

The EUCAST system, S-I-R definitions

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N | A | K
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www.eucast.org

- Organization
- Public consultations
- EUCAST News
- Definitions of S, I and R
- Clinical breakpoints and dosing
- Rapid AST in blood cultures
- Expert rules and expected phenotypes
- Resistance mechanisms
- Guidance documents
- SOP
- MIC and zone distributions and ECOFFs
- AST of bacteria
- AST of mycobacteria
- AST of fungi

The European Committee on Antimicrobial Susceptibility Testing – EUCAST

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EUCAST is a standing committee jointly organized by ESCMID, ECDC and European national breakpoint committees. EUCAST was formed in 1997. It has been chaired by Ian Phillips (1997 - 2001), Gunnar Kahlmeter (2001 - 2012), Rafael Canton 2012 - 2016) and Christian Giske (2016 - 2024), Sören Gatermann (2024 -). Its scientific secretary is Derek Brown (1997 - 2016), John Turnidge (2016 - 2023) and Mandy Wootton (2023 -).

The EUCAST webmaster is Gunnar Kahlmeter (2001 -), the clinical data coordinator Rafael Canton (2016-), the technical data coordinator Gunnar Kahlmeter (2012 -), the head of the EDL for bacteria Gunnar Kahlmeter (2010 - 2024) and Erika Matuschek (2024 -), the head of the EDL for fungi Maiken Cavling-Arendrup (2010 -).

EUCAST projects for 2024:

QUICK NAVIGATION

EUCAST News

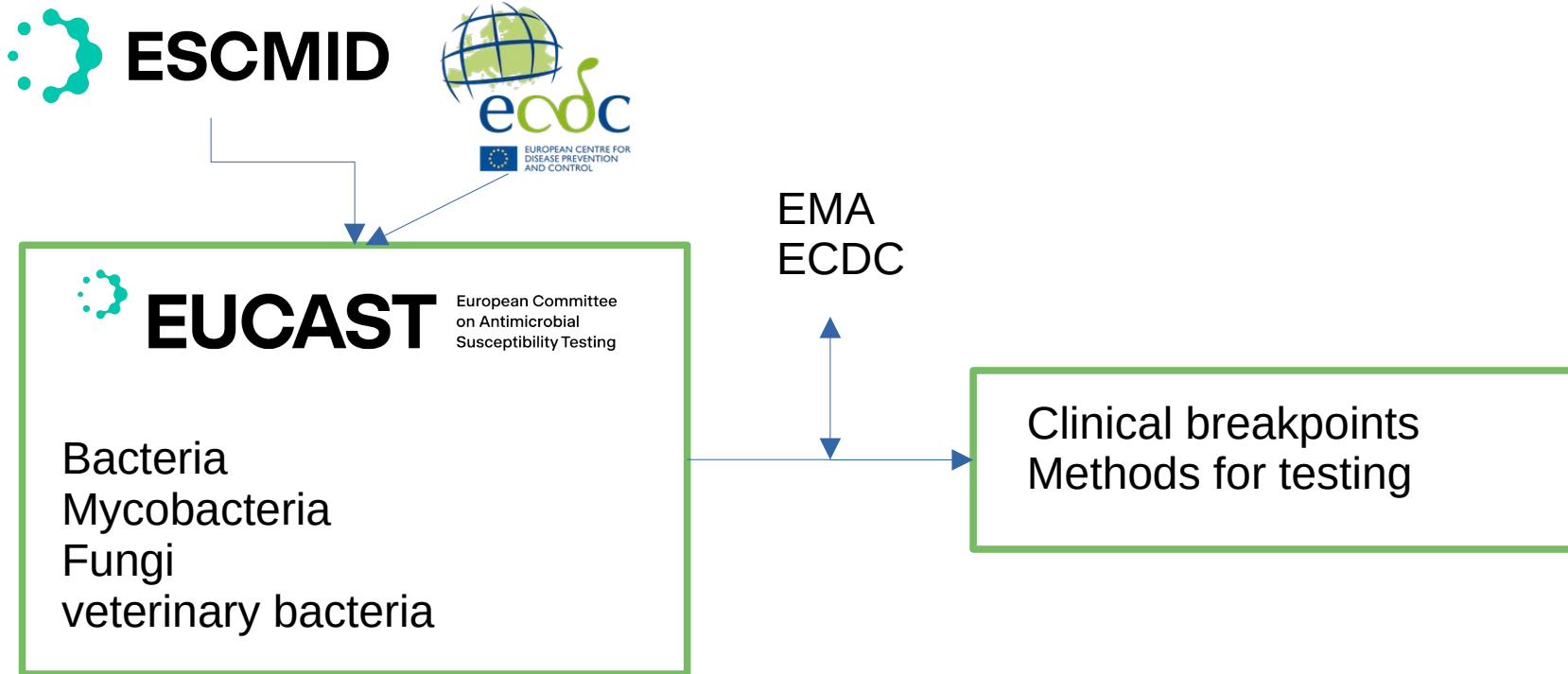
17.07.2024
What agents to test and which to avoid!

17.07.2024
CMI Podcast on EUCAST achievements

15.07.2024
Twenty years with EUCAST AFST

14.07.2024
S, I and R and surveillance of AMR

Remit and organization



Organization



Steering Committee

**EUCAST development
laboratories**

**National Antimicrobial Susceptibility
Testing Committees (NAC)**

represent EUCAST in many countries
your primary address for questions and
suggestions

The EUCAST system

- the main goal: provide scientific basis for therapeutic decisions
 - scientific background
 - drugs, bugs, pharmacokinetics, pharmacodynamics
 - laboratory methods that allow these decisions
 - how to handle situations that are not easily covered by the above

The EUCAST system

- Methods
 - broth microdilution – the reference
 - disk diffusion
 - non-fastidious bacteria
 - RAST
 - anaerobic bacteria
 - methods for fungi
 - methods for mycobacteria
 - QC

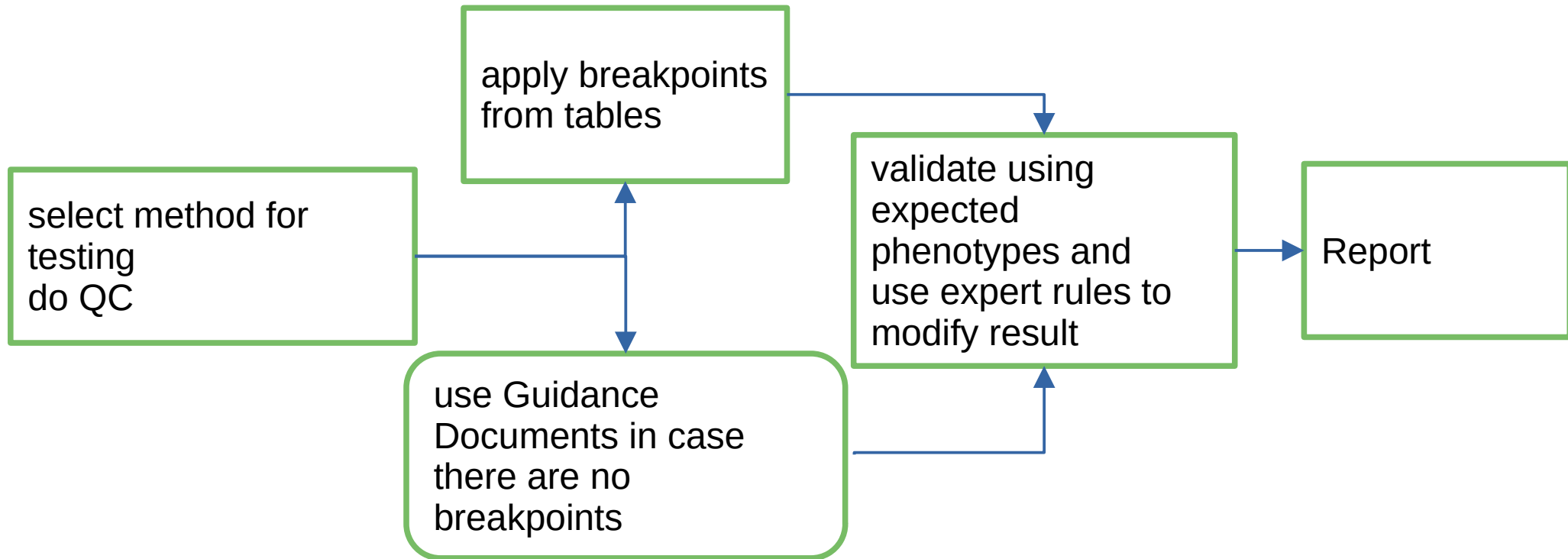
The EUCAST system

- Concepts
 - the Epidemiological Cut-Off Value (ECOFF)
 - the Clinical Breakpoint
 - a “normal” breakpoint
 - bracketed breakpoints
 - the “IE”
 - the dash “–”
 - Expected Phenotypes
 - Expert Rules

The EUCAST system

- Information
 - Rationale Documents
 - Guidance Documents, e. g.
 - When there are no breakpoints
 - How to handle breakpoints in brackets
 - ...
 - Warnings

How to apply the system in practice



Communication of the results the meaning of S-I-R

- S: “susceptible standard dosing regimen”
 - high likelihood of clinical success at standard dosing
- I: “susceptible increased exposure”
 - high likelihood of clinical success at increased exposure (often higher dose)
- R: “resistant”
 - low likelihood of clinical success (high likelihood of failure)

Communication of the results

Pseudomonas aeruginosa

Antibiotic	Result
Piperacillin-Tazobactam	I
Ceftazidime	I
Ceftazidime-Avibactam	S
Imipenem	I
Meropenem	S

Communication of the results

Pseudomonas aeruginosa

Antibiotic	Result	Necessary Dosing
Piperacillin-Tazobactam	I	4.5g x 4, extended infusion (low dose short infusion)
Ceftazidime	I	2g x 3 (low dose is 1g x 3)
Ceftazidime-Avibactam	S	2.5g x 3, extended infusion (no low dose)
Imipenem	I	1g x 4 (0.5g x 4 or 1g x 3)
Meropenem	S	1g x 3 (this is the low dose)

Communication of the results the meaning of S-I-R

- make sure your lab and the clinician understand the meaning of the “I”
- communicate the needed dosages
 - dosages are found in the breakpoint table
- “S” and “I” do both mean “susceptible”
 - dosing differs

Where have the other former meanings of the “I” gone?

- Area of Technical Uncertainty (ATU)

Modifications to the system

- breakpoint decisions are subjected to a public consultation
 - published on the website
 - everybody may comment
 - comments receive answers
- may also be asked at the General Assembly
- may also be asked via your NAC

EUCAST public consultations

Public consultation is part of the EUCAST decision process. The consultation period is 4 - 12 weeks, and the dates of the beginning and end of the period is clearly stated. Comments not entered into the designated document will not be considered ([download form for comments](#)).

