

## **Extended-Spectrum Beta-Lactamase (ESBL) producing *E. coli***

### **What is *E. coli*?**

*E. coli* are very common bacteria that normally live harmlessly in the gut. *E. coli* are also one of the most common bacteria that cause infections in humans. The most common infections caused by *E. coli* are urinary tract (“kidney”) infections (UTIs), which includes cystitis. Most urinary tract infections get better without treatment, or are easily treated with antibiotics. However, these infections can sometimes progress to cause more serious infections such as bloodstream infection which can be life threatening

### **What is ESBL-producing *E. coli*?**

ESBL-producing *E. coli* cause the same types of infections as other strains of *E. coli*. ESBLs (Extended-Spectrum Beta-Lactamases) are enzymes produced by some strains of *E. coli*. That make these bacteria resistant to most beta-lactam antibiotics and so the infections that they cause are harder to treat.

### **Are some people more at risk than others?**

Infections caused by ESBL-producing *E. coli* usually happen in people with other underlying medical conditions who are already very sick, such as patients in intensive care units (ICU), and elderly people. Most infections occur in patients who have been taking antibiotics or who have been previously hospitalised.

### **How do people get it?**

People colonised or infected with ESBL-producing *E. coli* are usually in hospitals, particularly in ICU, and usually have underlying medical conditions (for example, a chronic illness such as diabetes) or who have taken a lot of antibiotics. ESBL-producing *E. coli* can be spread from patient to patient on the hands of healthcare workers or from the hospital environment.

ESBL-producing *E. coli* can sometimes be contracted in the community, possibly through contaminated food or water, but more research is needed to find out how often this happens

### **Is it treatable?**

Yes, infections caused by ESBL-producing *E. coli* can be treated with antibiotics, but the choice of antibiotics is limited because these bacteria are resistant to many commonly-used antibiotics. Therefore it is important that these infections are diagnosed quickly, so that the best treatment can be given

### **How can the spread be controlled?**

Good hand hygiene and environmental cleaning in hospitals reduce the risk of ESBL-producing *E. coli* being spread from patient to patient. It is also important to make sure that antibiotics are prescribed only when needed, in the right dose, for the right duration. Other infection control precautions may be taken when a hospital patient is colonised or infected with ESBL-producing *E. coli*, such as nursing a patient in a single room.

### **Do other bacteria produce ESBLs?**

Yes. ESBLs can be produced by other bacteria, such as *Klebsiella pneumoniae* and *Pseudomonas aeruginosa*. Many of these bacteria tend to be closely associated with hospitals and so generally only cause infections in people with serious underlying medical conditions.