

EARS-Net QC Ergebnisse und feed-back 2015 und 2016

Nationales Referenzzentrum für NI und AMR
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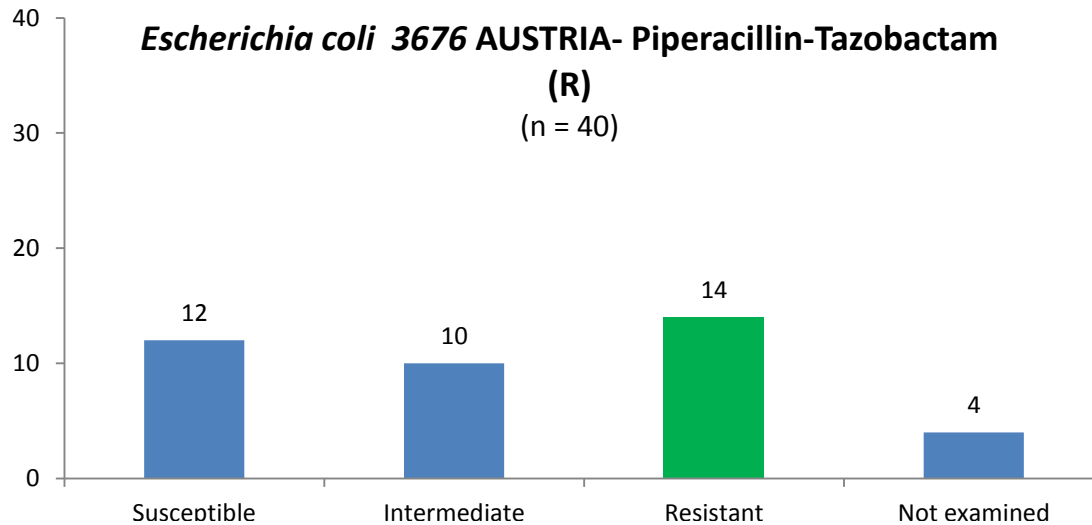
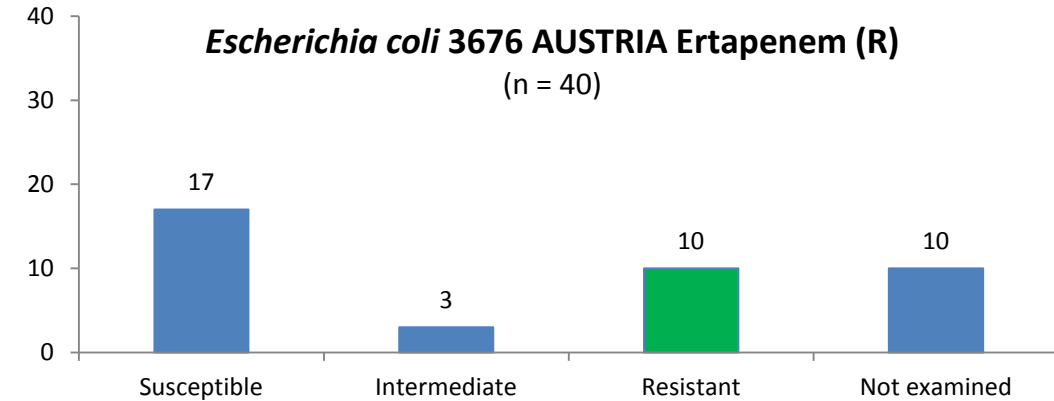
- **Qualitätskontrolle 2016**
 - 3676 *E. coli*
 - 3677 *K. pneumoniae*
 - 3678 *P. aeruginosa*
 - 3679 *S. aureus*
 - 3680 *A. baumannii comp.*
 - 3681 *S. pneumoniae*



- alle arbeiten lt. Angabe nach EUCAST
- Spezies Identifikation erfolgte 31 x automatisiert
- **Empfindlichkeitstestung:**
 - 21 verwenden automatisierte Systeme
 - 19 verwenden Blättchentest



- **Erworbene β -Laktamase**
- **Alle β -Laktam Antibiotika resistent; Ausnahmen: Imipenem und Meropenem**
- **Ertapenem und Pip/Taz ergab schlechte Konkordanz der Ergebnisse**
 - Blättchentests schnitten besser ab
- **20% der Labors hätten das Isolat weitergeschickt**

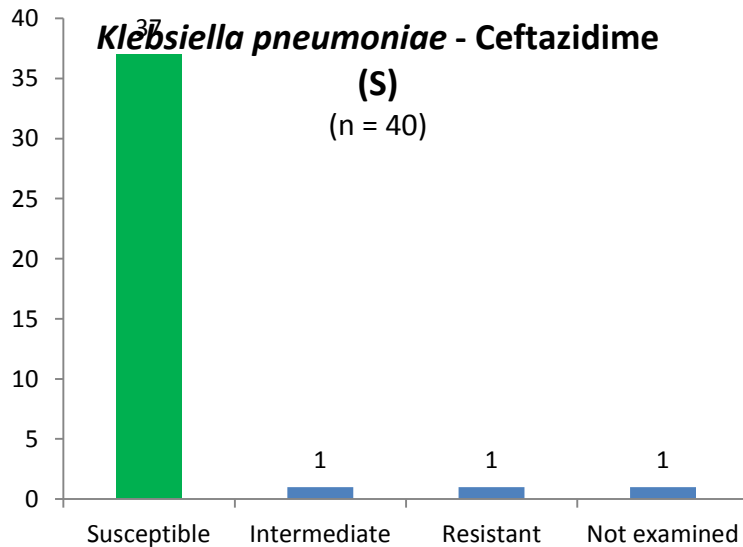
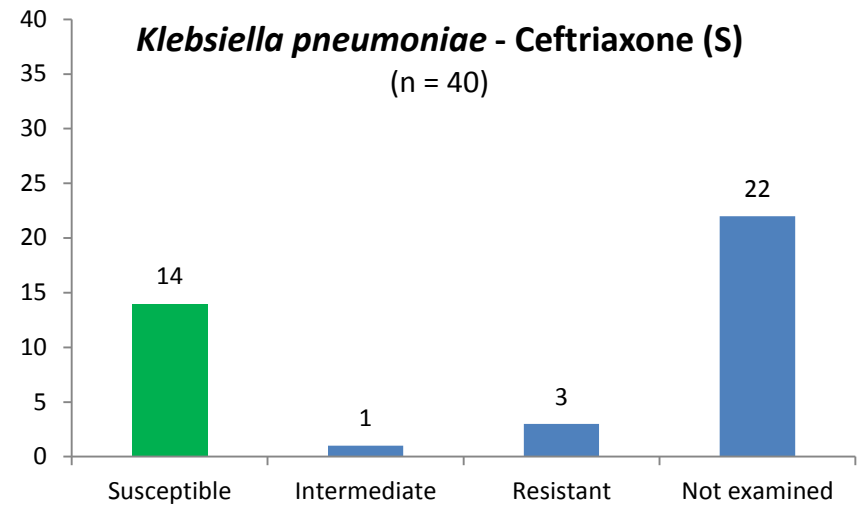
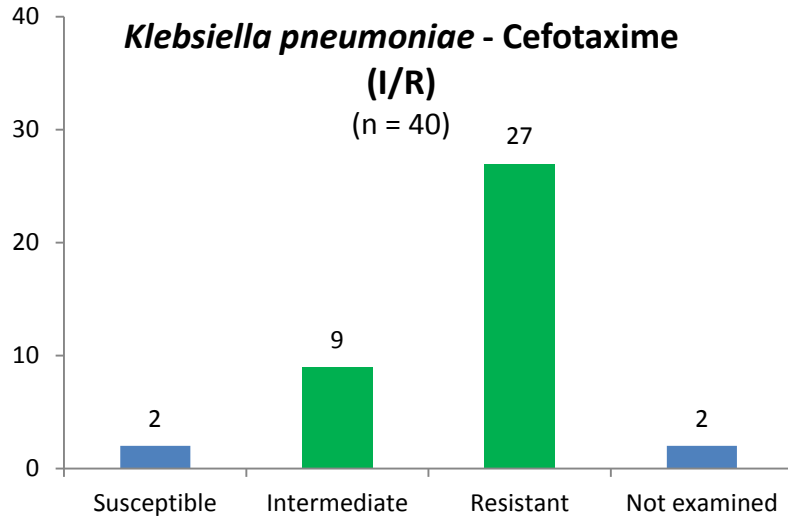


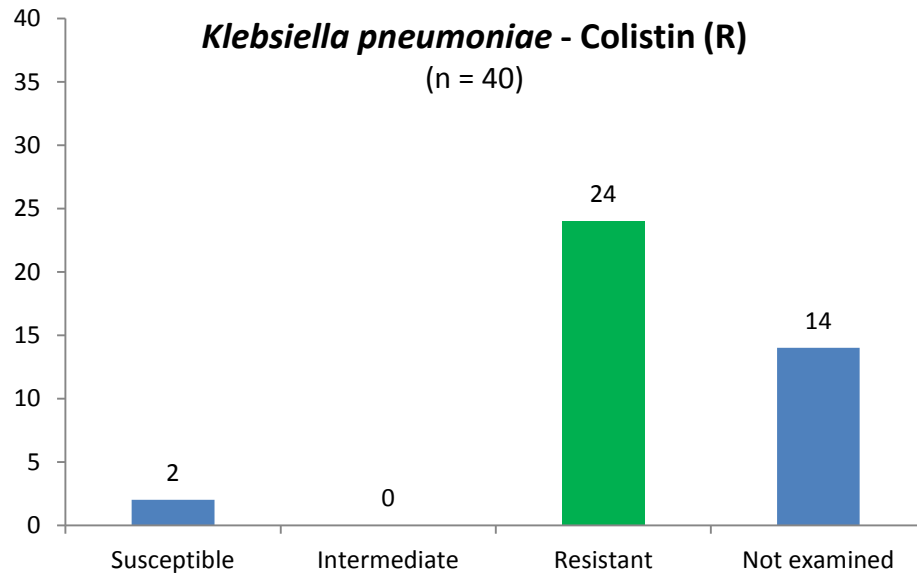
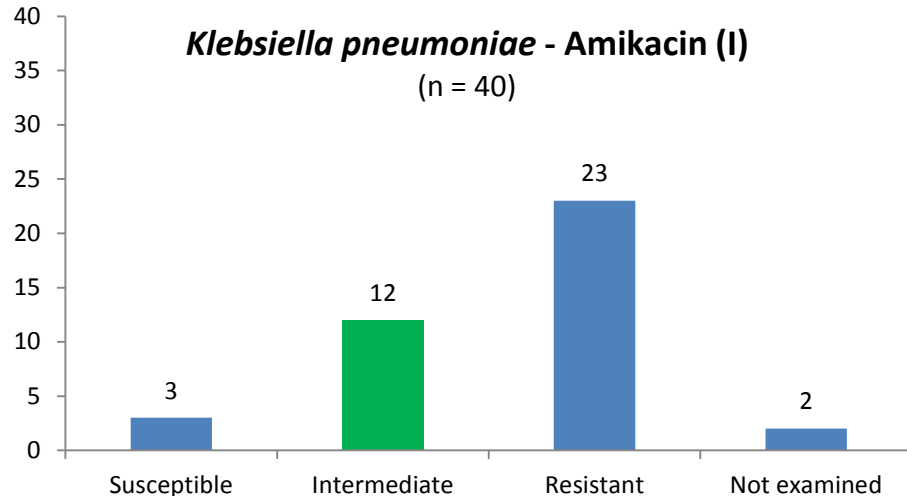
Resistenzen:

- Viele β -Laktame, inkl. Inhibitor-Kombinationen, Colistin und Chinolone

Empfindlichkeiten:

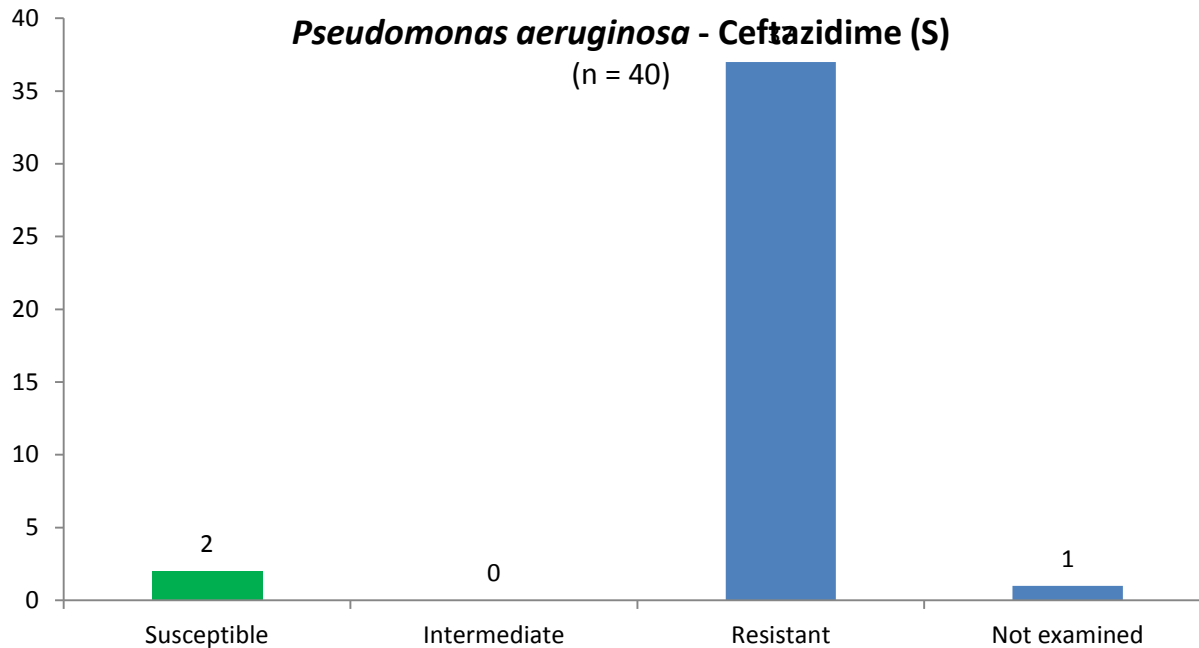
- Imipenem, Meropenem, Ceftriaxon und Ceftazidim
- Cefotaxim MIC: 2 - 4 mg/L (intermed. / resistant)





- **Resistenzen:**
 - Ciprofloxacin, Gentamycin, Tobramycin, Carbapeneme, Pip/Taz
 - Schlechte Konkordanz für Ceftazidim (MIC: 8mg/L)
- **Keine Carbapenemase**
- **Porin Verlust / Efflux**

The ceftazidime MIC (8 mg/L) was susceptible by both EUCAST and CLSI breakpoints. The 891 participants reported variable results (31.4% susceptible, 7.2% intermediate and 61.4% resistant). Participants using CLSI methodology were more likely to report ceftazidime as susceptible (or intermediate) than participants using EUCAST or EUCAST-related methods (table 5). Participants using disk diffusion or MIC methods were more likely to report imipenem and meropenem as susceptible than participants using automated methods (table 5).



Guideline	Method	Number (%) participants reporting		
		S	I	R
EUCAST/EUCAST-related	Automated	79 (21.6)	8 (2.2)	278 (76.2)
	Disk diffusion	86 (31.0)	1 (0.4)	190 (68.6)
	MIC	57 (44.2)	3 (2.3)	69 (53.5)
	Multi/Other	7 (53.8)	1 (7.7)	5 (38.5)
	Total	229 (29.2)	13 (1.7)	542 (69.1)

Specimen 3679

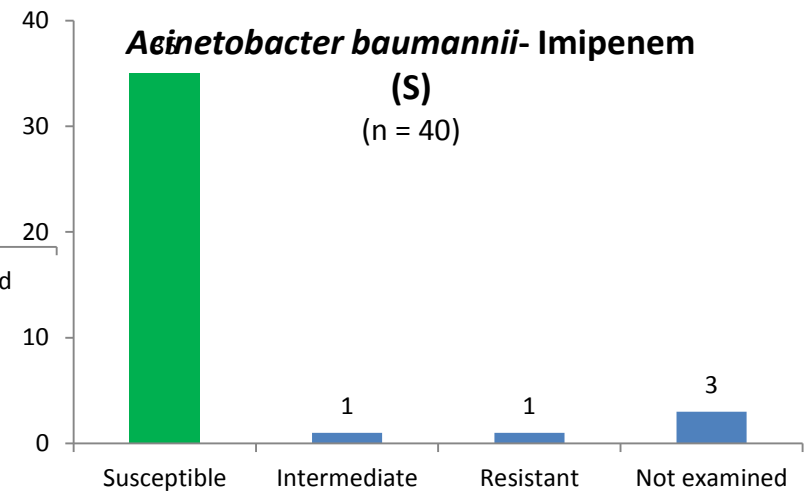
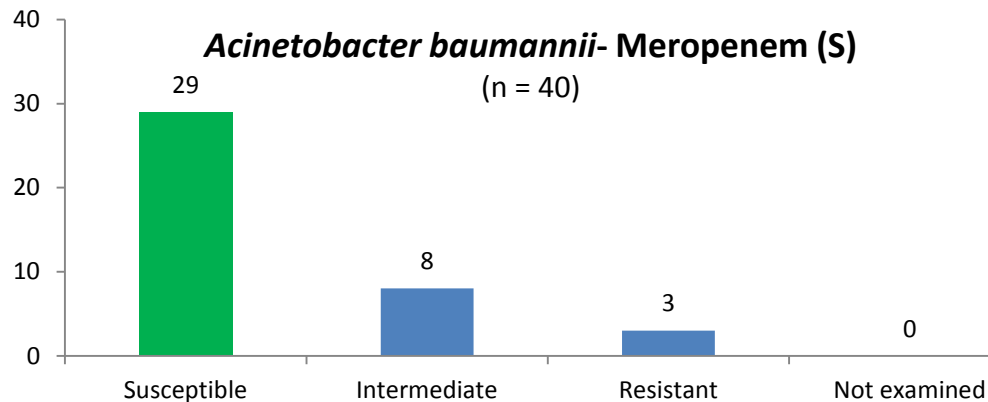
This specimen contained a *Staphylococcus aureus* strain with the *mecC* gene, which was resistant to beta-lactam agents and susceptible to all other antibiotics examined. A good concordance was achieved with all agents tested (including cefoxitin) except oxacillin. The organism was resistant to oxacillin by CLSI breakpoints. The 652 participants reported the following results: 22.6% susceptible; 0.3% intermediate; and 77.1% resistant. There was no difference in results obtained using EUCAST or EUCAST-related methods compared with CLSI methods, nor was there a difference in results obtained with automated, disk diffusion or MIC methods (table 7).

- **KEIN OXACILLIN testen!**
 - 2 falsch empfindliche Testergebnisse
 - 13/40 testen Oxacillin nicht
- **CEFOXITIN = Marker für *mec*-Gen**
- **VANCOMYCIN: 1 x falsch negativ (MIC = 8 mg/L), 1 x nicht untersucht, weil das Isolat als *Pseudomonas* identifiziert wurde**

Specimen 3680

This specimen contained an *Acinetobacter baumannii* complex strain, susceptible to amikacin, colistin, imipenem, meropenem and tobramycin but resistant to gentamicin and ciprofloxacin.

A good concordance of results was achieved with all of the agents tested and there were no significant issues arising.



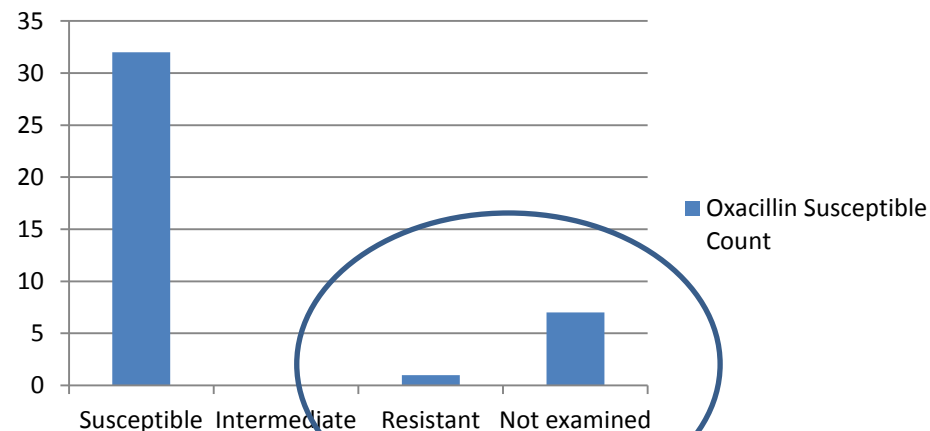
- Keine EUCAST Änderung zu Vorjahren, aber bitte prüfen ob die Logistik des Austestens wie bereits länger empfohlen umgesetzt wird

Specimen 3681

This specimen contained a strain of *Streptococcus pneumoniae* which was resistant to erythromycin and clindamycin, but susceptible to all other agents examined.

A good concordance of results was achieved with all of the agents tested and there were no significant issues arising.

Oxacillin Susceptible Count



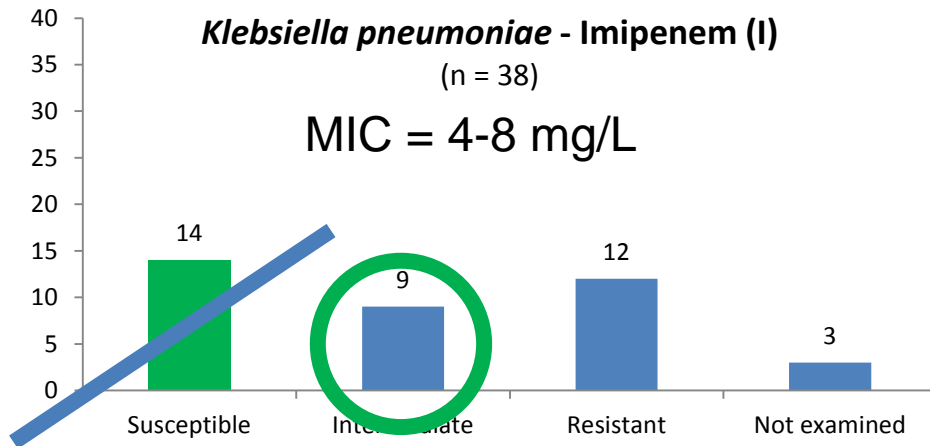
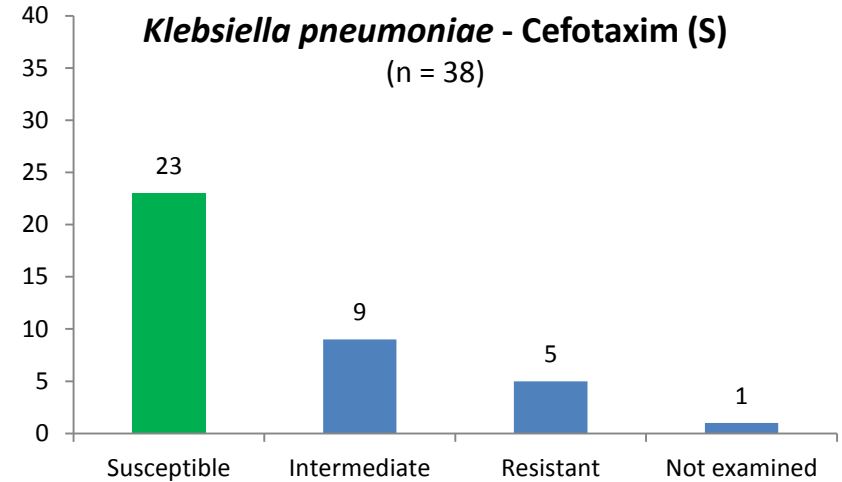
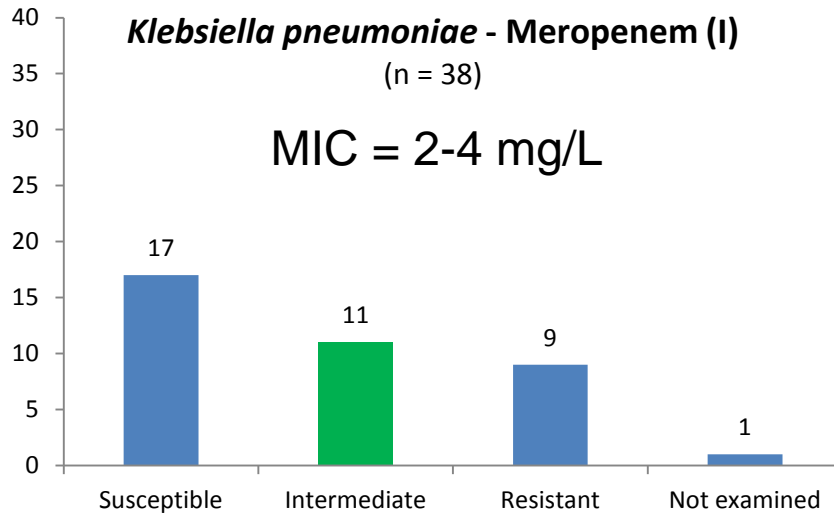
- **Nur 38 Labors**
- **3082** ***E. faecalis* (Van B)**
 - Alle Vanco resistent, 1 x wurde Teico nicht getestet
 - 2 x HLAR nicht erkannt
- **3083** ***K. pn* OXA-48**
- **3084** ***S. aureus* VISA**
- **3085** ***S. pneumoniae*- red. Penicillin Empfindlichkeit (MHK: 0,25 mg/L)**
 - Bei Pneumonie: empfindlich
 - Bei Meningitis: resistent
- **3086** ***E. coli* TEM-3**
- **3087** ***P. aeruginosa* (Carbapenem Resistenz = Porin loss/Efflux)**

Specimen 3083

This organism is a *Klebsiella pneumoniae* which produces an OXA-48 carbapenemase conferring reduced susceptibility to carbapenems. OXA-48 hydrolyses third generation cephalosporins very weakly or not at all. While the current isolate is susceptible to third generation cephalosporins, OXA-48-producing strains are often resistant to cephalosporins due to the concomitant production of ESBLs (most commonly CTX-M).

It is typical for OXA-48-producers to be resistant to piperacillin-tazobactam and amoxicillin-clavulanic acid. Overall 99.8% of 849 participants reported piperacillin-tazobactam resistant and 100% of 840 reported amoxicillin-clavulanic acid resistant.

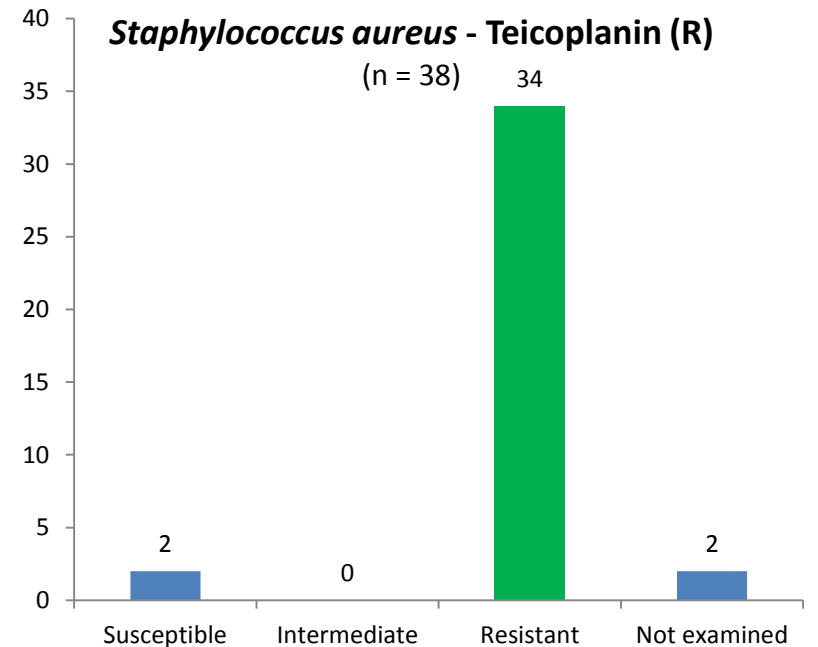
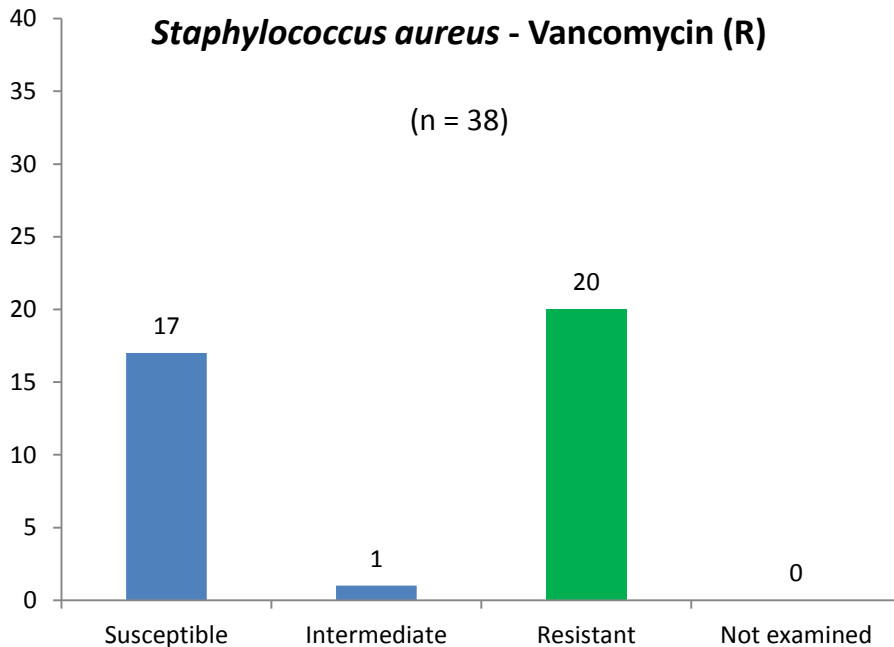
OXA-48 carbapenemases generally hydrolyse carbapenems weakly. In the presence of OXA-48 MICs of carbapenems are commonly raised, often resulting in resistance to ertapenem, while the effect on other carbapenems is much less, sometimes resulting in reports of intermediate or even susceptible. This organism was resistant to ertapenem (MIC 8 mg/L) and 99.2% of 740 participants reported resistant. The organism was borderline intermediate-resistant to imipenem (MIC 4-8 mg/L) by EUCAST breakpoints and resistant by CLSI breakpoints and this was reflected in the variable reporting (overall 31.1% of 700 participants reported susceptible, 35.3% intermediate and 33.6% resistant). Notably, a significant number of participants incorrectly reported the isolate imipenem susceptible. In line with differences in breakpoints, reports of intermediate were more common among participants following EUCAST or EUCAST-related guidelines and reports of resistant were more common among those following CLSI guidelines (Table 5). For the CLSI guidelines only, reports of susceptible were more common among participants using automated methods than among those using other methods (Table 5).



- Isolat aus 2014:



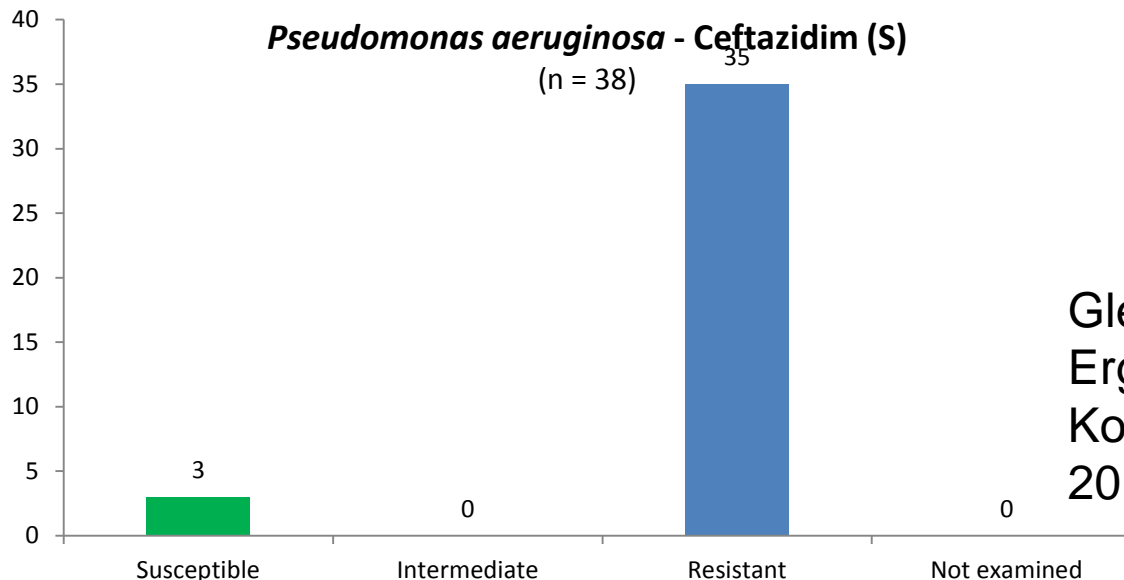
- Identisches Isolat in 2015: Gleiches bzw. schlechteres Ergebnis



Specimen 3087

This organism is a *Pseudomonas aeruginosa* resistant to ciprofloxacin, gentamicin, tobramycin, carbapenems, and piperacillin-tazobactam. There were no problems in detecting the carbapenem resistance, which is likely to be mediated by porin loss/efflux as no carbapenemase enzyme is present.

The ceftazidime MIC (8 mg/L) was borderline susceptible with both EUCAST (S ≤8, R >8 mg/L) and CLSI (S ≤8, R ≥32 mg/L) breakpoints. Overall, 55.3% of 893 participants reported resistant, 8.6% intermediate and 36.1% susceptible. The majority of 748 participants following EUCAST or EUCAST-related guidelines reported ceftazidime resistant (63.8%)

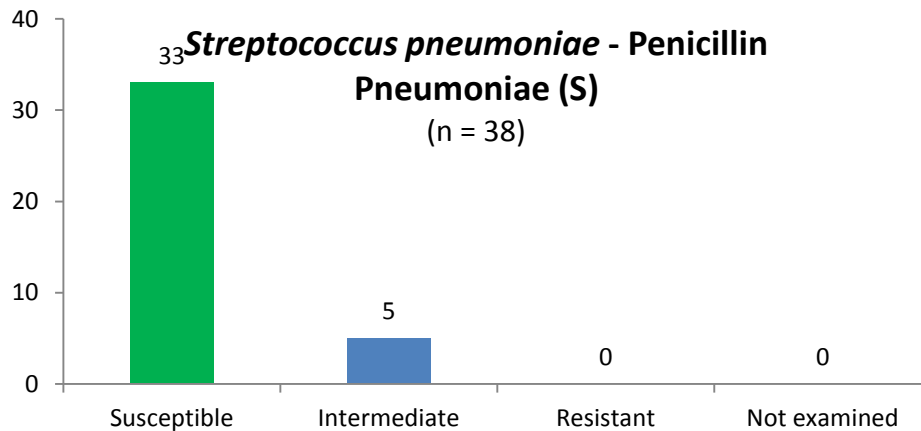
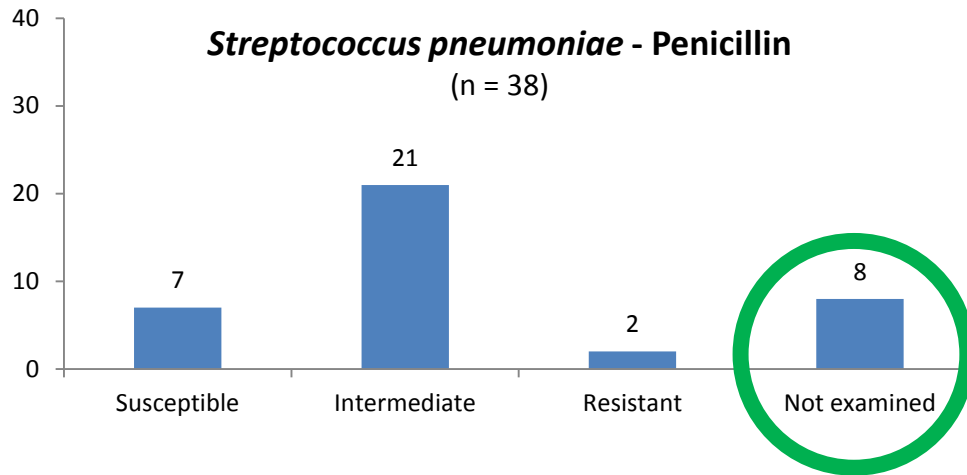


Gleich schlechtes Ergebnis in diese Kombi wie in 2016

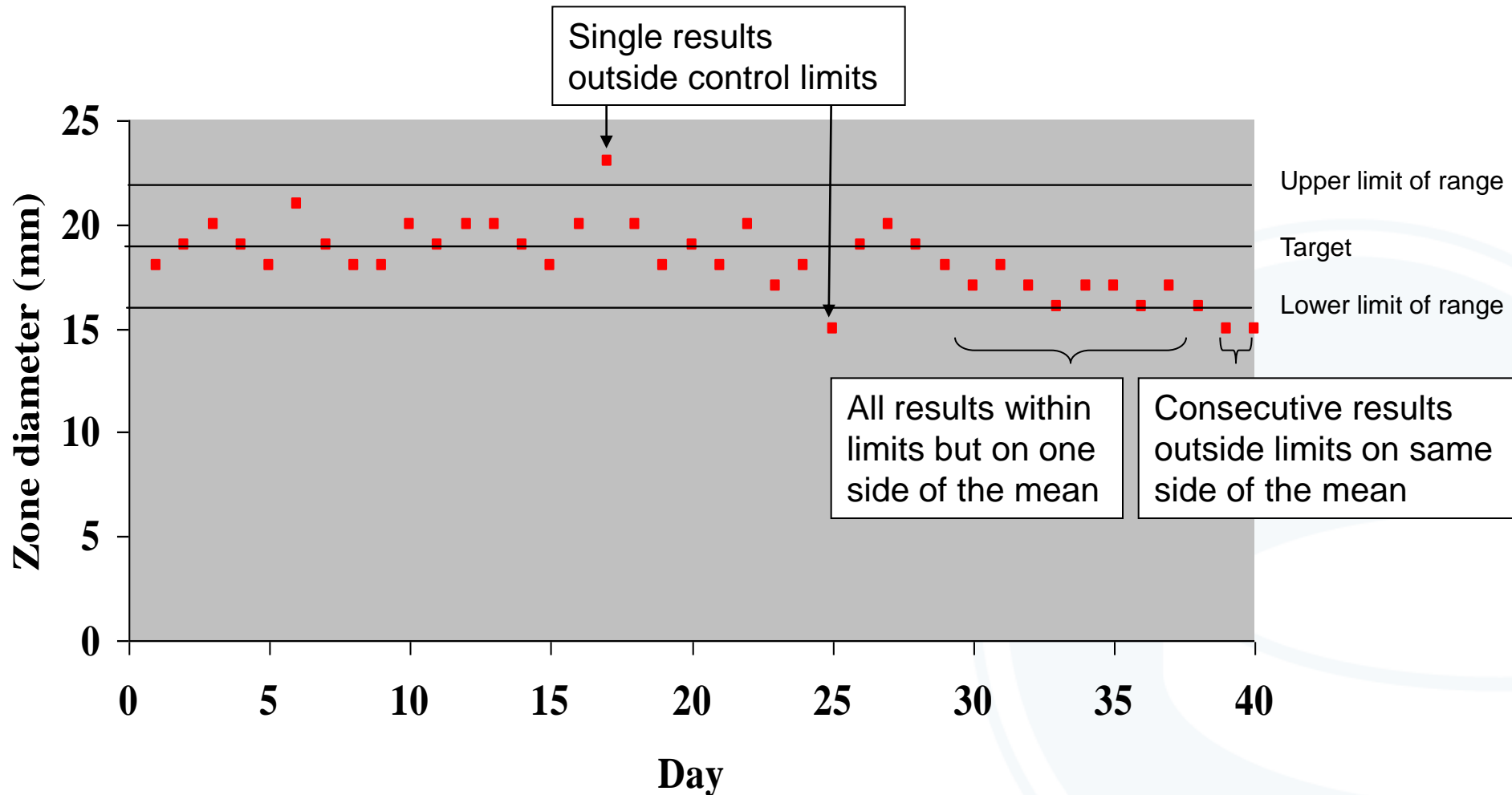
Specimen 3085

This organism is a *Streptococcus pneumoniae* with reduced susceptibility to penicillin (MIC 0.25 mg/L). For *S. pneumoniae* with no mechanism of resistance to penicillin, MICs are ≤ 0.06 mg/L. For isolates with higher MICs, the interpretation of susceptibility to penicillin depends on the site of infection and route of administration. Patients with pneumonia caused by strains with intermediate susceptibility (MIC 0.12-2 mg/L) are, depending on the parenteral dosage, treatable with penicillin, ampicillin or amoxicillin. Hence, such strains may be reported susceptible if from pneumonia. Patients with meningitis caused by strains with penicillin MIC >0.06 mg/L are unlikely to respond to therapy and such strains should be reported as resistant in this situation. Both EUCAST and CLSI guidelines include options for reporting susceptibility depending on the site of infection.

It is unclear how different participants interpreted the result for penicillin without a site of infection. Overall, 75.8% of 690 participants reported the isolate as being intermediate in susceptibility to penicillin, with 7.7% reporting resistant and 16.5% susceptible. As seen in previous EARS-Net EQA distributions, participants following CLSI guidelines were more likely than participants using EUCAST and EUCAST-related guidelines to report susceptible to penicillin when the site of infection was not stated (Table 10). These differences may partly relate to national or local differences in reporting practices.



Meningitis: 36 x resistant, 2 x not examined



E. coli ATCC 25922 with cefotaxime 5 µg

