

ESBL-PRODUCING STRAINS OF ENTEROBACTERIACEAE

Explanation of the choice of antimicrobial agents tested and reported for ESBL-producing strains of Enterobacteriaceae:

Question:

When reporting a confirmed clavulanic-based extended spectrum beta-lactamase (ESBL)-producing strain of Klebsiella spp., Escherichia coli or Proteus mirabilis, which of the following antimicrobials would you report as resistant?

Imipenem

Piperacillin-tazobactam

Ampicillin-sulbactam

Cefepime

Aztreonam

Chloramphenicol

All 3rd generation cephalosporins

Discussion:

The following specific information for ESBL-producing strains of Enterobacteriaceae is provided in the Clinical and Laboratory Standards Institute (CLSI) guidelines:

Strains of Klebsiella spp., E. coli, and P. mirabilis that produce ESBLs may be clinically resistant to therapy with penicillins, cephalosporins, or aztreonam, despite apparent in vitro susceptibility to some of these agents.

For all confirmed ESBL-producing strains, the test interpretation should be reported as resistant for all penicillins, cephalosporins, and aztreonam.¹

Answer:

When reporting a confirmed clavulanic-based ESBL-producing strain of Klebsiella spp., Escherichia coli or Proteus mirabilis, report as resistant:

All third-generation cephalosporins, Cefepime, and Aztreonam

Additional References:

CLSI M100-S19 Pg 120, Appendix A, Initial Screen Test.

CLSI M100-S19 Pg 120, Appendix A, Phenotypic Confirmatory Test

CLSI M100-S19 Pg 140, Glossary I

CLSI M07-A8 Pg 29, Extended Spectrum B- Lactamase and Plasmid-Encoded AmpC Enzymes

CLSI M02-A10 Pg 24, Extended Spectrum B- Lactamase and Plasmid-Encoded AmpC Enzymes

¹ CLSI M100-S19 Pg 29, Footnote (i), Footnotes to Table 1