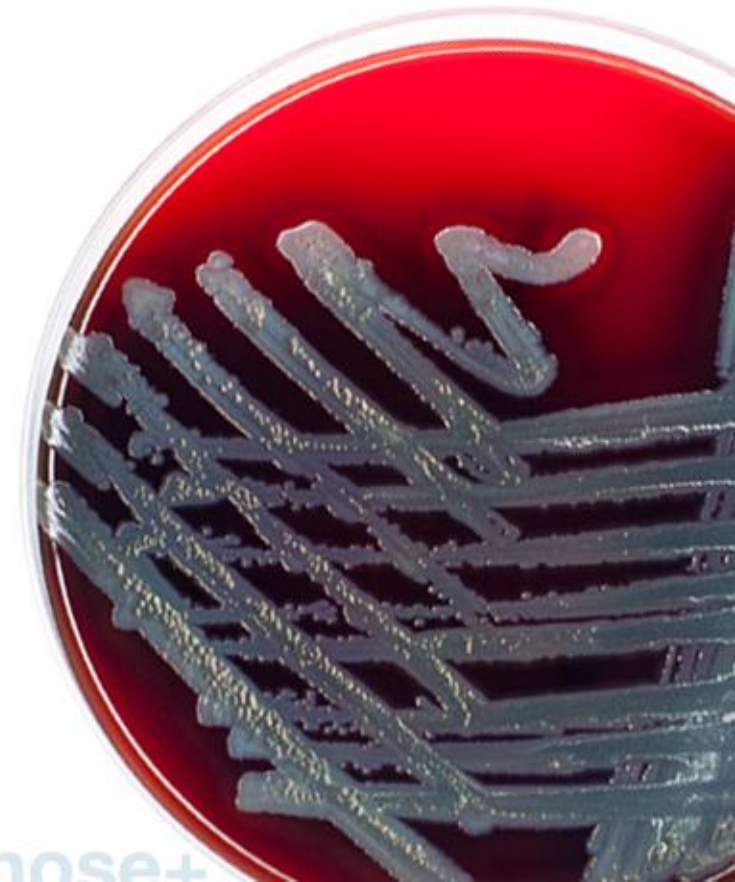


# EARS-Net QC 2014 feed-back und EUCAST News 2015

Nationales Referenzzentrum für nosokomiale  
Infektionen und AMR am Krankenhaus der  
Elisabethinen Linz

Petra Apfalter



Antimicrobial resistance (EARS-Net) REPORTING PROTOCOL VERSION 2 (2012)

## Annex III. Isolate Record Form *E. coli*

To be filled out by laboratory  
 Instructions: Please send data of the first blood and/or cerebrospinal fluid (CSF) - isolate of every patient with an invasive *E. coli* infection. Send data on resistant and susceptible isolates; use 1 form per isolate.

-----  
**Laboratory Data**  
 Laboratory Code "LaboratoryCode" \* CC000 -----  
**Isolate Data**  
 Isolate sample number "IsolateID" max. 12 characters -----  
 Isolate source "Specimen"  Blood  CSF -----  
 Date of sample collection "DateUsedForStatistic" yyyy-mm-dd -----  
**Patient Data**  
 Patient ID / Code max. 12 characters -----  
 Gender  Male  Female  Other  Unknown -----  
 Year of birth yyyy -----  
**Hospital Data**  
 Code of hospital "HospitalID" [LaboratoryCode - letter assigned to the hospital - starting from A, B, C etc. E.g. NL001A] -----  
 Origin of patient "PatientType"  Admitted  Outpatient  Other  Unknown -----  
 Date of admission "DateOfHospitalisation" yyyy-mm-dd -----  
 Hospital Department "HospitalUnitType" -----  
 Internal Medicine  Pediatrics/neonatal  Pediatrics/neonatal ICU  Surgery  Haematology/oncology  
 Ob/Gyn  ICU  Emergency  Urology  Infectious diseases  Other  Unknown

**Antibiotic susceptibility testing (SAR, zone and/or MIC)**

Antibiotic	SIR (final impression result of all affected susceptibility test performed) All S, I or R	Zone diameter (Result/zone value) (mm)	Zone diameter interpretation (Result/zone) All S, I or R	MIC (Result/Value) (mg/l)	MIC Interpretation (Result/Value) All S, I or R	E-test (Result/Value) (mg/l)	E-test Interpretation (Result/Value) All S, I or R
<input type="checkbox"/> Amoxicillin AND/OR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Ampicillin AND/OR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Gentamicin AND/OR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Tobramycin AND/OR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Amikacin AND/OR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Ciprofloxacin AND/OR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Ofloxacin AND/OR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Levofloxacin AND/OR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Cefotaxime AND/OR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Ceftriaxone AND/OR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Cefazidime AND/OR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Imipenem AND/OR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Meropenem AND/OR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

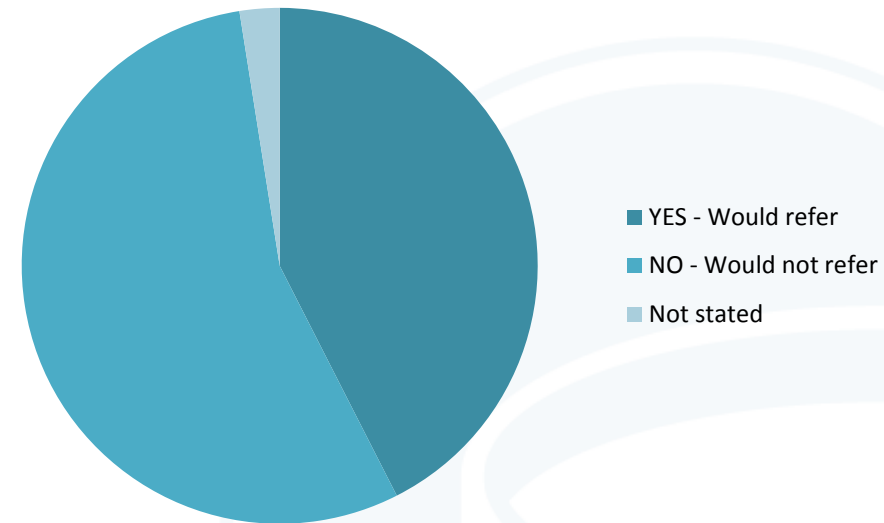
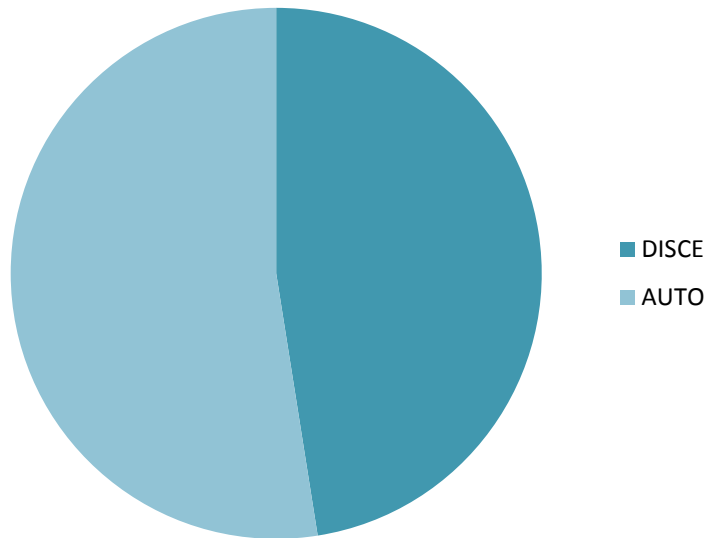
**Other tests**  
 ESBL  Positive  Negative  Unknown -----  
 Carbapenemases "Result/Carbapenemases"  Positive  Negative  Unknown -----

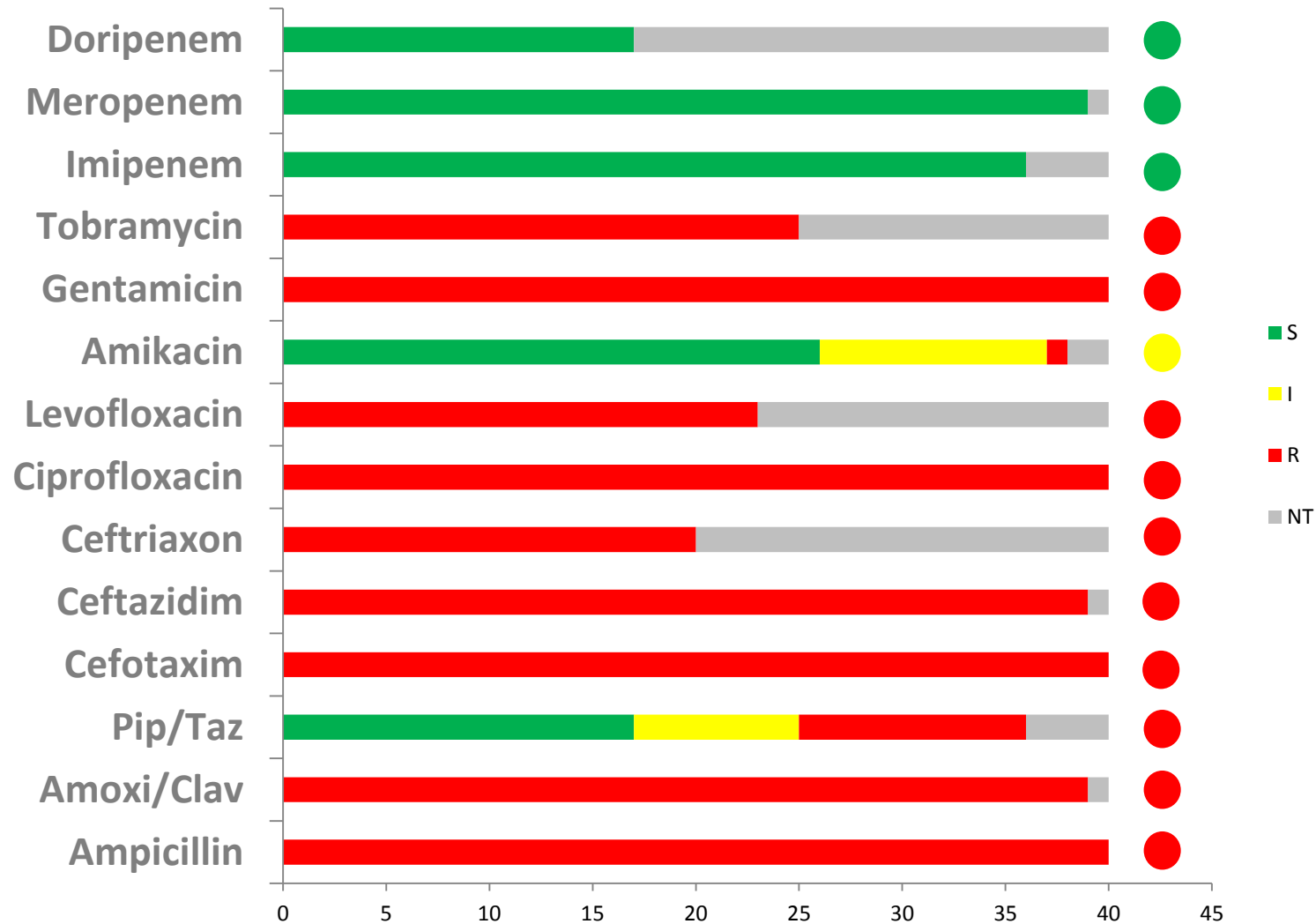
-----  
 \* The national co-ordinators provide the laboratory code, consisting of a Country Code (CC) followed by 3 numbers.  
 -- Consists of the laboratory code, followed by a sequence number identifying the hospital.  
 Send this form to: ..... (Name/institute)  
 Address: ..... Tel: ..... Fac: ..... E-mail: .....

- EARS-Net QC 2014

- 2486 *E. coli*
- 2487 *K. pneumoniae*
- 2488 *S. aureus*
- 2489 Pneumokokken
- 2490 *E. faecium*
- 2491 *Acinetobacter baumannii*

- Alle gaben an nach EUCAST zu arbeiten
- 50% verwenden automatisierte AST - Systeme





The organism was resistant to piperacillin-tazobactam (MIC 32-64 mg/L) by EUCAST breakpoints (S  $\leq$ 8 mg/L, R  $>$ 16 mg/L) and intermediate by CLSI breakpoints (S  $\leq$ 16 mg/L, R  $\geq$ 128 mg/L). There were high discrepancy rates in reporting susceptibility by participants, with 29.1% reporting resistant, 28.2% intermediate and 42.7% susceptible. The difference in guidelines was reflected in reports by participants, who were more likely to report susceptible with CLSI guidelines (Table 2). The isolate is low-level resistant to piperacillin-tazobactam but irrespective of the differences in breakpoint guidelines the reported results of susceptible were unexpectedly common.

Agent	EUCAST and EUCAST related guidelines			
	n	% S	% I	% R ●
Piperacillin-tazobactam	646	38.9	28.5	32.6

Participants following EUCAST or EUCAST related guidelines were less likely to report piperacillin-tazobactam susceptible if they used disk diffusion methods than if they used automated methods (Table 3). Participants using CLSI guidelines were more likely to report susceptible with disk diffusion methods but the difference in reporting between those using disk diffusion or automated methods was small (Table 3).

Disk diffusion methods			
n	% S	% I	% R ●
274	27.4	38.3	34.3

Automated methods			
n	% S	% I	% R ●
322	48.1	20.2	31.7

- Borderline Resistenz für Amikacin MHK: 16 mg/L
- EUCAST BP
  - S ≤ 8 mg/L
  - R > 16 mg/L

Table 4:

Agent	EUCAST and EUCAST related guidelines				CLSI guidelines			
	n	% S	% I ●	% R	n	% S	% I ●	% R
Amikacin	579	56.8	38.7	4.5	153	80.4	17.0	2.6





Table 6:

Agent	EUCAST and EUCAST related guidelines			
	n	% S	% I ●	% R
Amikacin	590	8.0	62.3	28.8

- **Gentamicin**                   MHK 1mg/L S
- **Amikacin**                     MHK 16mg/L borderline (EUCAST I /CLSI S)
- **Tobramycin**                 MHK 16mg/L R

EUCAST expert rules note that acquired AAC(6')I may not confer phenotypic resistance to amikacin despite modification of amikacin, and that such organisms should be reported intermediate even if they appear susceptible. This rule is under review by EUCAST and may be removed from the next version but, in line with the current expert rule, some participants may have edited susceptible test results to intermediate.

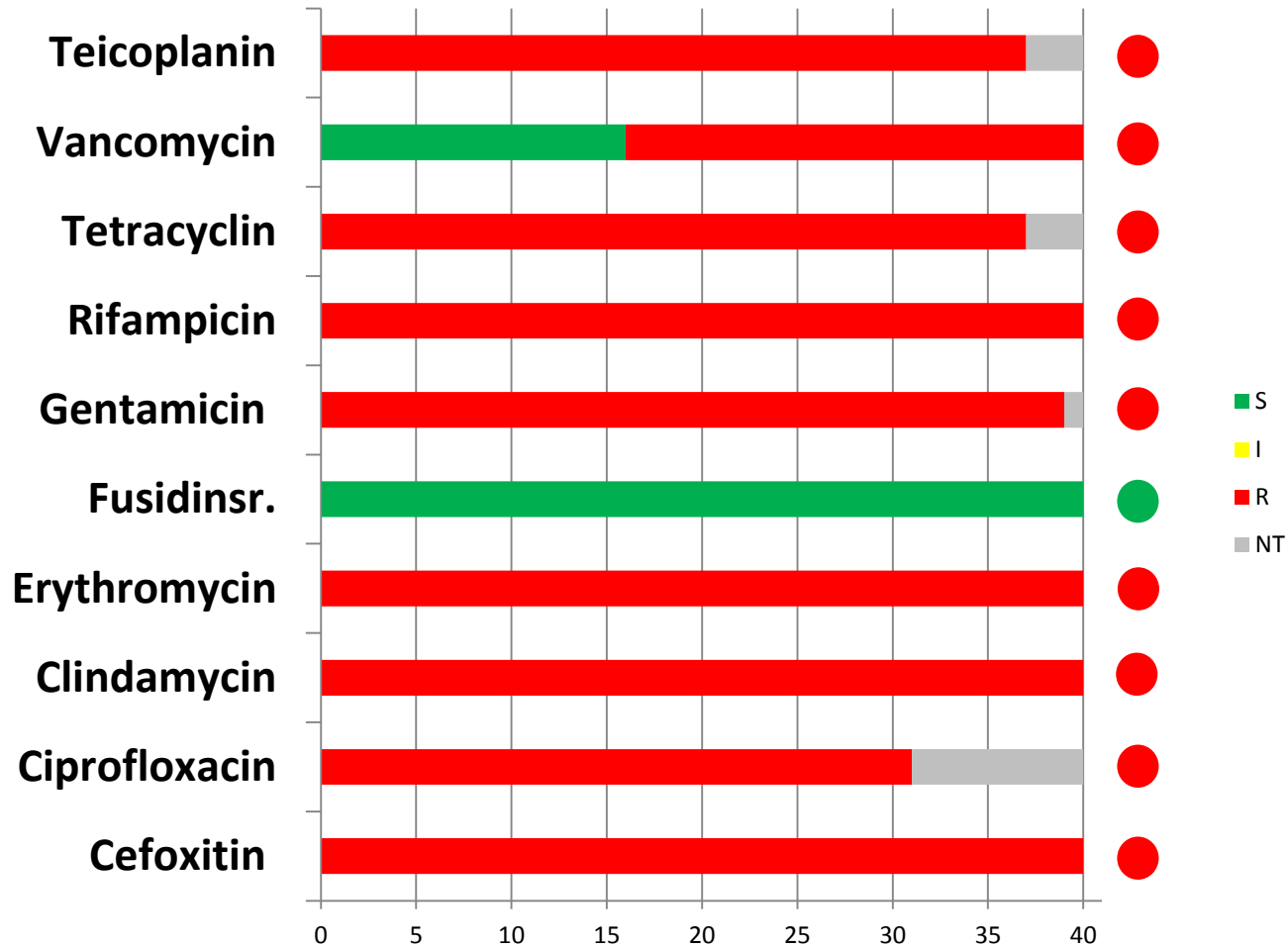
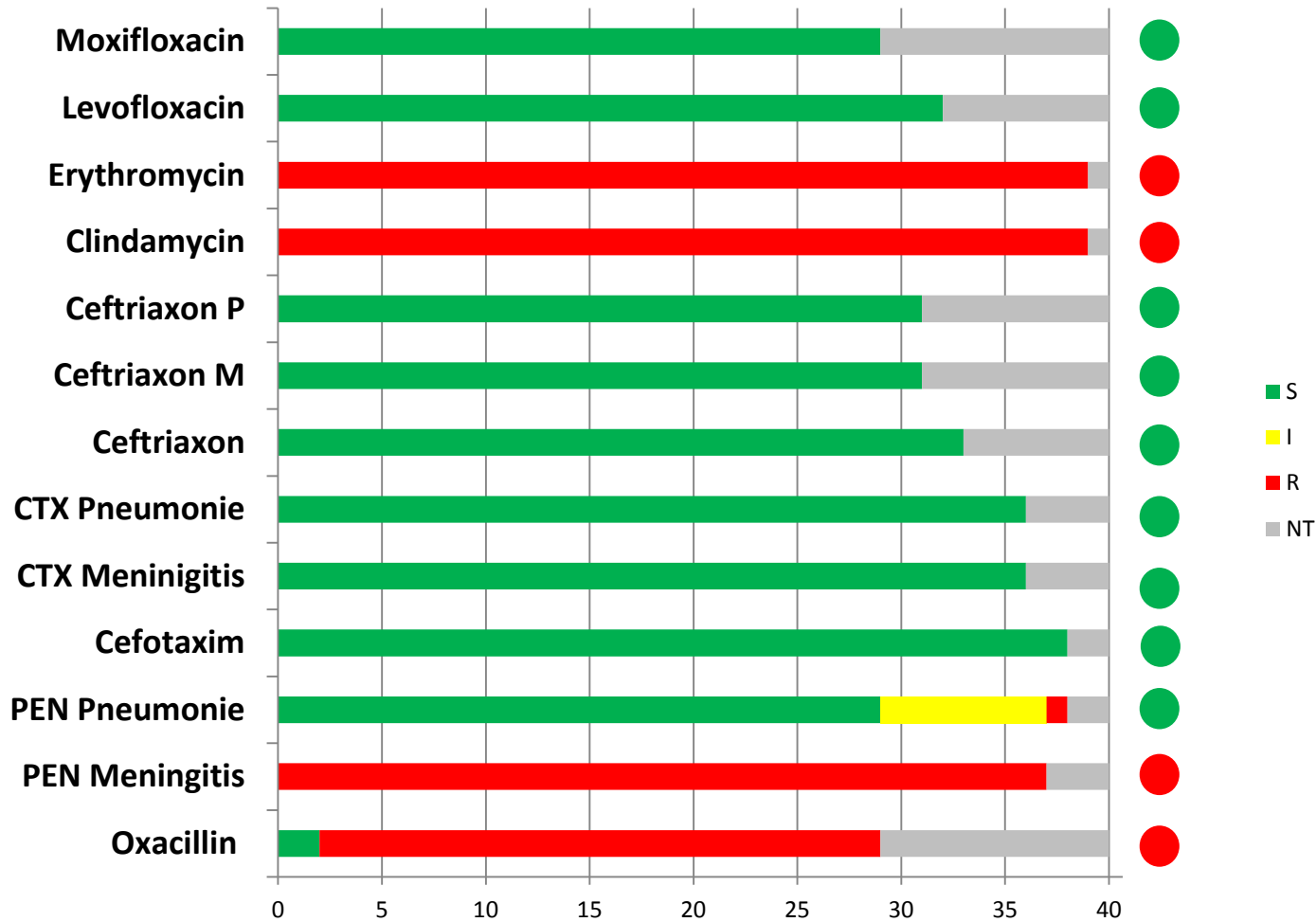


Table 8:

Agent	EUCAST and EUCAST related guidelines				CLSI guidelines			
	n	% S	% I	% R ●	n	% S	% I	% R ●
Vancomycin	655	45.8	2.4	51.8	164	57.3	39.0	3.7
Teicoplanin	573	7.2	1.0	91.8	147	47.0	43.5	9.5

- KEINE BLÄTTCHEN verwenden!!!

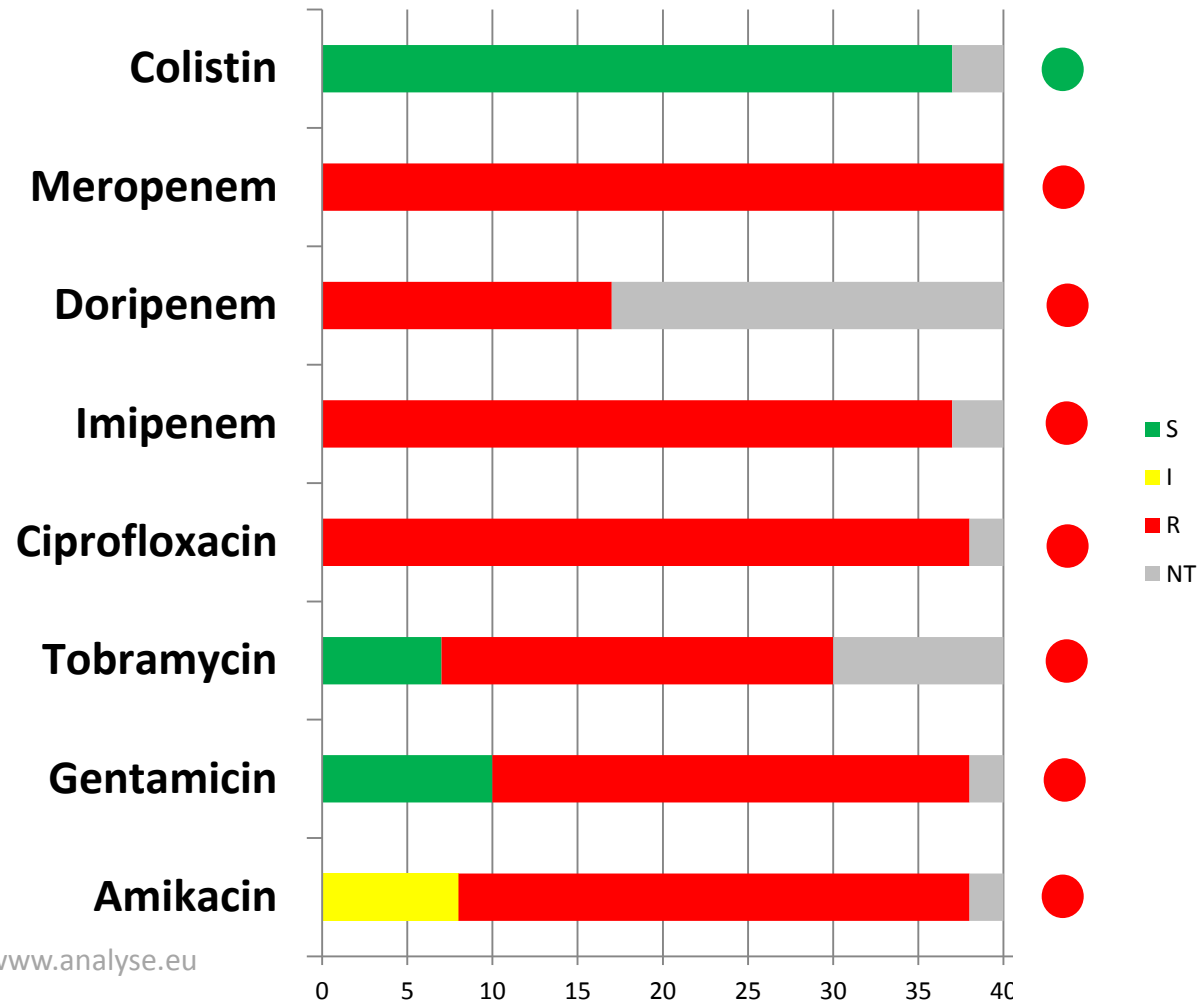


- Herabgesetzte Penicillinempfindlichkeit (MHK 0,25 – 0,5 mg/L)
- Pneumokokken ohne RM  $\leq 0,06$  mg/L
- Interpretation abhängig von Klinik und Verabreichungsform

Table 9:

Agent	EUCAST and EUCAST related guidelines				CLSI guidelines			
	n	% S	% I	% R	n	% S	% I	% R
Oxacillin	403	8.9	5.0	86.1	84	7.1	2.4	90.5
Penicillin	563	17.4	75.5	7.1	116	46.5	45.7	7.8
Penicillin (pneumonia)	627	49.9 <span style="color: green;">●</span>	47.2	2.9	156	86.5	13.5	0
Penicillin (meningitis)	625	3.7	2.4	93.9 <span style="color: red;">●</span>	156	3.8	1.3	94.9

## GES-12 Carbapenemase



## GES-12 Carbapenemase

- Gentamicin 32-64 mg/L R
- Amikacin  $\geq 128$  mg/L R
- Tobramycin 32 mg/L R

Table 10:

Agent	EUCAST and EUCAST related guidelines			
	n	% S	% I	% R
Gentamicin	640	5.6	0.5	93.9 ●
Tobramycin	544	6.4	0.3	93.3 ●
Amikacin	549	0.5	9.1	90.4 ●





- 5. Generation Cephalosporin
- HAP (nicht VAP)
- Ausgangsbasis: 3 x 500mg i.v. über 2h verabreicht

	S ≤ mg/L	R > mg/L
• Enterobakterien*	0.25	0.25
• S. aureus*	2	2
• Pneumokokken	0.5	0.5
• Enterokokken	-	-
• Pseudomonas	IE	IE
• A, B, C, G Streptokokken	IE	IE
• Viridans Streptokokken	-	-

\* Blättchen BP in Vorbereitung

## *Streptococcus pneumoniae*

EUCAST Clinical Breakpoint Table v. 5.0, valid from 2015-01-01

### Screening for beta-lactam resistance in *S. pneumoniae* Supplementary table

Oxacillin 1 µg disk Zone diameter	Antimicrobial agent	Further testing and/or interpretation
≥ 20 mm	All beta-lactam agents for which clinical breakpoints are listed (including those with "Note")	Report susceptible irrespective of clinical indication, except for cefaclor, which if reported, should be reported as intermediate.
< 20 mm*	Benzyloxyphenoxymethylpenicillin (meningitis) and phenoxymethylpenicillin (all indications)	Report resistant.
	Benzyloxyphenoxymethylpenicillin (for infections other than meningitis)	Determine the MIC and interpret according to the clinical breakpoints.
	Ampicillin, amoxicillin and piperacillin (without and with beta-lactamase inhibitor), cefepime, cefotaxime, ceftaroline, ceftolozane and ceftazidime	Oxacillin zone diameter ≥ 8 mm: Report susceptible. In meningitis confirm by determining the MIC for the agent considered for clinical use.
	Other beta-lactam agents	Oxacillin zone diameter < 8 mm: Determine the MIC of the beta-lactam agent intended for clinical use but for ampicillin, amoxicillin and piperacillin (without and with beta-lactamase inhibitor) infer susceptibility from the MIC of ampicillin. Determine the MIC of the agent considered for clinical use and interpret according to the clinical breakpoints.

\*Oxacillin 1 µg < 20 mm: Always determine the MIC of benzyloxyphenoxymethylpenicillin but do not delay reporting as recommended above.

Ceftobiprol ist aus der gelben Tabelle verschwunden



- **Gram Negativ**

- Amoxicillin/Clavulansäure
- Clindamycin
- Metronidazol
- Meropenem

- **Gram Positiv**

- Benzylpenicillin
- Amoxicillin/Clavulansäure
- Clindamycin
- Metronidazol
- Meropenem
- Vancomycin

Auch Actinomyceten und Lactobazillen werden u.a. als Anaerobier behandelt.

- **Staphylokokken und Streptokokken der Gruppe A, B, C und G**
  - Falls Erythromycin resistent ist und eine Induktion zu sehen ist, wird Clindamycin resistent gesetzt.
    - Textbaustein: „Trotz induzierbarer Clindamycinresistenz kann die Substanz zur Kurzzeittherapie leichter Haut- und Weichteilinfektionen verwendet werden.“
- **Vergrünende Streptokokken und Pneumokokken**
  - Falls Erythromycin resistent ist und eine Induktion zu sehen ist, wird Clindamycin resistent gesetzt. KEINE Kommentierung des Textes.



- **Mycobacterium tuberculosis**
  - Delamanid  $S \leq 0.06 \text{mg/L}$
  - Bedaquiline  $S \leq 0.25 \text{mg/L}$



ESCMID  
COLLABORATIVE CENTRE