

## Antimicrobial use

The selection pressure which drives ESBL dissemination has been attributed to the extensive use of extended spectrum cephalosporins, cefotaxime, ceftriaxone and ceftazidime. In addition, prior use of quinolones is a risk factor for infection with quinolone-resistant ESBL-producing organisms. Therefore it is essential that the use of antibiotics is both appropriate and optimal with regard to site of infection, choice of agent, dose and duration of treatment.

**Produced by the DHSSPS Health Protection Team in conjunction with the Hospital Acquired Infection subgroup of the Regional Advisory Committee on Communicable Disease Control.**

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**Further information and copies of this leaflet are available from Hospital Infection Control Teams. It is accessible on the DHSSPS website at <http://www.dhsspsni.gov.uk/index/phealth.htm>**

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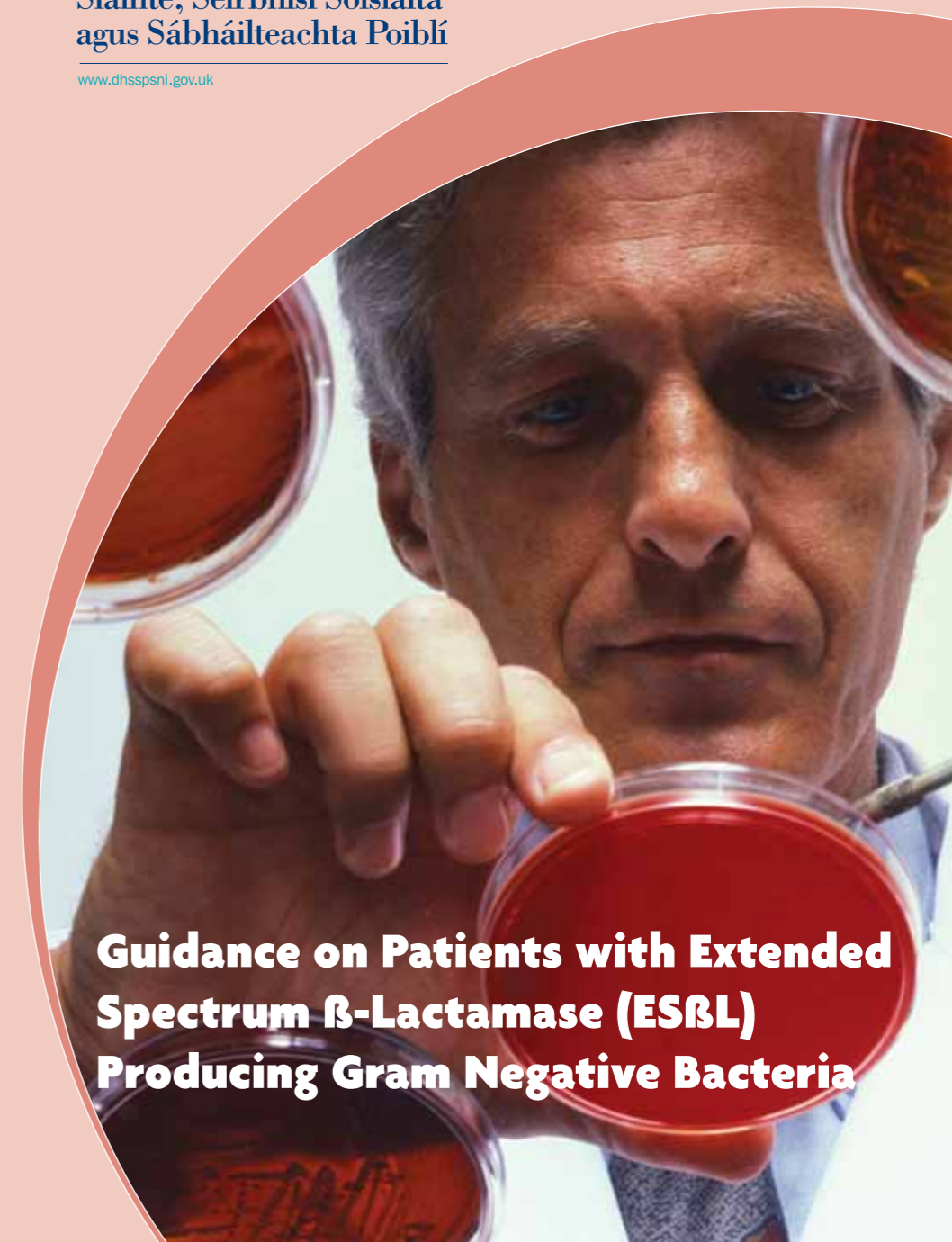
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**Guidance on Patients with Extended  
Spectrum  $\beta$ -Lactamase (ESBL)  
Producing Gram Negative Bacteria**

Extended-spectrum  $\beta$ -lactamases (ESBLs) are a group of heterogeneous enzymes which result in resistance to all penicillins, cephalosporins (except ceftazidime) and aztreonam. They occur mainly in the Enterobacteriaceae and rarely in non-fermenters e.g. *Pseudomonas aeruginosa*.



ESBLs producing gram-negative bacteria are usually carried in the gastro-intestinal tract and are associated with several independent risk factors:

#### **In hospital patients -**

- a) *Prolonged hospital or intensive care unit stay*
- b) *Repeated courses of third generation cephalosporins especially ceftazidime*
- c) *Presence of indwelling devices: central vascular catheters, urinary catheters, biliary drainage catheters, gastrostomy or jejunostomy feeding tubes*
- d) *Intubation and assisted mechanical ventilation*
- e) *Severe underlying diseases*

#### **In patients in the community -**

- a) *Previous use of cephalosporins, penicillins or fluoroquinolones in the community*
- b) *Diabetes mellitus*
- c) *Recurrent urinary tract infection*
- d) *Age over 60 years*
- e) *Males*

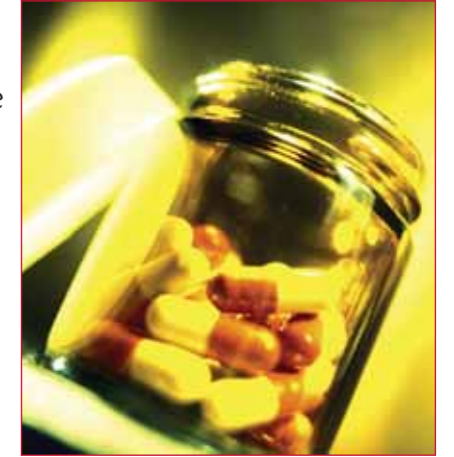
#### **Contact precautions for patients infected or colonised by ESBL-producing organisms**

- Patients' records should be tagged electronically or with stickers.
- Hand disinfection before and after patient contact.
- Gloves and aprons used when delivering direct patient care.
- Decontamination of all patient care equipment after use.
- Patients cared for with contact precautions should be physically segregated in a single room/cohort.
- If the patient is cared for in a general ward, standard and contact infection control precautions should be implemented.
- Single room, cohort or bedspace in a general ward should be cleaned with detergent followed by a disinfectant on a daily basis with a terminal deep clean.
- Limit the movement and



transport of patients to essential purposes only. If transfer is necessary inform the unit/hospital prior to transfer to ensure contact precautions are maintained.

- Provided there is no medical contraindication, the patient can be discharged and the GP informed.
- Local policies for infection laundry and clinical waste should be adhered to.
- There are no specific guidelines for the discontinuation of contact precautions.



#### **Microbiological screening for ESBL-producing gram negative organisms**

- Currently, admission screening for the detection of colonisation (carriage) is not recommended, therefore it is essential that standard infection control precautions be implemented for every patient receiving direct clinical care.
- Microbiological screening for clearance of carriage is not recommended as specific clearance criteria have not been defined.
- A known ESBL positive patient should be screened on re-admission to ascertain their status to facilitate patient placement.