

Fact Sheet: Extended Spectrum Beta-Lactamase (ESBL)-producing Bacteria

WHO	Identify which patients and/or residents <u>have</u> or <u>potentially have</u> ESBL-producing bacteria.	<ul style="list-style-type: none"> ✓ Patients/Residents who have a culture that is positive for an ESBL- producing bacteria or a known history of ESBL-producing bacterial infection/colonization. ✓ Patients/Residents with a known exposure to an ESBL-producing bacterial case. ✓ Patients/Residents who received healthcare in an acute care facility, nursing home, or Skilled Nursing Facility (SNF). ✓ Patients/Residents who recently traveled to a foreign country where ESBL-producing bacteria are common. ✓ Healthy people with a urinary tract infection.
WHAT	Define what additional measures need to be implemented for the actual or suspected cases in addition to hand hygiene, standard precautions, and cleaning/disinfection.	<ul style="list-style-type: none"> ✓ Recommend Contact Precautions for patients in acute care settings. ✓ Recommend Contact or Enhanced Barrier Precautions in nursing homes or SNFs depending on the situation or public health recommendations.
WHEN	Determine when additional infection prevention measures are needed.	<ul style="list-style-type: none"> ✓ Active infection and/or colonization with ESBL-producing bacteria is suspected or confirmed by definition.
WHERE	Decide where patients and/or residents should be housed once they are they are identified as colonized or infected with ESBL-producing bacteria.	<ul style="list-style-type: none"> ✓ A single patient room is preferred to prevent further transmission. In nursing homes or SNFs, single patient rooms are preferred when Contact Precautions are being used. A single person room is not required for Enhanced Barrier Precautions. ✓ If a limited number of single-patient rooms are available, they should be prioritized for people at higher risk of pathogen transmission (e.g., those with uncontained secretions or excretions, acute diarrhea, draining wounds). ✓ Cohort with other patients/residents with ESBL-producing bacteria or create a dedicated ESBL Unit with dedicated staff.
HOW	Establish how long the additional infection prevention measures remain in place for the patients and/or residents.	<ul style="list-style-type: none"> ✓ Contact Precautions apply for the duration of healthcare stay in acute care facilities. In nursing homes, if Contact Precautions are being used, only use for a limited duration and transition to Enhanced Barrier Precautions. ✓ Routine reassessment of colonization is not recommended.

What are ESBL-Producing Bacteria?

Overview

Extended spectrum beta-lactamase (ESBL) producing organisms are a group of bacteria that commonly cause infections both in healthcare settings and communities. They are primarily Enterobacterales such as *Escherichia coli* (*E. coli*) and *Klebsiella pneumoniae*. These organisms produce an enzyme, ESBL, which can break down and destroy commonly used antibiotics such as penicillin and cephalosporins which makes them ineffective in treatment. This resistance means there are fewer antibiotic options, so intravenous therapy with a Carbapenem may be necessary. According to the latest data from the Centers for Disease Control and Prevention (CDC), there were 9,100 deaths among hospitalized patients with an ESBL-producing bacteria.

Transmission and Most Affected Patient Populations

ESBL-producing bacteria can be transmitted in healthcare settings and cause outbreaks. It is spread through direct contact with a patient or resident who has the germ on their body. It can spread indirectly from a contaminated environment or surface. It can also be transmitted via the hands of healthcare workers after contact with a patient or contaminated surface. Outside the United States, they can be ingested through contaminated food and water. The role of food and water in relation to the spread in the U.S. is unclear. Since ESBL-producing bacteria live in the gastrointestinal (GI) tract, it is especially important to clean hands after using the restroom and before handling food. Patients can be colonized with an ESBL-producing bacteria for a prolonged period of time.

Hospital patients and long-term care facility residents are at an increased risk for infection. Unlike other MDROs, ESBL-producing bacteria can also cause infections in otherwise healthy people who have not recently been in a healthcare setting. The most common infection in healthy people is urinary tract infections.

Prevention & Treatment

Standard Precautions plus Contact Precautions are indicated as protocol in acute care facilities. Enhanced Barrier Precautions may be used in nursing homes when Contact Precautions do not apply. Decisions regarding the use of practices to prevent the spread of MDROs, including when to use Enhanced Barrier Precautions or Contact Precautions, can be determined in conjunction with public health. These strategies may differ depending on the prevalence or incidence of the MDRO in the facility and region and the experience of the facility with using Enhanced Barrier Precautions. Surface cleaning and disinfection should be performed at least daily using an EPA-approved disinfectant that is effective against the ESBL-producing bacteria. Clean high-touch surfaces frequently, i.e., twice per day. Dedicate equipment and use disposable items when possible. Clean and disinfect shared medical equipment after each use.

Consult with an infectious disease physician to determine treatment.

References

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