EUCAST EUROPEAN COMMITTEE ON ANTIMICROBIAL SUSCEPTIBILITY TESTING

European Society of Clinical Microbiology and Infectious Diseases

# Nyheter från EUCAST

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QUICK NAVIGATION

# The European Committee on Antimicrobial Susceptibility Testing - EUCAST

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 - ). Its scientific secretary is Derek Brown (1997 - 2016) and John Turnidge (2016 - ). Its webmaster is Gunnar Kahlmeter (2001 - ). From 2016, Rafael Canton is the Clinical Data Co-ordinator and from 2012, Gunnar Kahlmeter is the Technical Data Co-ordinator and Head of the EUCAST Development Laboratory.

Since the very beginning, Johan Mouton, was important to EUCAST in that he was an ardent supporter of European harmonisation and of bringing PKPD to bear on breakpoint setting. Johan died in the evening of Tuesday 9 July, 2019 .The Steering Committee meeting 8 - 9 of July was the only meeting since 2002 to which Johan could not travel. We shall miss Johan for his courage and his passion for getting it right! Some of our memories of Johan are on **the ESCMID website**.

The EUCAST **Development Laboratory for antibacterial agents** is located in Sweden and can be addressed through gunnar.kahlmeter[at]eucast.org or erika.matuschek[at]eucast.org.

## EUCAST News

**18 Oct 2021**
**EUCAST on "intrinsic resistance and unusual phenotypes" updated**

**06 Oct 2021**
**General consultation on colistin breakpoints**

**04 Oct 2021**
**Seminar on EUCAST Disk diffusion of anaerobic bacteria 9 December**

**04 Oct 2021**
**General consultation on breakpoints for anaerobic bacteria**

**30 Sep 2021**
**General consultation on clinical breakpoints for Vibrio species**

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## EUCAST News

- Organization
- Consultations
- EUCAST News
- New definitions of S, I and R
- Clinical breakpoints and dosing
- Rapid AST in blood cultures
- Expert rules and intrinsic resistance
- Resistance mechanisms
- SOPs and Guidance documents
- MIC and zone distributions and ECOFFs
- AST of bacteria
- AST of mycobacteria
- AST of fungi
- AST of veterinary pathogens
- Frequently Asked Questions (FAQ)
- Meetings
- Publications and documents
- Presentations and statistics
- Videos and online seminars
- Warnings!
- Translations
- Information for industry
- Links and Contacts

The European Committee on Antimicrobial Susceptibility Testing – EUCAST

# EUCAST News

Here you can find the latest news and updates from EUCAST.

18 Oct 2021

**EUCAST on "intrinsic resistance and unusual phenotypes" updated**

The EUCAST document Advice on intrinsic resistance and exceptional

06 Oct 2021

**General consultation on colistin breakpoints**

EUCAST is proposing to change colistin breakpoints to breakpoints in

04 Oct 2021

**Seminar on EUCAST Disk diffusion of anaerobic bacteria 9 December**

Disk diffusion of anaerobic bacteria in 16-20 hours (9 December, 2021; at

04 Oct 2021

**General consultation on breakpoints for anaerobic bacteria**

EUCAST general and public consultation on breakpoints for anaerobic

EUCAST News

RSS

RSS 2.0
RDF
ATOM 0.3

EUCAST NEWSLETTER SIGN UP

Email:

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## Publications and documents

- Organization
- Consultations
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- AST of fungi
- AST of veterinary pathogens
- Frequently Asked Questions (FAQ)
- Meetings

**Publications and documents**

- Rationale Documents
- Standard Operation Procedures
- Discussion documents
- **Consultations**
- Publications in journals
- Technical notes
- Posters
- Other Documents
- External documents
- Reports

... Consultations


J Antimicrob Chemother 2015; 70: 2427–2439
doi:10.1093/jac/dkv145 Advance Access publication 18 June 2015

Journal of Antimicrobial Chemotherapy

The 2014 Garrod Lecture: EUCAST – are we heading towards international agreement?

Gunnar Kahlmeter*

# EUCAST Consultations

November 14, 2020

### Current consultations (download form for comments)

Address the form/responses to **Prof John Turnidge** of EUCAST.

- EUCAST has made available the **manual, a reading guide and QC criteria** related to disk diffusion of anaerobic bacteria.
- **Vibrio species - genral consultation on EUCAST clinical breakpoints for five species patho** (1 October - 15 November). Queries on the material can be addressed to G Kahlmeter (gunnar.kahlmeter@eucast.org)
- **Breakpoints for anaerobic bacteria** and supplementary **MIC distributions** (4 October - 15 November, 2021). Queries on the material can be addressed to G Kahlmeter (gunnar.kahlmeter@eucast.org).
  EUCAST has made available the **manual, a reading guide and QC criteria** related to disk diffusion of anaerobic bacteria.
  There will be an online seminar on the new clinical breakpoints for anaerobic bacteria and the new disk diffusion method on the 9th of December, 2021 (8AM, 1PM and 4PM). **More information.**
- **Colistin breakpoints** (6 October - 15 November, 2021). Queries can be addressed to J Turnidge (john.turnidge@eucast.org).

- **Download form for comments**.

### Previous consultations with comments and EUCAST responses:

- **Breakpoint table v. 11.0** (the 2021 table, valid from the 1 January, 2021). Consultation closed 18 December, 2020. **Comments and EUCAST responses** (19 December, 2020)
- **Fosfomycin breakpoints revision**. Consultation closed 30 November, 2020. **Comments and EUCAST response** (15 December, 2020).
- **Fluoroquinolone breakpoint adjustments (Campylobacter, Corynebacteria, Bacillus)**. Consultation closed 31 October, 2020. There were no comments.

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## Rapid AST in bloodcultures



Rapid AST in bloodcultures

### Rapid AST directly from blood culture bottles

January 3, 2021

EUCAST has developed a method for rapid AST (reading at 4, 6 or 8h incubation) directly from positive blood culture bottles (RAST).
Following the initial development, **published in 2019**, a clinical trial in 55 laboratories was performed and **published in 2020**.

These are the essential steps in the RAST method:

RAST – nyheter under 2022

- Brytpunkter för förlängd inkubation - 16, 20, 24 timmar
- Tolkningskriterier för fler antibiotika
- Arter – ingen utvidgning

- identity of species must be known prior to interpretation of AST results.
- the method is validated for the following species.
  - *Escherichia coli*
  - *Klebsiella pneumoniae*
  - *Pseudomonas aeruginosa*
  - *Staphylococcus aureus*
  - *Streptococcus pneumoniae*
  - *Enterococcus faecalis* and *Enterococcus faecium*
  - Acinetobacter baumannii (added 2 May, 2019)

Programvaran för MIC- och Zondistributioner helt omprogrammerad
Tillgänglig från EUCASTs hemsida
Samtliga distributioner kurerade 2021 och 2022.
Nya distributioner för ett flertal antibiotika och flertal arter tillförda

## Antimicrobial wild type distributions of microorganisms

Mic distributions include collated data from multiple sources, geographical areas and time periods an

Search database

# MIC and Inhibition zone diameter distributions of microorganisms without and with phenotypically evident resistance mechanisms

## MIC and inhibition zone diameter distributions

Distributions are shown as "aggregated distributions" and as "aggregated weighted distributions". For aggregated distributions all accepted distributions (as defined in SOP 10) were added to form one common distribution. For aggregated weighted distributions each individual distribution was converted to contribute equally to the common aggregated distribution. In this way large distributions are prevented from drowning out smaller distributions.

### 1. MIC distributions

The website gives MIC distributions for individual micro-organisms (bacteria and fungi) and antimicrobial agents in tables and histograms. The distributions are based on collated data from an increasing total of more than 30 000 MIC distributions from worldwide sources. Unless otherwise specifically stated, the data are representative of results obtained with MIC methods performed by or calibrated to reference broth microdilution using ISO-20776-2. Different methods do not give exactly the same results, but the results rarely vary by more than one doubling dilution step. In this way the aggregated MIC distributions encompass the variation between different investigators, laboratories, geographic locations and time periods.

### 2. Inhibition zone diameter distributions

The website gives inhibition zone diameter distributions for individual organisms and antimicrobial agents in tables and histograms. The distributions are based on collated data from an increasing number of sources worldwide. The data are representative of results obtained with the EUCAST disk diffusion method (launched in 2009 - see www.eucast.org).

## Clinical MIC and Zone diameter breakpoints

These are not shown on this website – please consult the EUCAST breakpoint tables for bacteria and fungi on www.eucast.org.

## Epidemiological cut-off values (ECOFF) and tentative epidemiological cut-off values (TECOFF)

ECOFFs (and TECOFFs) distinguish microorganisms without (wild type) and with phenotypically detectable acquired resistance mechanisms (non-wild type) to the agent in question. The epidemiological cut-off value is shown in the tables and the bottom left-hand corner of each MIC and zone diameter graph. TECOFFs (ECOFFs in parentheses) are based on 3 or 4 distributions and ECOFFs on at least 5 and up to 100 or more distributions.

## Limitations

The database is being curated in accordance with EUCAST SOP 10.

# Antimicrobial wild type distributions of microorganisms

Mic distributions include collated data from multiple sources, geographical areas and time periods and can never be used to infer rates of resistance

Search for ANTIMICROBIAL or SPECIES

## Search database

**Method** ◉ **MIC** ○ **Disk diffusion**

**Antimicrobial**

Antimicrobial ...

**Species**

Species...

## Search database

**Method** ◉ MIC ○ Disk diffusion

**Antimicrobial**

Gentamicin

**Species**

Species...

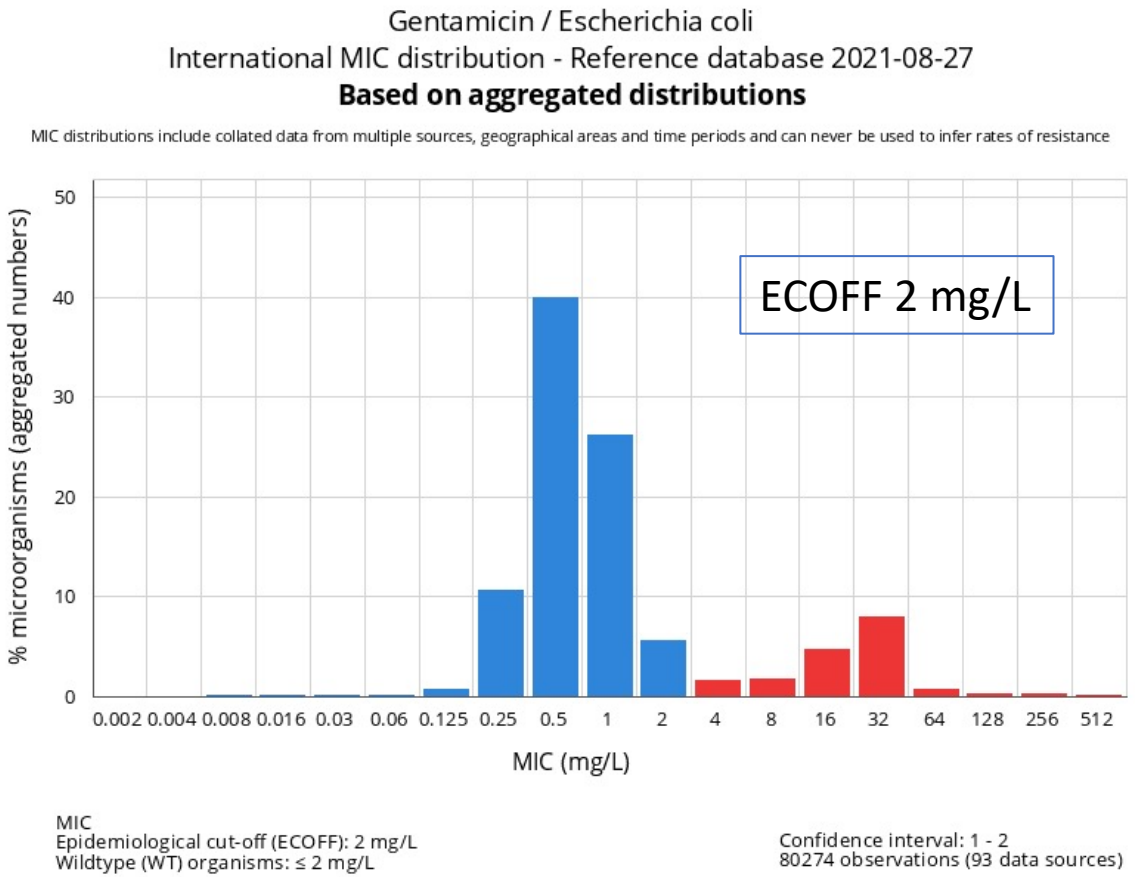
**Elements per page** 50

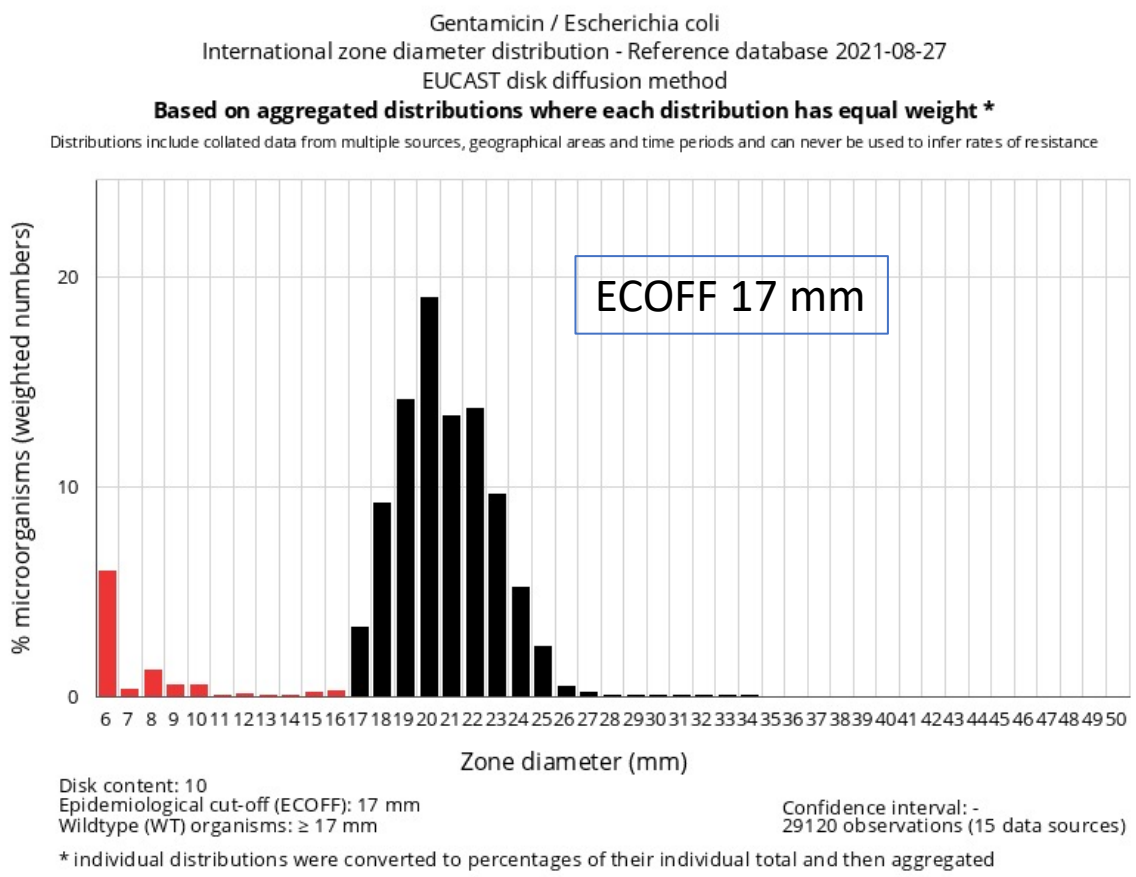
### MIC distributions for Gentamicin, 2021-10-22

**Antimicrobial: Gentamicin (Method: MIC)**

| | 0.002 | 0.004 | 0.008 | 0.016 | 0.03 | 0.06 | 0.125 | 0.25 | 0.5 | 1 | 2 | 4 | 8 | 16 | 32 | 64 | 128 | 256 | 512 | Distributions | Observations | (T)ECOFF | Confidence interval |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Achromobacter xylosoxidans | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 17 | 73 | 0 | 0 | 0 | 0 | 1 | 92 | - | |
| Acinetobacter anitratus | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 29 | 37 | 25 | 7 | 5 | 7 | 0 | 0 | 0 | 0 | 0 | 1 | 116 | ID | |
| Acinetobacter baumannii | 0 | 0 | 0 | 0 | 0 | 6 | 21 | 226 | 607 | 451 | 150 | 79 | 48 | 80 | 38 | 73 | 36 | 107 | 7 | 22 | 1929 | 2 | 1 - 4 |
| Acinetobacter calcoaceticus | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 21 | 30 | 18 | 15 | 13 | 7 | 0 | 0 | 0 | 0 | 0 | 1 | 110 | ID | |
| Actinobaculum schaalii | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 9 | 22 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 48 | ID | |
| Alcaligenes faecalis | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 20 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 23 | ID | |
| Bifidobacterium longum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 8 | 15 | 21 | 9 | 5 | 1 | 1 | 1 | 62 | ID | |
| Campylobacter coli | 0 | 0 | 0 | 0 | 4 | 38 | 160 | 1550 | 4160 | 1911 | 175 | 4 | 2 | 1 | 5 | 99 | 0 | 0 | 0 | 50 | 8109 | 1 | 0.5 - 2 |
| Campylobacter jejuni | 0 | 0 | 0 | 2 | 33 | 141 | 1688 | 6829 | 14541 | 2346 | 108 | 12 | 5 | 0 | 5 | 62 | 0 | 0 | 1 | 41 | 25773 | 1 | 0.5 - 2 |
| Citrobacter freundii | 0 | 0 | 0 | 1 | 0 | 0 | 17 | 269 | 798 | 363 | 56 | 36 | 37 | 93 | 15 | 55 | 1 | 0 | 32 | 7 | 1773 | 2 | 1 - 4 |
| Citrobacter koseri | 0 | 0 | 0 | 0 | 0 | 2 | 8 | 42 | 145 | 58 | 12 | 2 | 3 | 1 | 1 | 0 | 1 | 0 | 0 | 3 | 275 | (2) | 0.5 - 4 |
| Enterobacter agglomerans | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 43 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 54 | ID | |
| Enterobacter cloacae | 1 | 0 | 1 | 3 | 26 | 125 | 324 | 1202 | 3647 | 1384 | 160 | 87 | 124 | 92 | 19 | 103 | 50 | 52 | 60 | 38 | 7460 | 2 | 0.25 - 2 |
| Enterococcus faecalis | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 7 | 18 | 37 | 73 | 156 | 880 | 1761 | 704 | 61 | 57 | 69 | 686 | 25 | 4513 | 64 | 32 - 128 |
| Enterococcus faecium | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 14 | 83 | 555 | 1147 | 575 | 93 | 13 | 11 | 46 | 320 | 24 | 2863 | 32 | 16 - 64 |
| | 0.002 | 0.004 | 0.008 | 0.016 | 0.03 | 0.06 | 0.125 | 0.25 | 0.5 | 1 | 2 | 4 | 8 | 16 | 32 | 64 | 128 | 256 | 512 | Distributions | Observations | (T)ECOFF | Confidence interval |
| Enterococcus hirae | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 50 | 98 | 234 | 151 | 28 | 0 | 0 | 0 | 2 | 8 | 568 | 32 | 4 - 32 |
| Escherichia coli | 0 | 0 | 4 | 6 | 26 | 49 | 525 | 8521 | 32063 | 21068 | 4423 | 1213 | 1399 | 3728 | 6362 | 512 | 138 | 167 | 70 | 93 | 80274 | 2 | 1 - 2 |

# The EUCAST MIC and Zone distribution database



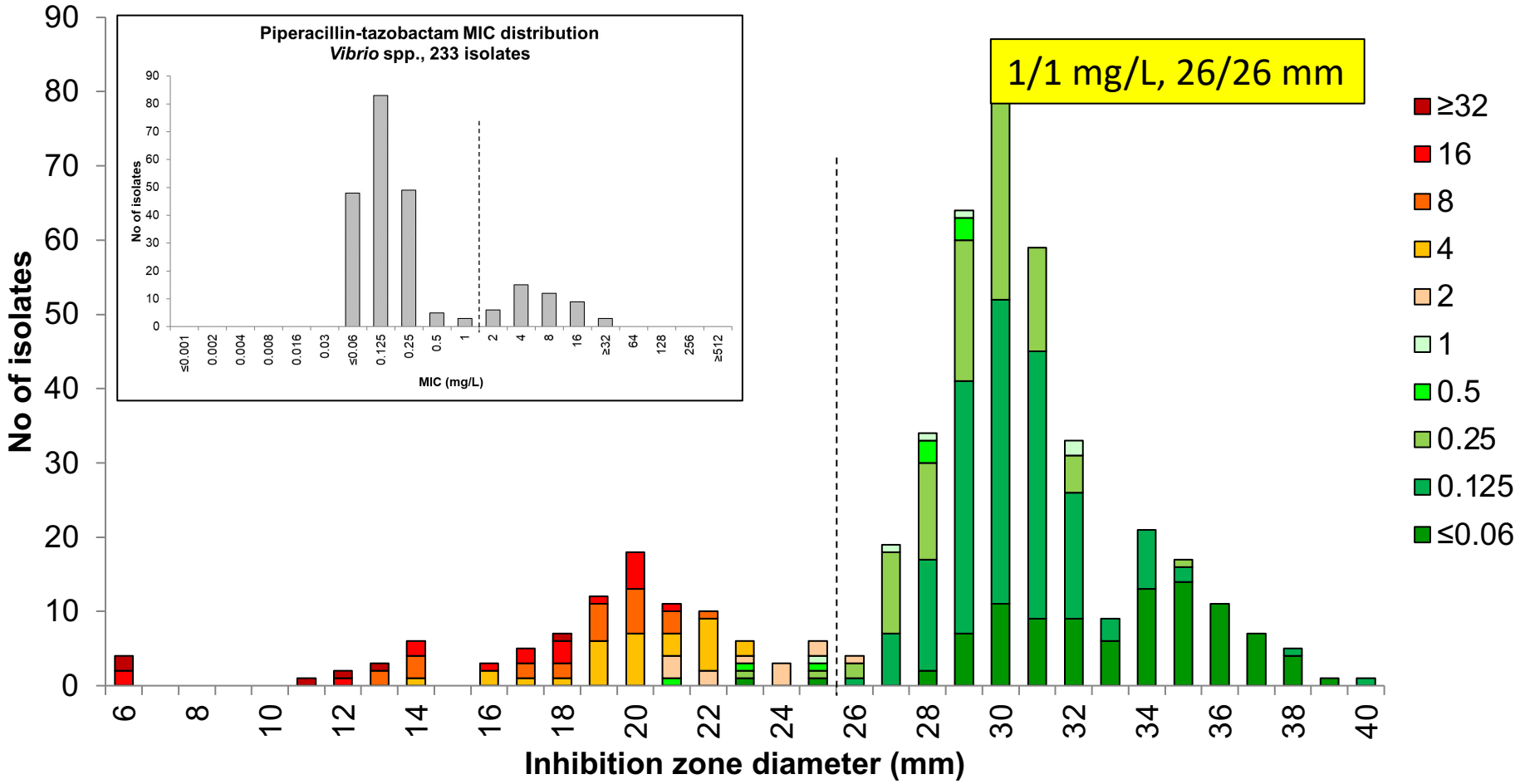




Available at www.eucast.org

# EUCAST projekt

- New agents
  - Cefiderocol, tedizolid, delafloxacin
  - Betalactam betalactamase inhibitor agents and methods (meropenem-vaborbactam, imipenem-relebactam, ….)
    - Disk diffusion för meropenem-vaborbactam i brytpunktstabell version 12.0 (2022)
- Species, methods and breakpoints
  - *Achromobacter xylosoxidans*
  - *Vibrio cholerae, V. parahemoyticus, V. vulnificus, V. alginolyticus, V. fluvialis.*
  - Revised **breakpoints** and new **disk diffusion** methodology for Anaerobic bacteria –
    - FAA, 16-20h, 5 fast-growing anaerobic bacteria (*Bacteroides spp, Prevotella, F.necrophorum, Cl.perfringens, Cut.acnes*).
  - Nocardia spp (in collaboration with France and Australia) – breakpoints and methods during 2022/23

# Piperacillin-tazobactam 30-6 µg vs. MIC
# *Vibrio* spp., 233 isolates, 466 correlates



# Anaerobic bacteria



**For species not listed below, see EUCAST Guidance document on how to test and interpret results when there are no breakpoints**
**Expert Rules and Intrinsic Resistance Tables**

**MIC determination (agar dilution)**
**Medium:** Fastidious Anaerobe Agar (FAA)
**Inoculum:** $10^5$ CFU/spot
**Incubation**: Anaerobic environment, 35-37ºC, 48h
**Reading:** Unless otherwise stated, read MICs at the lowest concentration of the agent where a noticeable difference is seen in visible growth between the test and control plate.
**Quality control:** *Bacteroides fragilis* ATCC 25285 and *Clostridium perfringens* ATCC 13124.
*Clostridium perfringens* DSM 25589 with a metronidazole 5 µg disk to monitor the anaerobic atmosphere.

**Disk diffusion (EUCAST standardised disk diffusion method)**
**Medium:** Fastidious Anaerobe Agar (FAA). The plates should be dried prior to inoculation (at 20-25°C overnight or at 35°C, with the lid removed, for 15 min).
**Inoculum:** McFarland 1.0
**Incubation:** Anaerobic environment, 35-37ºC, 18±2h
**Reading:** Unless otherwise stated, read zone edges as the point showing no growth viewed from the front of the plate with the lid removed and with reflected light. **See pictures below and the EUCAST Reading Guide for disk duffsion of anaerobic bacteria for further information.**
**Quality control:** *Bacteroides fragilis* ATCC 25285 and *Clostridium perfringens* ATCC 13124.
*Clostridium perfringens* DSM 25589 with a metronidazole 5 µg disk to monitor the anaerobic atmosphere.

## *Bacteroides* spp.

| Antimicrobial agent | MIC breakpoints (mg/L) | | | Disk content (µg) | Zone diameter breakpoints (mm) | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | S ≤ | R > | ATU | | S ≥ | R < | ATU | Numbered notes relate to general comments and/or MIC breakpoints. Lettered notes relate to the disk diffusion method. |
| Piperacillin-tazobactam | 8[1] | 8[1] | | 30-6 | 20 | 20 | | **1.** For susceptibility testing purposes, the concentration of tazobactam is fixed at 4 mg/L. |
| Piperacillin-tazobactam, *B. thetaiotaomicron* | IE | IE | | | IE | IE | | **2/A.** The meropenem zone diameter breakpoint will detect all *cfiA* gene mediated carbapenem resistance in *Bacteroides fragilis.* Some isolates with an MIC of 1 mg/L may harbour the *cfiA* gene. |
| Meropenem | 1[2] | 1[2] | | 10 | 28[A] | 28[A] | | **3/B.** For explanation of breakpoints in brackets, see the Notes sheet at the beginning of the table. |
| Clindamycin | (4)[3] | (4)[3] | | 2 | (10)[B,C] | (10)[B,C] | | |
| Metronidazole | 4 | 4 | | 5 | 25 | 25 | | **C.** Examine zones carefully for colonies within zones. Colonies should be taken into account when reading. |

## *Prevotella* spp.

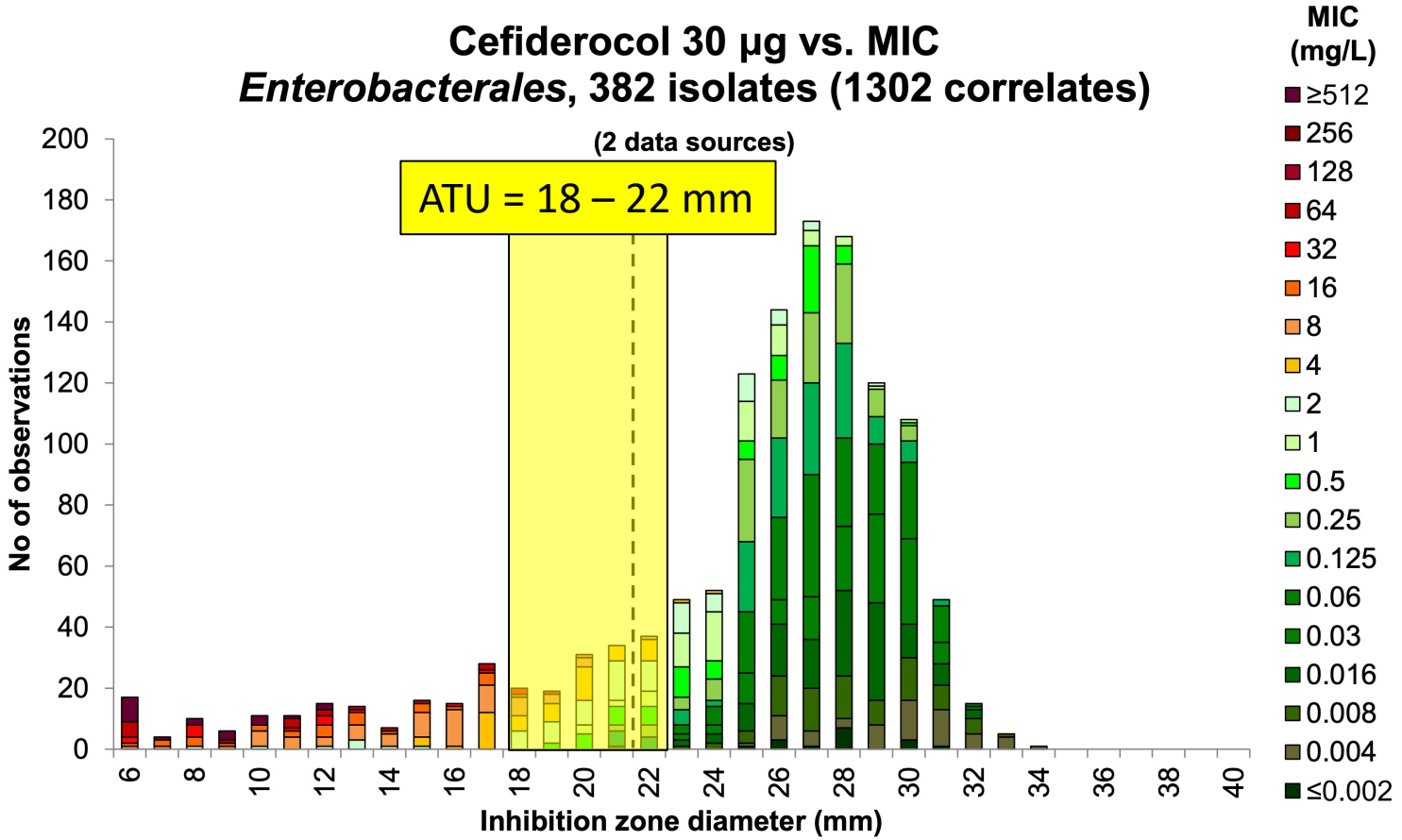
| Antimicrobial agent | MIC breakpoints (mg/L) | | | Disk content (µg) | Zone diameter breakpoints (mm) | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | S ≤ | R > | ATU | | S ≥ | R < | ATU | Numbered notes relate to general comments and/or MIC breakpoints. Lettered notes relate to the disk diffusion method. |
| Benzylpenicillin | 0.5 | 0.5 | | 1 unit | 20 | 20 | | **1.** For susceptibility testing purposes, the concentration of tazobactam is fixed at 4 mg/L. |
| Piperacillin-tazobactam | 0.5[1] | 0.5[1] | | 30-6 | 26 | 26 | | |
| Meropenem | 0.25 | 0.25 | | 10 | 34 | 34 | | **A.** Examine zones carefully for colonies within zones. Colonies should be taken into account when reading. |
| Clindamycin | 0.25 | 0.25 | | 2 | 31[A] | 31[A] | | |
| Metronidazole | 4 | 4 | | 5 | 22 | 22 | | |

# ATU 2022

- Inga större förändringar 2022, men sannolikt utvecklas ATU ytterligare 2023.
- Vi arbetar på att göra ciprofloxacin/Enterobacterales mer robust
- Piperacillin-tazobaktam har nu bara en smal ATU på 16 mg/L (19 mm) – vi får frågor på varför?

# CEFIDEROCOL ….as an example

You can report S and I results outside the ATU with confidence!
You can decide to perform an MIC on results inside the ATU and gain confidence before reporting a category S, I or R.
You can decide to NOT report results inside the ATU.
You can decide to trust your method and ignore the ATU to report as tested.




| **Breakpoints** | |
|---|---|
| MIC | S≤2, R>2 mg/L |
| Zone diameter | S≥22, R<22 mm |