIs in young healthy adults highlighting the importance of personal hygiene following contact with patients in the clinical environment.

### 11 Treatment of ESBL Producing Coli from infections

Asymptomatic patients do not require treatment or those with resolving and very mild symptoms. If treatment is required, discuss with a Consultant Microbiologist. Treatment for any serious infection that may be due to ESBLs should include antibiotics to which the organism is known to be susceptible.

### 12 Decolonisation

No decolonisation protocol is available. There is a lack of evidence to indicate whether patients may naturally become decolonised and in view of the complexity of the resident colonic flora it seems likely that the organism will persist even if at very low levels even once the selective pressure of antibiotics has been removed.
13 Discharge from Hospital

The presence of ESBL must never affect the discharge of the patient to their home or alternative care facilities. However if the patient is for transfer to alternative care facilities then the presence of the ESBL should be communicated to the General Practitioner and the admitting facility in the discharge summary. If the patient is for transfer to another hospital then their IP&C Team must be informed.

14 Outbreaks

If there is an outbreak of ESBLs or any other multidrug resistant bacteria (two or more acquired cases within a ward with the same sensitivity pattern) the Infection control nurses must be informed immediately. The IP&C team will meet to discuss the outbreak and convene an outbreak meeting if required. An outbreak of ESBLs is recognised as a Serious Untoward Incident (SUI) and will be reported as such by the Infection Prevention and Control Team.

15 Audit and Compliance

The effectiveness of this policy will be monitored via existing hand hygiene audits and isolation facilities usage audits.

16 Review

The policy will be reviewed in two years or sooner if there are any major changes

17 References and further reading


18 Appendices
### ESBL
Extended Spectrum Beta-Lactamases (ESBL) and Multi-resistant Gram-Negative Bacteria (MRGNB)

### Information for patients, relatives and carers

#### What are Multiple Antibiotic Resistant Bacteria?

Some Types of bacteria (germs) have developed the ability to be resistant to many commonly used antibiotics. Not only are they antibiotic resistant, but they can also pass on this resistance to other species of bacteria.

The types of bacteria that most commonly develop this ability include: *Escherichia Coli, Klebsiella, Proteus, Pseudomonas, Enterobacter and Acinebacter* species (These bacteria are known as Gram-negative bacilli – GNB).

If these bacteria cause an infection, for example, urinary tract infection, pneumonia or surgical wound infections, they are very difficult to treat as they are resistant to many antibiotics.

**It is important to remember that Multiple Antibiotic Resistant Bacteria usually pose no problems for people who are fit and well, but are a risk to vulnerable patients in hospital and care establishments.**

#### Where are these bacteria found?

These bacteria are commonly found in our gastro-intestinal tract (gut) where they are part of our healthy bacteria. They can also be found in the environment, in water, soil, on healthcare workers’ hands and equipment used in health care settings. These bacteria are often found in faeces or urine specimens.

#### How can these bacteria be passed on?

As the bacteria can be found in the gastrointestinal tract they can be passed to others or in the environment on our hands if hands are not washed after using the toilet.

#### Are there any special precautions?

Residents with multiple drug resistant bacteria should be encouraged to live a normal life without restriction. Often residents do not have symptoms and therefore they do not require treatment. However, we do not want these bacteria spreading to others for whom such bacteria may cause an infection. Therefore the following precautions are required:

- A single room is required if the resident or the resident with whom they share with has an open wound, catheter or drip.
- If applicable a designated commode should be used.

**Are there any special precautions (continued)?**
- The promotion of good hand hygiene by all healthcare workers, the resident and visitors.
- Staff should wear a plastic apron and gloves when providing direct hands-on care and wash their hands or apply alcohol hand gel after an episode of care.
- Staff should ensure that cuts and grazes are covered with a waterproof dressing.

**What treatment is required?**

The majority of people with multi drug resistance bacteria do not have any symptoms and therefore do not require treatment. Only a person that has an active infection will be prescribed antibiotics.

**How can the spread of these bacteria be prevented?**

Hand hygiene is the most important way of preventing the bacteria spreading. Hands should be washed with soap and water or the use of an alcohol hand gel after an episode of care.

- Residents should be encouraged/assisted to wash hands after visiting the toilet and before meals.
- Clothing, towels and bed linen if contaminated with body fluids should be washed separately from other residents’ items in a washing machine on the hottest wash the items will withstand.
- Any body fluid spillages must be dealt with immediately.

**Will the bacteria always be present?**

Since most people do not have symptoms of any multiple antibiotic resistant bacteria and therefore do not require treatment it is difficult to say for sure if the bacteria are still present after a period of time.

If treatment in hospital as an in-patient or out-patient is required in the future, the hospital should be informed that you have had an MRGNB or ESBL in the past.

**Are visitors at risk?**

There are no restrictions on visiting and normal physical contact can be maintained. These bacteria do not usually cause a problem to anyone unless they themselves are ill. However visitors should consider the following:

- If they are visiting other hospital patients or healthcare establishments your visit should be the last of the day.
- Hands should be washed before and after visiting
- Cuts and grazes should be covered with a waterproof dressing.
- Gloves and aprons are not required unless visitors are providing care such as help with washing.

**Further information:**

Contact your GP

**Patient Advise and Liaison Service (PALS)**

PALS will act on your behalf when handling patient and family concerns; they can also help you get support from other local or national agencies. PALS, is a confidential service.

Contact 0800 389 5260.

This fact sheet was based on the factsheet from North Yorkshire and York PCT produced by Sonia Mills in July 2007.
Appendix B  Equality Impact Assessment

Equality Impact Assessment

Section 1: Initial Assessment

<table>
<thead>
<tr>
<th>Policy Author</th>
<th>Date of Assessment</th>
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| Suzanne Golding-Ellis  
Head of Patient Safety & Infection Control | June 2016 |

Title of Policy

Spectrum Beta Lactamase (EBSL) Policy

Is this a new or existing policy?

Existing

1. Briefly describe the aims, objectives and purpose of the Policy / Guidance Document:

The policy aims to guide NSCP employees in the management of patients with ESBLs and minimise the spread of these organisms within the organisation.

2. Who is intended to benefit from the proposed process and in what way?

Staff and patients by providing clear guidelines of how to manage the patient.

3. Who are the main stakeholders in relation to this Policy/Guidance?

Staff, Patients and Visitors

4. Are there concerns that the Policy/Guidance does, or could have, a differential impact due to any of the equality areas? (Y/N – delete as appropriate)

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<td>Sexual orientation</td>
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5. What existing evidence (either presumed or otherwise) do you have for this?

The policy applies indiscriminately to all.

6. Based on the answers given in questions 4 & 5 is there potential for an adverse Impact in this policy/guidance?

No

Please explain: The policy applies indiscriminately to all.

7. Can this adverse impact be justified?

N/A

Please explain:

If you have not identified adverse impact or you can justify the adverse impact, finish here.

If you have identified adverse impact that cannot be justified, please continue to Section 2

**Section 2: Full Impact Assessment**

8. What experts/relevant groups have you approached to explore their views on the issues? Please list the relevant group/experts, how they were consulted and when.

<table>
<thead>
<tr>
<th>Relevant groups/experts</th>
<th>How were the views of these groups obtained?</th>
<th>Date contacted</th>
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9. Please explain in detail the views of these groups/experts on the issues involved:
10. Taking into account the views of the groups/experts and the available evidence, what are the risks associated with the policy, weighed against the benefits of the policy if it were to stay as it is:

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<thead>
<tr>
<th>Risks</th>
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If you have found that the risks outweigh the benefits you need to review the policy further and put together an implementation plan which clearly sets out any actions you have identified as a result of undertaking the EIA. These may include actions that need to be carried out before the EIA can be completed or longer-term actions that will be carried out as part of the policy or development.

11. Monitoring arrangements and scheduled date to review the policy and Equality Impact Assessment:

<table>
<thead>
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<th>June 2018</th>
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