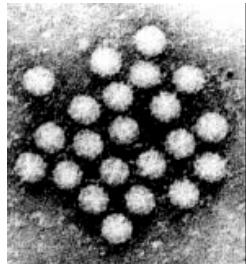


CAESAR 2014

Shila Seaton on behalf of Christine Walton



Virology
• 19 schemes



Mycology
• 2 schemes



Bacteriology
• 12 schemes



Parasitology
• 7 schemes

Identification

- Biochemistry
- Ag (IF / agglutination)
- Growth characteristics
- Molecular

Typing / subtyping

- Biochemistry
- Ag
- Molecular

Quantification

- Microscopic
- Molecular

Susceptibility

- phenotype
- genotype

Serology

- EIA
- Agglutination
- Line assays
- IF

40 SCHEMES

Objectives of Caesar– External Quality Assessment

- ▶ To assess the accuracy of susceptibility test results reported by participating laboratories
- ▶ To assess the comparability of routine susceptibility test results between laboratories and countries
- ▶ Education

EQA process

- ▶ Panel strains selected resembling resistance phenotypes of bacterial strains under surveillance at ECDC
- ▶ Strains characterised and tested in two reference laboratories*
- ▶ Both laboratories confirmed MICs and interpreted results using international breakpoint criteria - EUCAST and CLSI
- ▶ MICs determined by the ISO reference method for MIC determinations by broth micro-dilution
- ▶ Zone diameters determined using EUCAST standardised disk susceptibility method

* EUCAST Reference Laboratory, Vaxjo, Sweden and BSAC Reference Laboratory, Specialist Chemotherapy Reference Laboratory, Cardiff, Wales

Countries participating

Albania

2



Belarus

8



Georgia

5



Azerbaijan

3



Kosovo

7



Montenegro

6



Kyrgyzstan

4



Serbia

14



Russian Federation

33



Macedonia

16



Turkey

68



Bosnia & Herzegovina

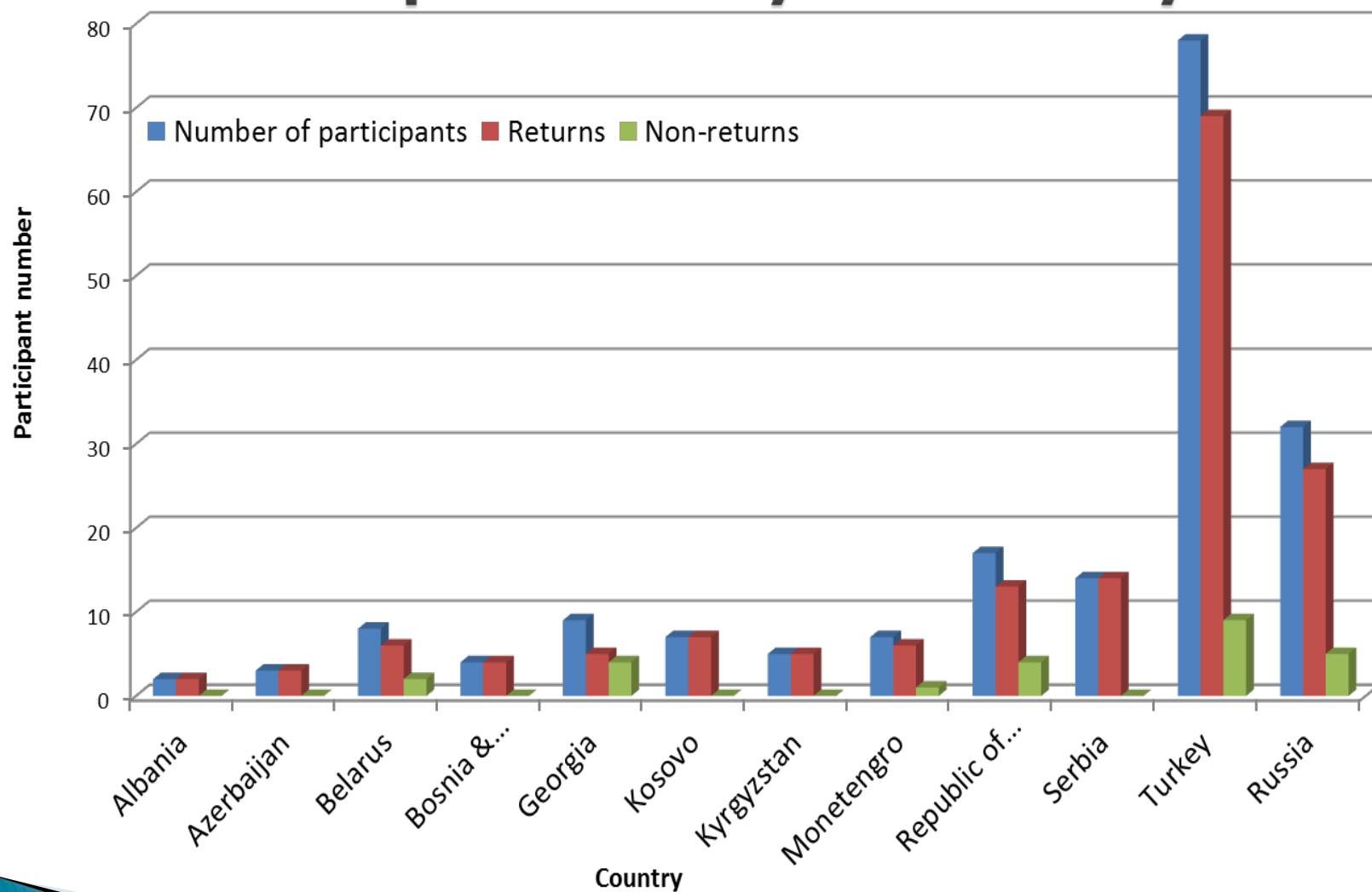
4



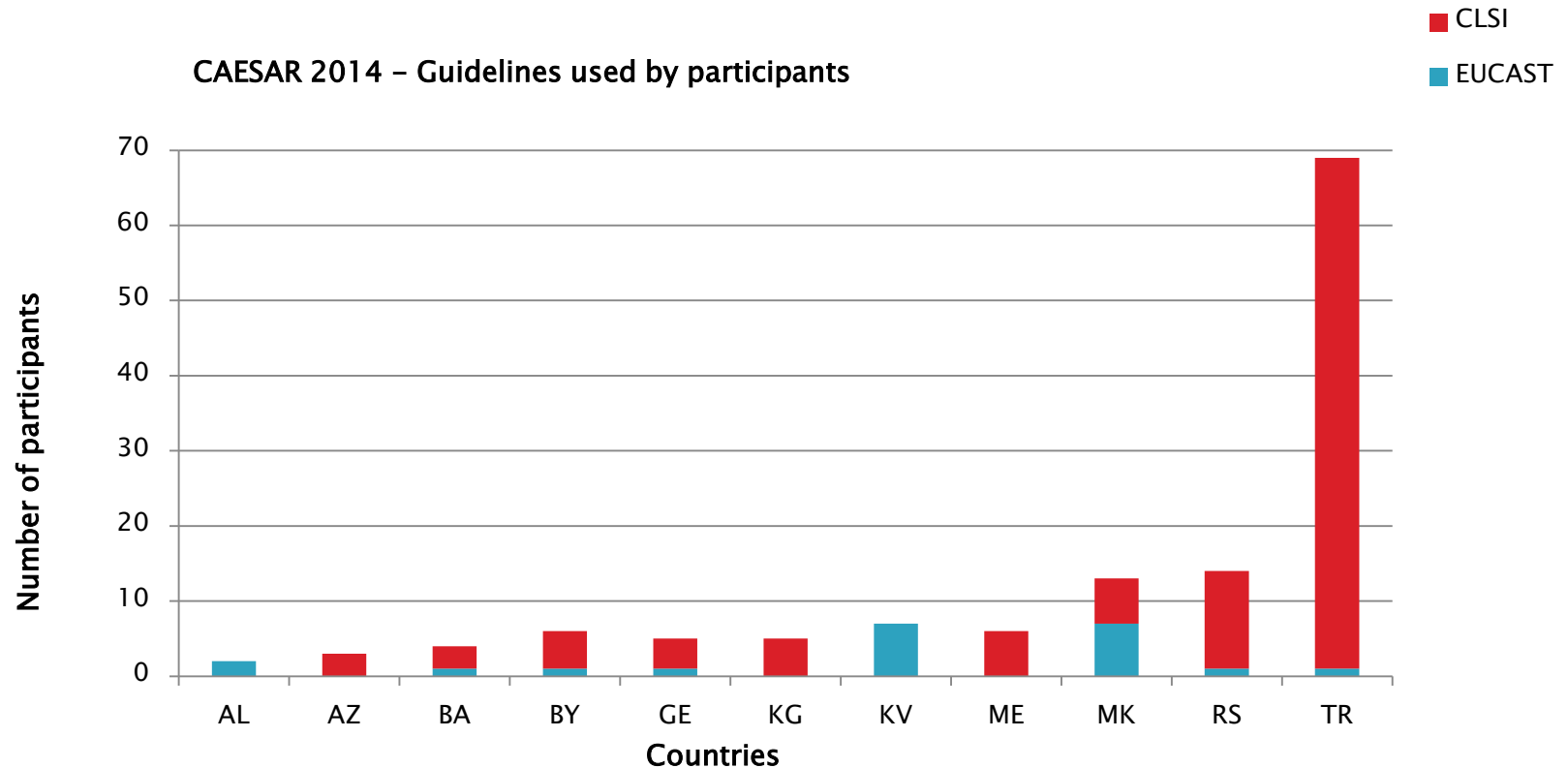
Participation in CAESAR EQA 2013/14

	2013	2014
Countries	9	11
Laboratories	131	165
Laboratories responding	92%	87.3%

Response by Country



Guidelines used by participants



Guidelines and methods

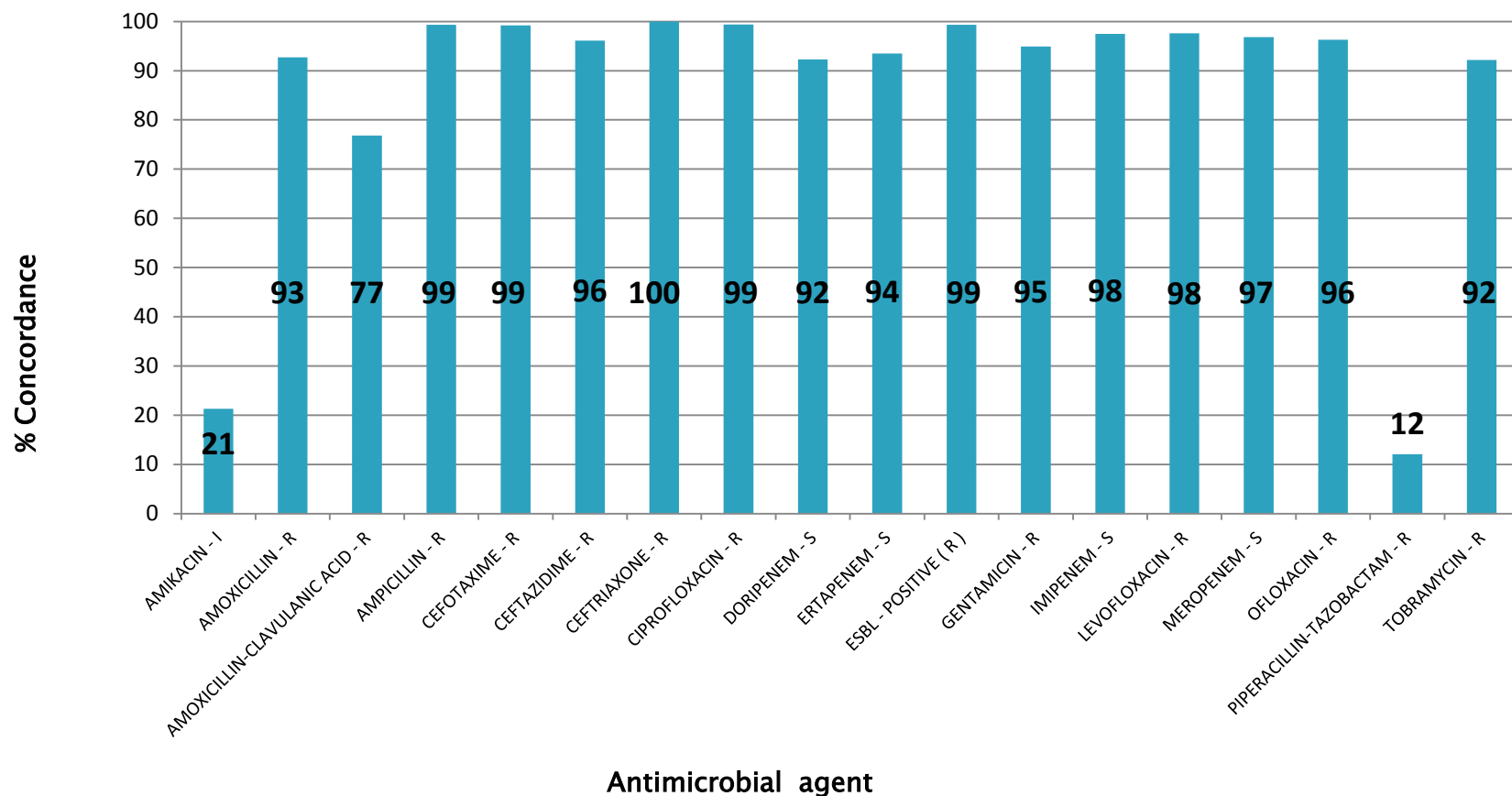
Guideline\Method	EUCAST	CLSI	Total	% Method
AUTO	9	65	74	46%
DISK SUSCEPTIBILITY	26	59	85	53%
MIC	0	1	1	1%
TOTAL (Guideline)	35	125	160	100
% Guideline	22%	78%	100.0	

Escherichia coli specimen 2496

(CTX-M-15 ESBL)

Antimicrobial agent	Reference MIC (mg/L)	EUCAST/CLSI Result
Amikacin	16	I/S
Amoxicillin	≥ 128	R
Amoxicillin-clavulanic acid	>128(64)	R
Ampicillin	≥ 128	R
Cefotaxime	≥ 128	R
Ceftazidime	32-64	R
Ceftriaxone	≥ 128	R
Ciprofloxacin	≥ 128	R
Doripenem	-	S
Ertapenem	0.12-0.25	S
ESBL	POS	POS
Gentamicin	≥ 128	R
Imipenem	0.12-0.25	S
Levofloxacin	-	R
Meropenem	0.03	S
Ofloxacin	-	R
Piperacillin-tazobactam	32-64	R/I
Tobramycin	≥ 128	R

Escherichia coli specimen 2496

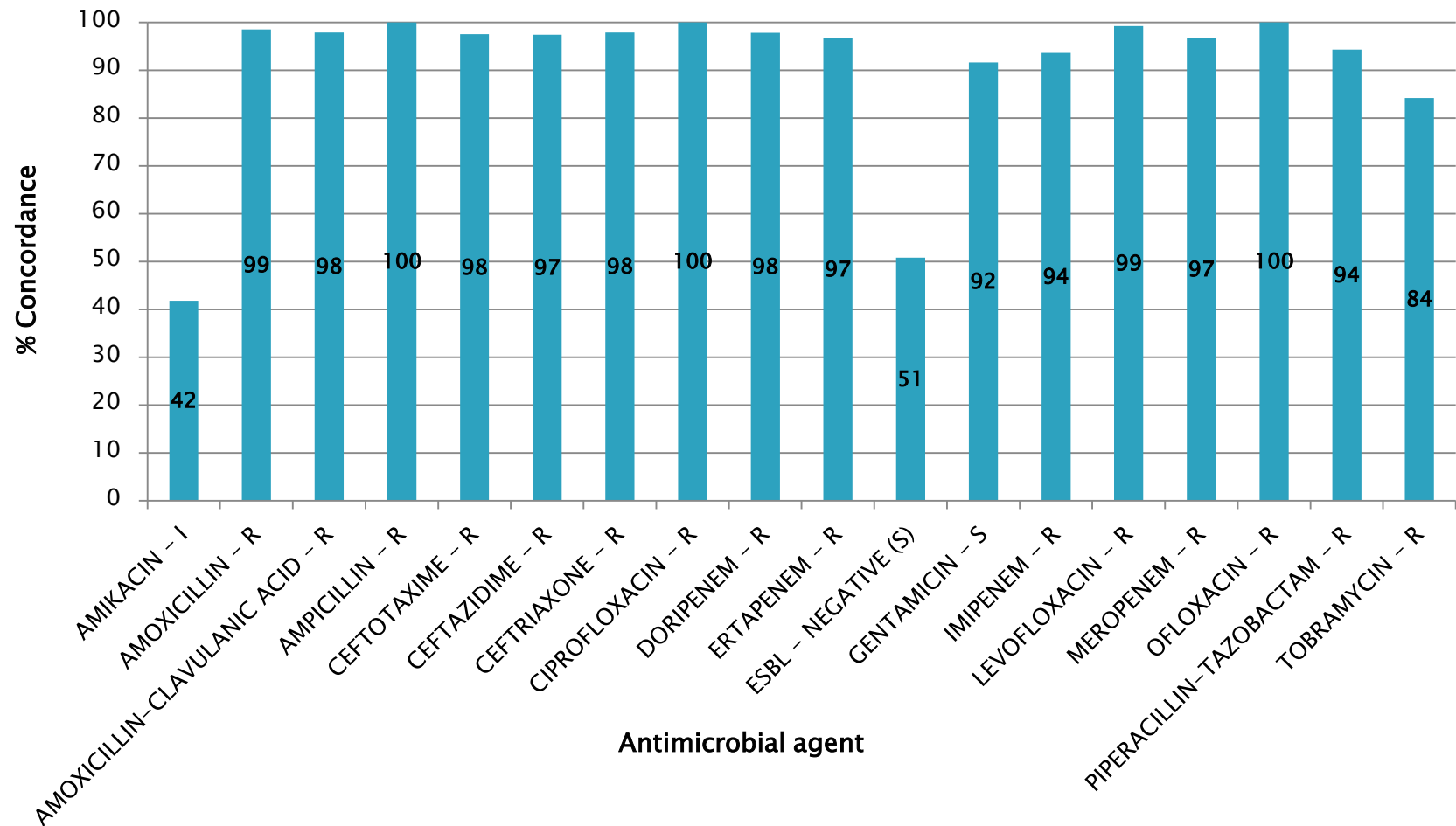


Klebsiella pneumoniae specimen 2497

VIM carbapenemase

Antimicrobial agent	Reference MIC (mg/L)	EUCAST/CLSI Result
Amikacin	16	I/S
Amoxicillin	≥ 128	R
Amoxicillin–clavulanic acid	>128(64)	R
Ampicillin	≥ 128	R
Cefotaxime	≥ 128	R
Ceftazidime	≥ 128	R
Ceftriaxone	≥ 128	R
Ciprofloxacin	≥ 128	R
Doripenem	–	R
Ertapenem	≥ 128	R
ESBL	NEG	NEG
Gentamicin	1	S
Imipenem	64	R
Levofloxacin	–	R
Meropenem	≥ 128	R
Ofloxacin	–	R
Piperacillin–tazobactam	≥ 128	R
Tobramycin	16	R

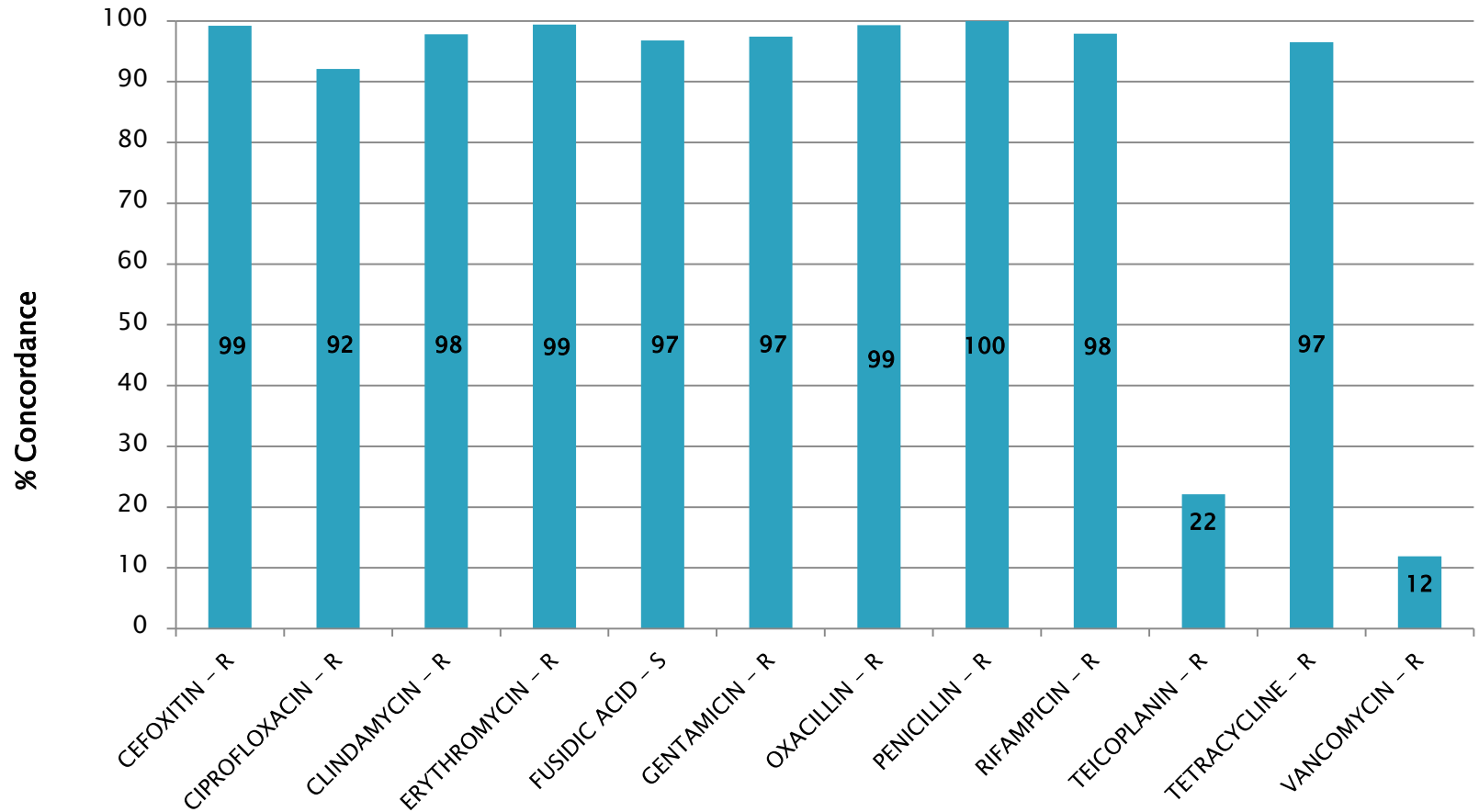
Klebisella pneumoniae specimen 2497



Staphylococcus aureus specimen 2498 –VISA

Antimicrobial agent	Reference MIC (mg/L)	EUCAST/CLSI Result
Cefoxitin	≥ 128	R
Ciprofloxacin	16	R
Clindamycin	≥ 128	R
Erythromycin	≥ 128	R
Fusidic acid	0.12–0.06	S/–
Gentamicin	128–256	R
Oxacillin	> 128	R
Penicillin	64	R
Rifampicin	≥ 128	R
Teicoplanin	8–16	R/(S/I)
Tetracycline	64	R
Vancomycin	4	R/I

Staphylococcus aureus specimen 2498

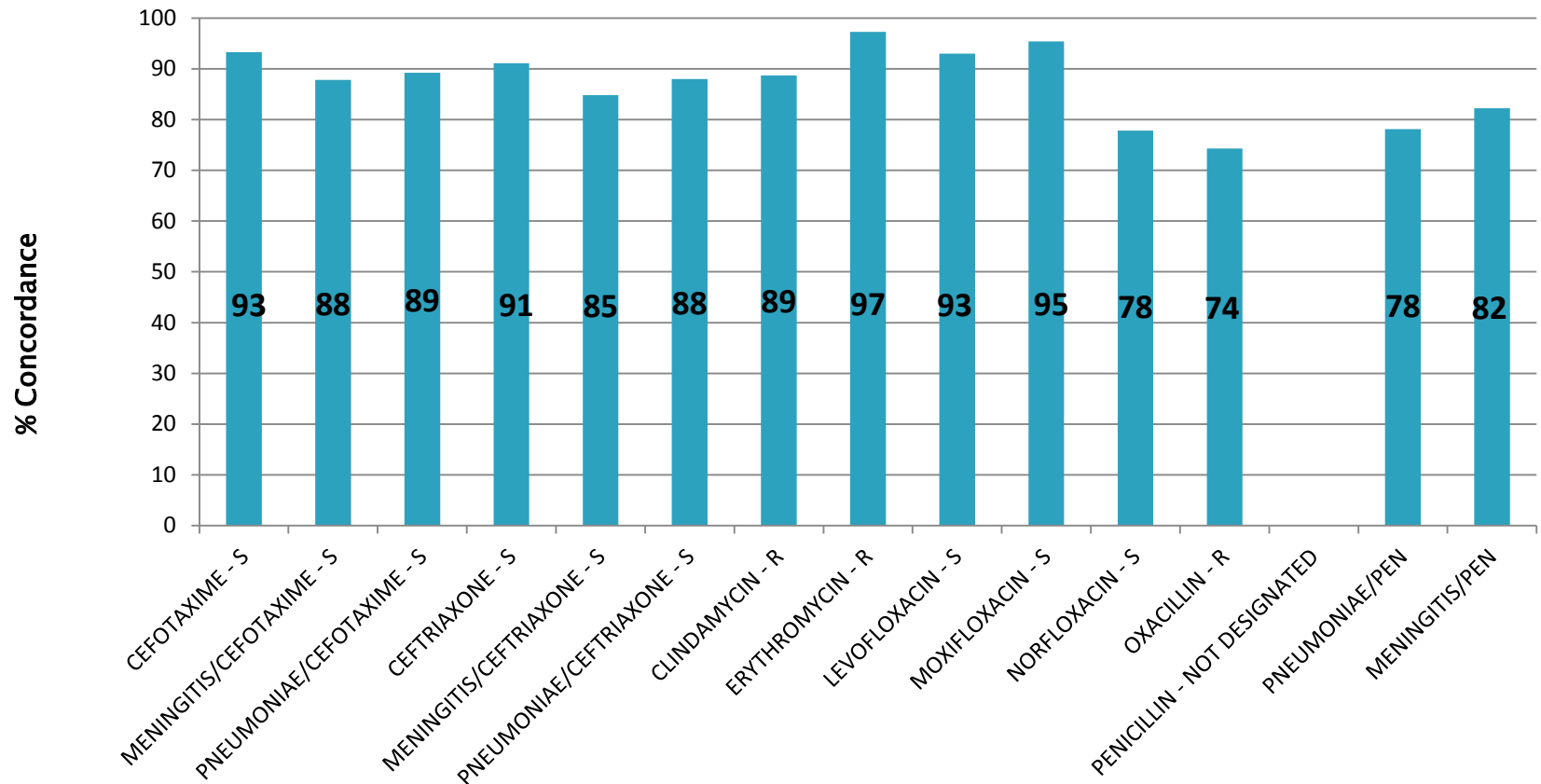


Streptococcus pneumoniae specimen

2499– reduced susceptibility to Penicillin

Antimicrobial agent	Reference MIC (mg/L)	EUCAST/CLSI Result
Cefotaxime	0.12–0.06	S
Meningitis/cefotaxime		S
Pneumonia/cefotaxime		S
Ceftriaxone	0.12–0.25	S
Meningitis/ceftriaxone		S
Pneumonia/ceftriaxone		S
Clindamycin	–	R
Erythromycin	>128	R
Levofloxacin	1	S
Moxifloxacin	0.12	S
Norfloxacin		S/–
Oxacillin		R
Penicillin	0.25–0.5	–
Pneumonia (non–men)/PEN		S
Meningitis/PEN		R

Streptococcus pneumoniae specimen 2499

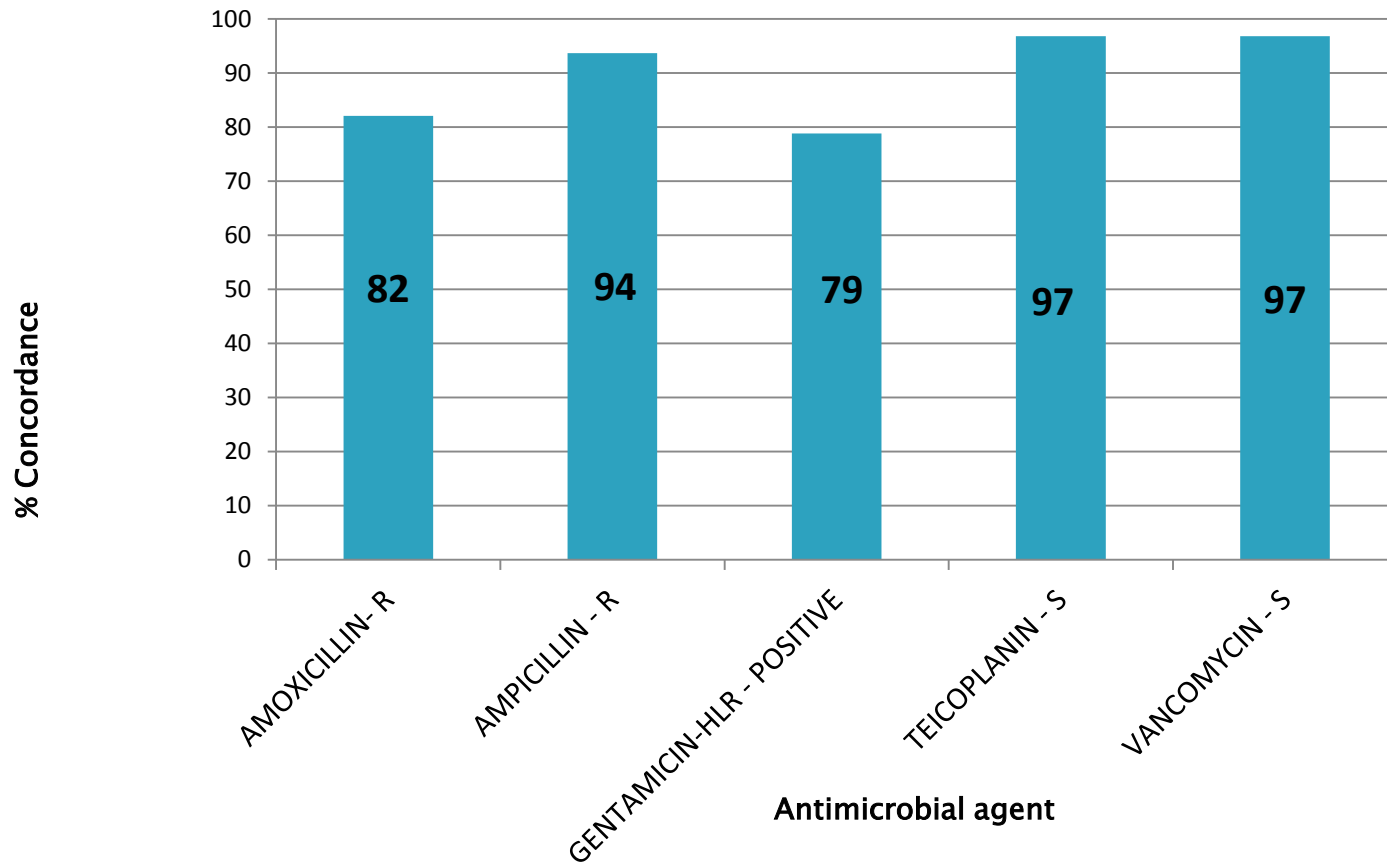


Enterococcus faecium specimen

2500– HLGR

Antimicrobial agent	Reference MIC (mg/L)	EUCAST/CLSI Result
Amoxicillin	32	R
Ampicillin	32–64	R
Gentamicin–HLR	≥ 512	Positive
Teicoplanin	1	S
Vancomycin	1	S

Enterococcus faecium specimen 2500

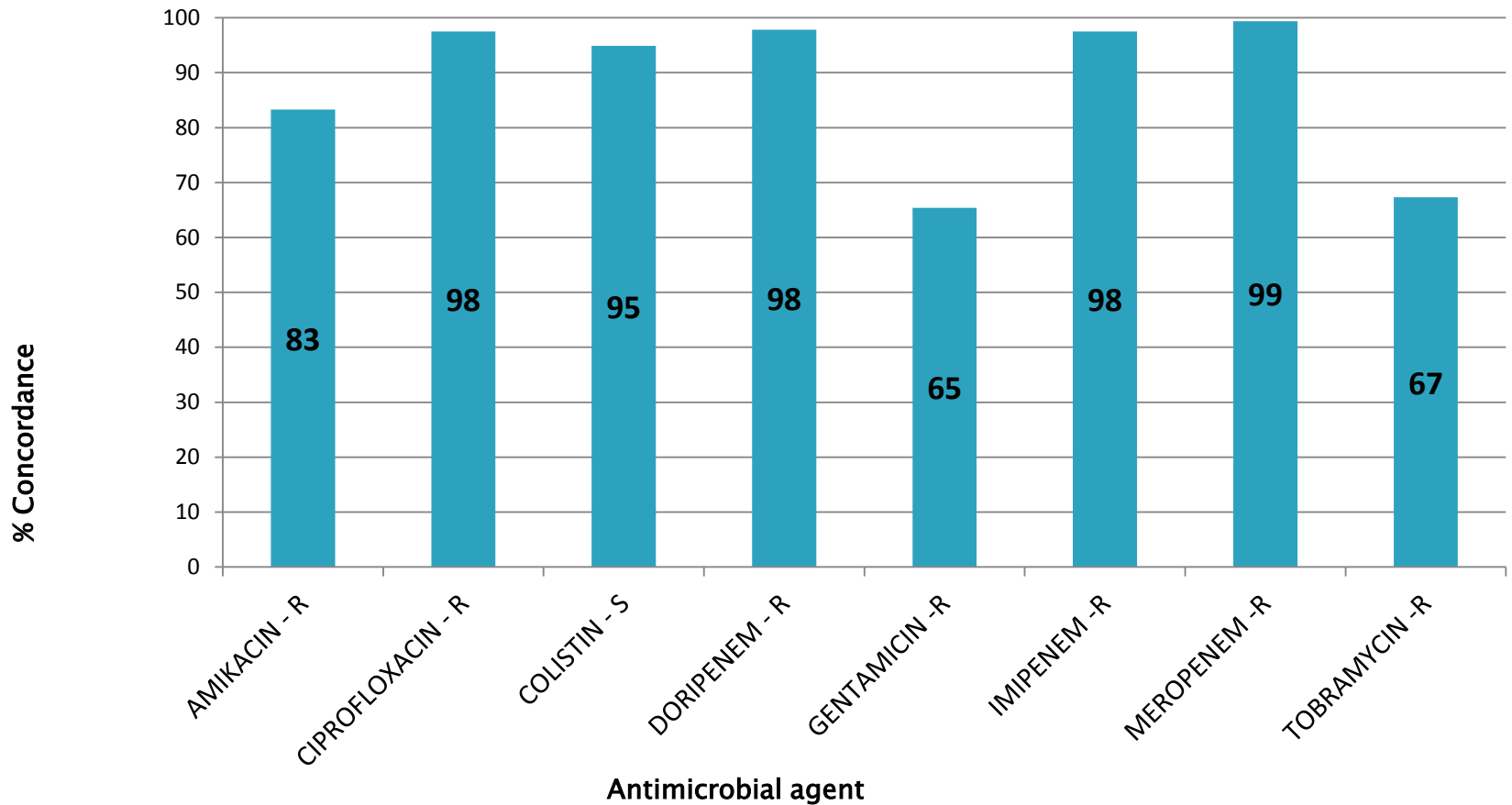


Acinetobacter baumannii complex

specimen 2501 – GES-12 carbapenemase

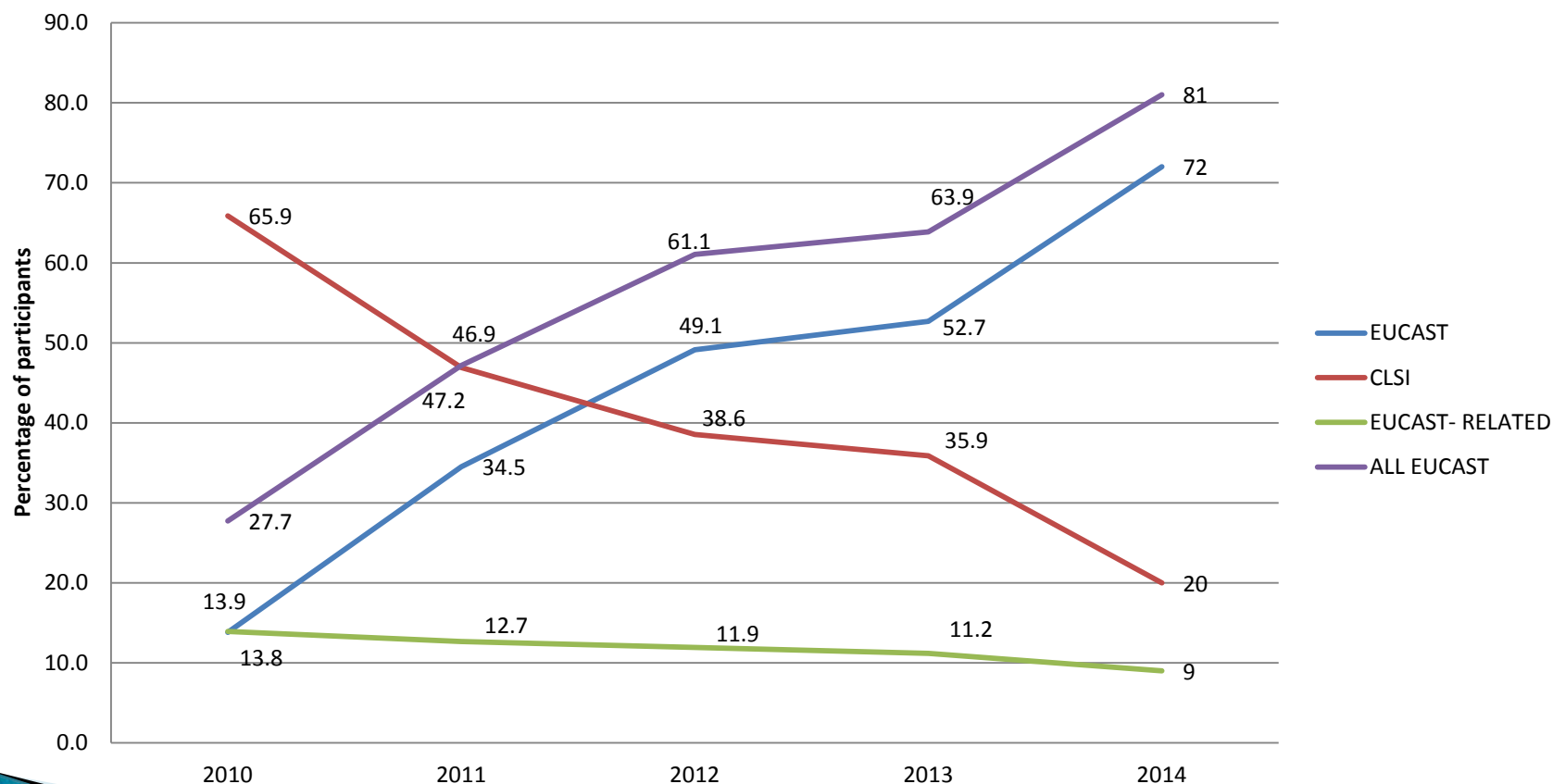
Antimicrobial agent	Reference MIC (mg/L)	EUCAST/CLSI Result
Amikacin	≥ 128	R
Ciprofloxacin	64	R
Colistin	0.5–1	S
Doripenem		R
Gentamicin	32–64	R
Imipenem	32–64	R
Meropenem	64– ≥ 128	R
Tobramycin	32	R

Acinetobacter baumannii complex specimen 2501



Trends in guidelines used by EARS–Net participating laboratories from 2010 to 2014

Chart 3: Trends in antimicrobial susceptibility testing guidelines in EARS-Net



Conclusions 2014

- ▶ Performance good for most organism–agent combinations
- ▶ Discrepancies more common when:
 - Susceptibility borderline
 - Critical differences between guidelines
 - Failure to follow guidelines

Acknowledgements

- ▶ Miala Matso
 - ▶ The UK NEQAS team for the preparation and distribution of specimens and the data analysis of results for report.
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