

ECDC EARS-Net survey of clinical laboratories regarding antimicrobial susceptibility testing of WHO AWaRe Reserve antimicrobials for selected Gram-negative pathogens, 2025 EASTR (2025)

This is the English language version of the survey (original version). Translations of this survey into multiple European languages are available from the DTU EARS-Net EQA website, generated automatically using Microsoft Word translator function (Microsoft® Word for Microsoft 365 MSO (Version 2502 Build 16.0.18526.20118) 64-bit).

This is the 'ECDC EARS-Net survey of clinical laboratories regarding antimicrobial susceptibility testing of WHO AWaRe Reserve antimicrobials for selected Gram-negative pathogens, 2025' (EASTR (2025)). It was developed through a collaboration between ECDC and the National Food Institute, Technical University of Denmark (DTU Food), and pilot tested in 2024.

Laboratories are invited to participate in EASTR (2025) if they were invited to participate in an EARS-Net EQA in 2021-2025, i.e. laboratories that have reported, or may report, EARS-Net surveillance data to ECDC, from all 30 EU/EEA countries.

EASTR (2025) collects information regarding the antimicrobial susceptibility testing methods used in clinical laboratories for Gram-negative pathogens included in EARS-Net AMR surveillance. Specifically, it is for the six antibiotics on the Reserve group of the WHO AWaRe classification of antibiotics (2023) that were added to the ECDC AMR reporting protocol and/or to EUCAST clinical breakpoints in 2024. These are ceftazidime-avibactam, cefiderocol, ceftolozane-tazobactam, imipenem-relebactam, meropenem-vaborbactam and aztreonam-avibactam.

The purpose of EASTR (2025) is to collect information to inform the appropriate use of EARS-Net AMR surveillance data for these pathogen-antimicrobial combinations for public health AMR surveillance purposes, and to map the limitations of these data.

In March 2025, earsnet-ega@food.dtu.dk emailed a full description of the scope and objectives of the survey to the EARS-Net EQA contacts in every invited laboratory.

SECTION 1 – LABORATORY INFORMATION

1. Please specify the country where your laboratory is located.
 - (List of EARS-Net countries as single-choice)
2. Please provide the laboratory identification code that was stated in your email invitation for this survey.
This is the same code that can be found in the 2024 EARS-Net EQA individual evaluation reports. (Free text)
3. Please provide your email address.
This may be used by national colleagues if it appears that the laboratory identification code was entered incorrectly. (Free text)
4. Please select a type of laboratory. (Single choice)
 - National reference laboratory (or laboratory with similar functions)
 - Regional reference laboratory (or laboratory with similar functions)

- Local laboratory
5. Please select a laboratory affiliation. Tick all that apply. (*Multiple choice*)
- ☐ Clinical microbiology laboratory (i.e. hospital)
 - ☐ University laboratory
 - ☐ Public health institute laboratory
 - ☐ Independent laboratory
 - ☐ Other: _____
6. What sector does your laboratory cover, primarily? (*Single choice*)
- Public/State
 - Private
 - Public and private
 - Other: _____

SECTION 2 - ANTIMICROBIAL SUSCEPTIBILITY TESTING

1. What system(s) do you use for reporting AST results for public health purposes to (sub-) national authorities? (*Single choice*)
- Only electronic system(s)
 - Only paper-based system(s)
 - Both electronic and paper-based systems
2. Which guidelines were used as the basis for the current standard operating procedure(s) (SOPs) for AST in your laboratory? Tick all that apply. (*Multiple choice*)
- ☐ EUCAST
 - ☐ CLSI
 - ☐ Internal laboratory guidelines
 - ☐ Regional guidelines shared by multiple laboratories
 - ☐ National guidelines shared by most laboratories in the country
 - ☐ Other: _____
3. Do your current SOPs for AST contain specific instructions for Reserve antimicrobials for Gram-negative bacteria?
Consider the Reserve antimicrobials: ceftazidime-avibactam, cefiderocol, ceftolozane-tazobactam, imipenem-relebactam, meropenem-vaborbactam and aztreonam-avibactam.
 (*Single choice*)
- Yes, our current SOPs contain a dedicated section with specific instructions for Reserve antimicrobials for Gram-negative bacteria
 - Yes, but the instructions for Reserve antimicrobials for Gram-negative bacteria are included within a generic section of our current SOPs
 - No, our SOPs do not include specific instructions for Reserve antimicrobials
4. Do you perform AST (for any antimicrobial) for blood samples and/or cerebrospinal fluid samples? (*Single choice*)
- Only blood samples
 - Only cerebrospinal fluid samples
 - Both sample types
 - Neither sample type
 - AST performed on bacterial cultures regardless of sample type
5. Please indicate the combinations of pathogens and antimicrobials for which your laboratory has performed >0 AST tests in 2024. Tick all that apply. (*Multiple choice*)

If you have not performed any of these AST tests, please select “Not applicable” and proceed directly to Question 10.

	<i>Escherichia coli</i>	<i>Klebsiella pneumoniae</i>	<i>Acinetobacter</i> spp.	<i>Pseudomonas aeruginosa</i>
Cefiderocol	☐	☐	☐	☐
Ceftazidime-avibactam	☐	☐	☐	☐
Ceftolozane-tazobactam	☐	☐	☐	☐
Imipenem-relebactam	☐	☐	☐	☐
Meropenem-vaborbactam	☐	☐	☐	☐
Aztreonam-avibactam	☐	☐	☐	☐
Not applicable	☐	☐	☐	☐

6. Please estimate the number of AST tests performed in 2024, for the following species and antimicrobials. (Single choice)

	<i>Escherichia coli</i>	<i>Klebsiella pneumoniae</i>	<i>Acinetobacter</i> spp.	<i>Pseudomonas aeruginosa</i>
Total number of AST tests (all antimicrobials, not only the Reserve antimicrobials)	In each cell the options are: ○ 0 tests ○ 1-20 tests ○ 21-200 tests ○ 201-2000 tests ○ >2000 tests ○ Unknown			
Cefiderocol				
Ceftazidime-avibactam				
Ceftolozane-tazobactam				
Imipenem-relebactam				
Meropenem-vaborbactam				
Aztreonam-avibactam				

6.1. Do the numbers reported in Question 6 include potential duplicate tests (tests performed in the same isolate)? (Single choice)

- The numbers do not include duplicate tests
- The numbers certainly include duplicate tests
- It is probable (but not certain) that the numbers include duplicate tests
- Unknown

7. Please select the methods used in 2024 to perform AST of each pathogen and antimicrobial. Tick all that apply. (Multiple choice)

	<i>Escherichia coli</i>	<i>Klebsiella pneumoniae</i>	<i>Acinetobacter</i> spp.	<i>Pseudomonas aeruginosa</i>
Cefiderocol	In each cell the options are: ☐ Broth microdilution ☐ Broth macrodilution ☐ Disk/tablet diffusion ☐ Gradient test ☐ Automated methods ☐ Other ☐ Not applicable			
Ceftazidime-avibactam				
Ceftolozane-tazobactam				
Imipenem-relebactam				
Meropenem-vaborbactam				
Aztreonam-avibactam				

7.1. If you selected "Other" in the previous question, please specify the 'other' AST method(s) for the relevant pathogen(s) and antimicrobial(s). If available, please provide a relevant hyperlink to further information. (Free text)

	<i>Escherichia coli</i>	<i>Klebsiella pneumoniae</i>	<i>Acinetobacter</i> spp.	<i>Pseudomonas aeruginosa</i>

Cefiderocol				
Ceftazidime-avibactam				
Ceftolozane-tazobactam				
Imipenem-relebactam				
Meropenem-vaborbactam				
Aztreonam-avibactam				

8. Please select the specific AST guideline and interpretative criteria that was followed in 2024 for each pathogen and antimicrobial. Tick all that apply. (*Multiple choice*)

	<i>Escherichia coli</i>	<i>Klebsiella pneumoniae</i>	<i>Acinetobacter</i> spp.	<i>Pseudomonas aeruginosa</i>
Cefiderocol	In each cell the options are: ☐ EUCAST ☐ CLSI ☐ Other ☐ Not applicable			
Ceftazidime-avibactam				
Ceftolozane-tazobactam				
Imipenem-relebactam				
Meropenem-vaborbactam				
Aztreonam-avibactam				

- 8.1. If you selected "Other" in the previous question, please specify the 'other' guidelines, for the relevant pathogen(s) and antimicrobial(s). If available, please provide a relevant hyperlink to further information. (*Free text*)

	<i>Escherichia coli</i>	<i>Klebsiella pneumoniae</i>	<i>Acinetobacter</i> spp.	<i>Pseudomonas aeruginosa</i>
Cefiderocol				
Ceftazidime-avibactam				
Ceftolozane-tazobactam				
Imipenem-relebactam				
Meropenem-vaborbactam				
Aztreonam-avibactam				

- 8.2. If you performed AST using one guideline but used a different guideline for interpretation, please specify which guidelines were used for those purposes, for the relevant pathogen(s) and antimicrobial(s). If available, please provide a relevant hyperlink to further information. (*Free text*)

	<i>Escherichia coli</i>	<i>Klebsiella pneumoniae</i>	<i>Acinetobacter</i> spp.	<i>Pseudomonas aeruginosa</i>
Cefiderocol				
Ceftazidime-avibactam				
Ceftolozane-tazobactam				
Imipenem-relebactam				
Meropenem-vaborbactam				
Aztreonam-avibactam				

9. What are the criteria to select isolates for AST of these Reserve antimicrobials (cefiderocol, ceftazidime-avibactam, ceftolozane-tazobactam, imipenem-relebactam, meropenem-vaborbactam and aztreonam-avibactam)? Tick all that apply. (*Multiple choice*)
- ☐ Not applicable: we do not perform AST for these antimicrobials
 - ☐ All isolates are tested, from all samples
 - ☐ All isolates recovered from blood are tested
 - ☐ All isolates recovered from cerebrospinal fluid are tested

- ☐ Isolates are tested if the patient has a relevant recent travel history
- ☐ Isolates are tested according to routine criteria related to the patient's clinical signs and symptoms
- ☐ Isolates are tested to identify whether they might be part of a suspected outbreak
- ☐ Isolates are tested if phenotypic ESBL or ampC profile were detected in previous AST
- ☐ Isolates are tested if phenotypic carbapenem resistance was detected in previous AST
- ☐ Isolates are tested if ESBL, carbapenemases or ampC overproduction were detected through molecular methods (for example PCR or whole-genome sequencing)
- ☐ Isolates are tested if previous AST revealed phenotypic resistance towards other antimicrobials (for example, colistin)
- ☐ Other: _____

10. What are the AST results used for? Tick all that apply. (*Multiple choice*)

- ☐ Not applicable: we do not perform AST for these antimicrobials
- ☐ Directly used, or reported back to other healthcare providers, to guide antibiotic therapy
- ☐ Directly used, or reported back to other healthcare providers or stakeholders, to support outbreak investigations
- ☐ Used and/or stored for local surveillance purposes
- ☐ Used and/or stored for national surveillance purposes
- ☐ Used and/or stored for international surveillance purposes
- ☐ Other: _____

11. Are the Reserve antimicrobials included in the therapeutic guidelines or Antimicrobial Stewardship Policy in the healthcare facilities served by your laboratory? (*Single choice*)

- ☐ Yes
- ☐ No
- ☐ Unknown

11.1 [Only appears if participant selected "Yes" in previous question.] Please indicate the combination of pathogens and antimicrobials which were included in the therapeutic guidelines or Antimicrobial Stewardship Policy in the healthcare facilities served by your laboratory. Tick all that apply. (*Multiple choice*)

	<i>Escherichia coli</i>	<i>Klebsiella pneumoniae</i>	<i>Acinetobacter</i> spp.	<i>Pseudomonas aeruginosa</i>
Cefiderocol	☐	☐	☐	☐
Ceftazidime-avibactam	☐	☐	☐	☐
Ceftolozane-tazobactam	☐	☐	☐	☐
Imipenem-relebactam	☐	☐	☐	☐
Meropenem-vaborbactam	☐	☐	☐	☐
Aztreonam-avibactam	☐	☐	☐	☐