



EQAS 2015

Staphylococci

EURL-AR workshop, April 14-15th, 2016

Participation

Staphylococci /AST

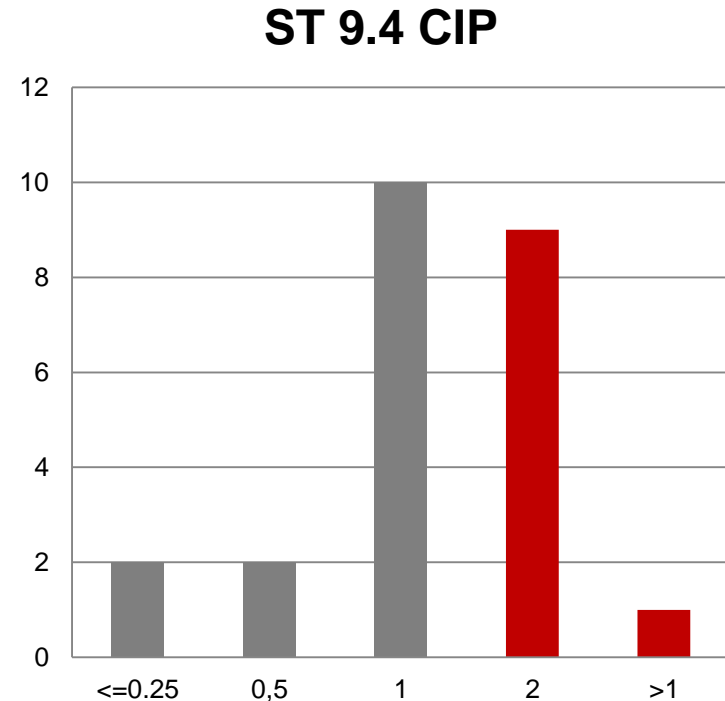
**25 countries including
3 non EU MS**

25 sets of Staphylococci AST data



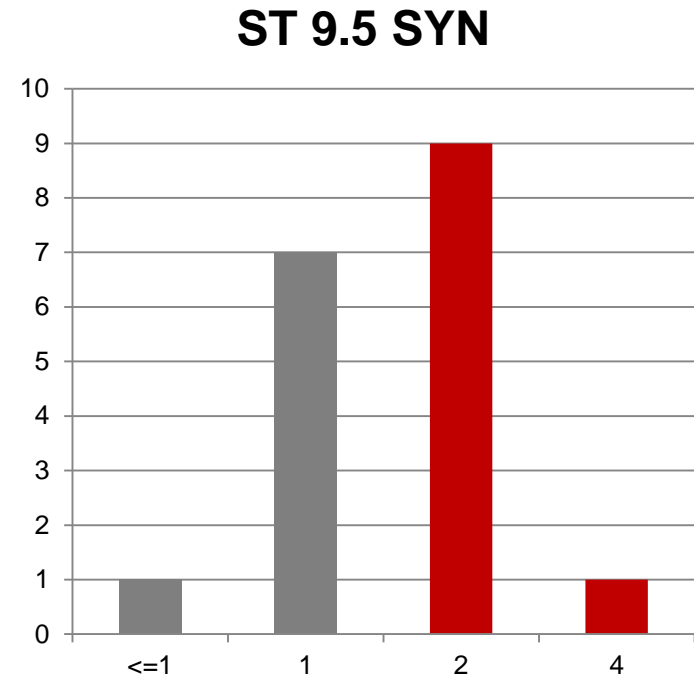
ST - 9.4 /Ciprofloxacin

- 24 laboratories reported results
- This strain had an expected interpretation as "R" and an expected MIC value of 2 mg/L
- Fourteen laboratories reported this strain as "S"
- Result close to breakpoint causing 58% deviation
- Omitted from analysis in the report



ST-9.5 Quinopristin-dalfopristin (SYN)

- 18 laboratories reported results
- This strain had an expected interpretation as "S" and an expected MIC value of 1 mg/L
- Eight laboratories reported this strain as "S"
- Result close to breakpoint causing 56% deviation
- Omitted from analysis in the report



Deviations

Figure 5. Staphylococci trial: results deviating from the expected interpretation subdivided by tested strain.

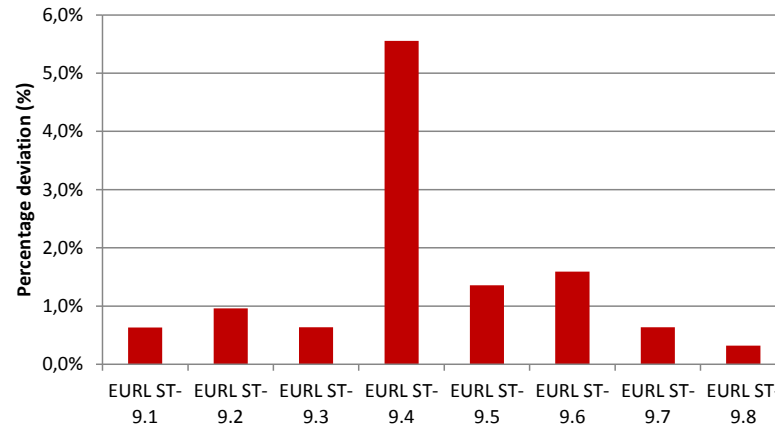
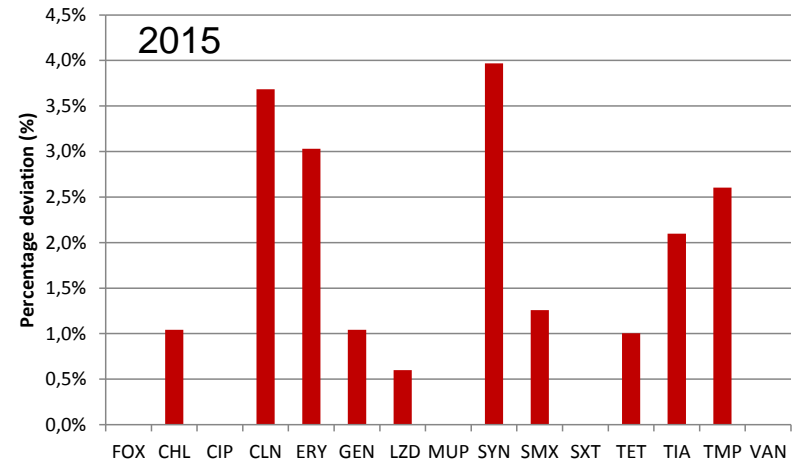
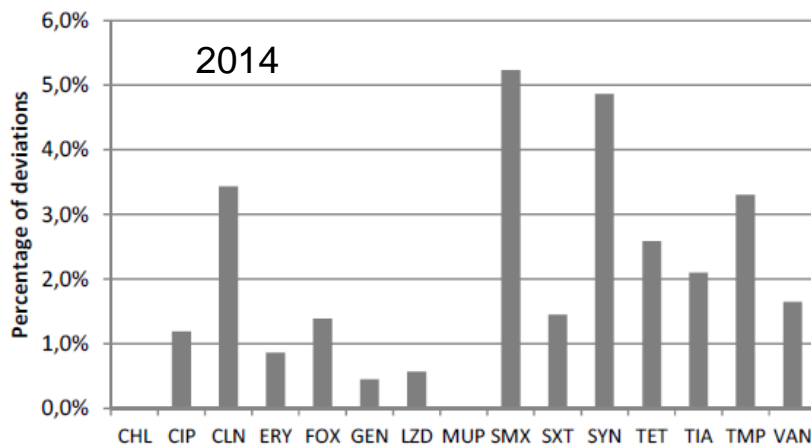
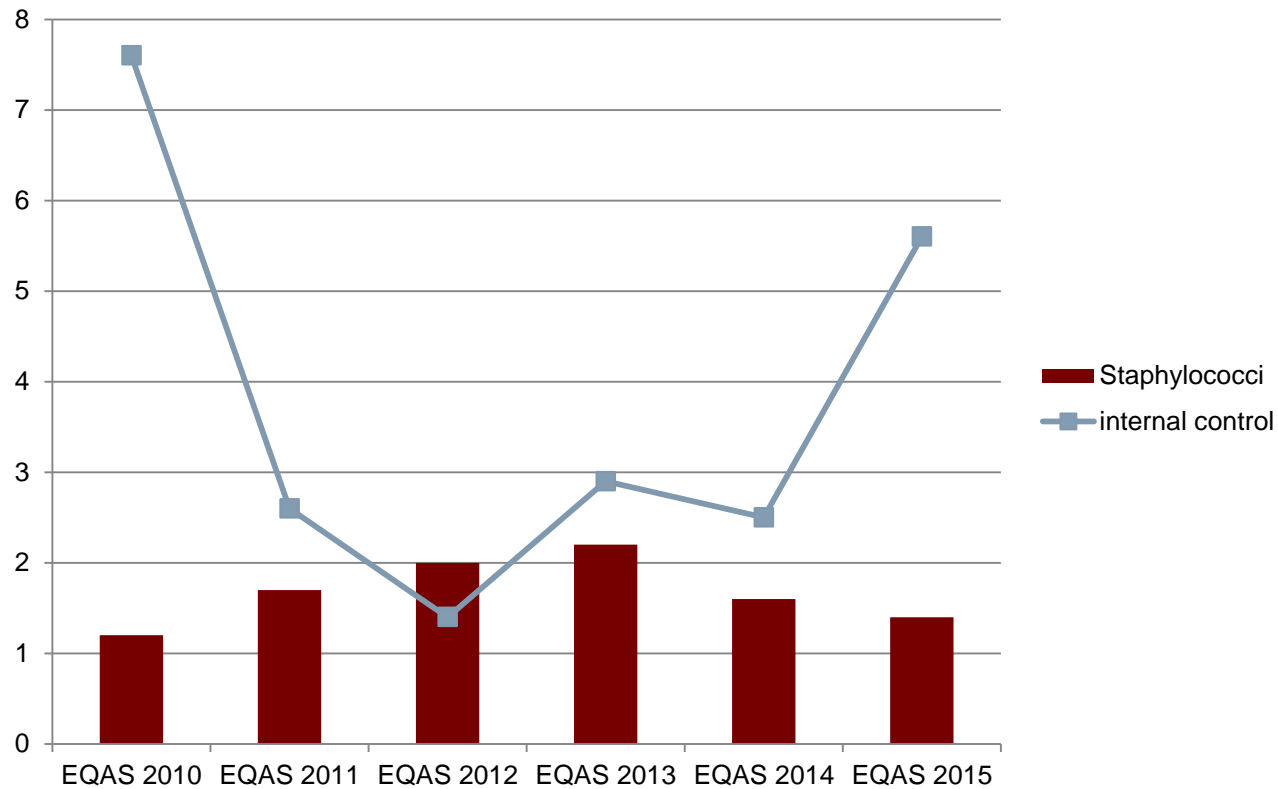


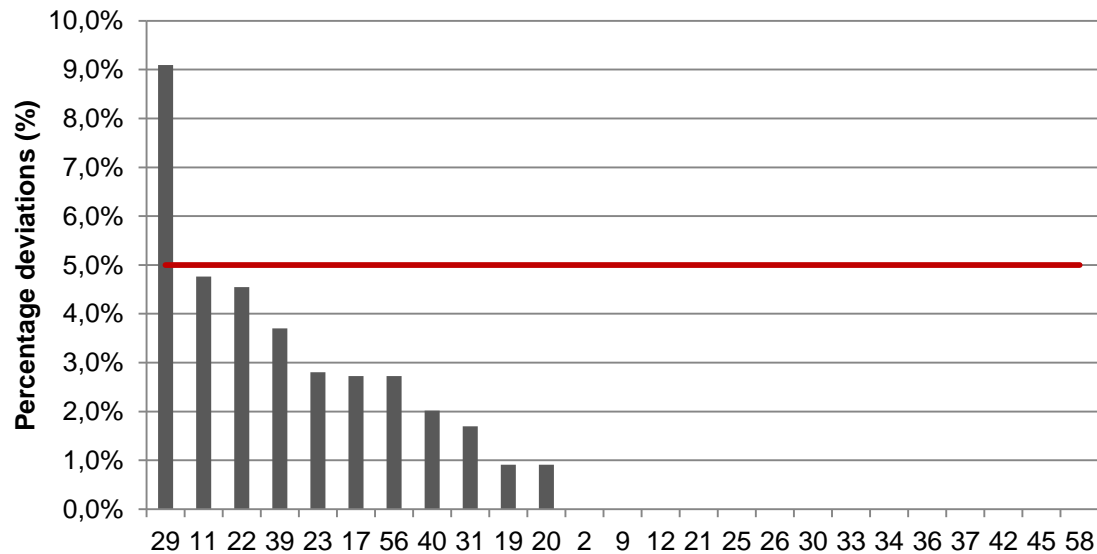
Figure 6. Staphylococci trial: results deviating from the expected interpretation according to tested antimicrobials.



AST - Comparison to former EQASs



Staphylococci results – pr. lab



One lab above acceptance level and considered as an outlier

Pitfalls in MIC Testing of Staphylococci

Mirjam Grobbel

EURL-AR workshop, April 14-15th, 2016

Possible problems

- High MIC values for certain antimicrobials:
 - Sulphonamides
 - Trimethoprim
 - Quinupristin-Dalfopristin
 - Clindamycin
 - Erythromycin
 - Tiamulin
 - Chloramphenicol
 - Tetracyclin

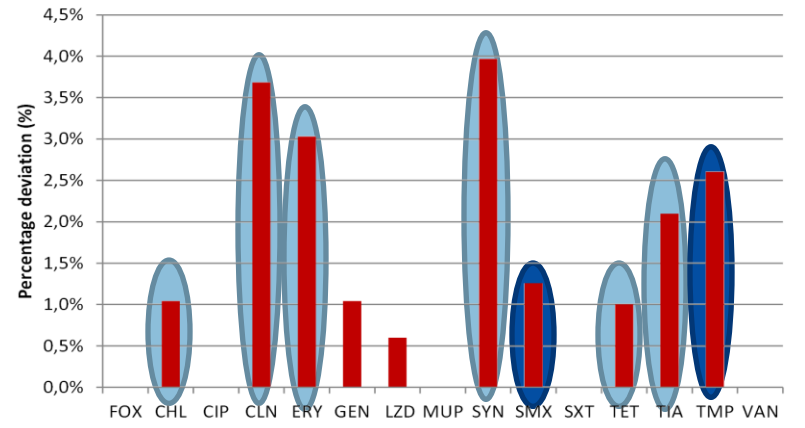


Figure 6. Staphylococci trial: results deviating from the expected interpretation according to tested antimicrobials.

„Tailing“ and skips - CLSI M07-A10 pp30&31

3. Exceptions to reading complete inhibition of growth:

For gram-positive cocci when testing chloramphenicol, clindamycin, erythromycin, linezolid, and tetracycline, trailing growth can make end-point determination difficult.

With trimethoprim and the sulfonamides, antagonists in the medium may allow some slight growth; therefore, read the end point at the concentration in which there is $\geq 80\%$ reduction in growth as compared to the control (see Figure 2).

In such cases, read the MIC at the first spot where the trailing begins. Tiny buttons of growth should be ignored (see Figures 3 and 4).

When a single skipped well occurs in a microdilution test, read the highest MIC. Do not report results for drugs for which there is more than one skipped well.

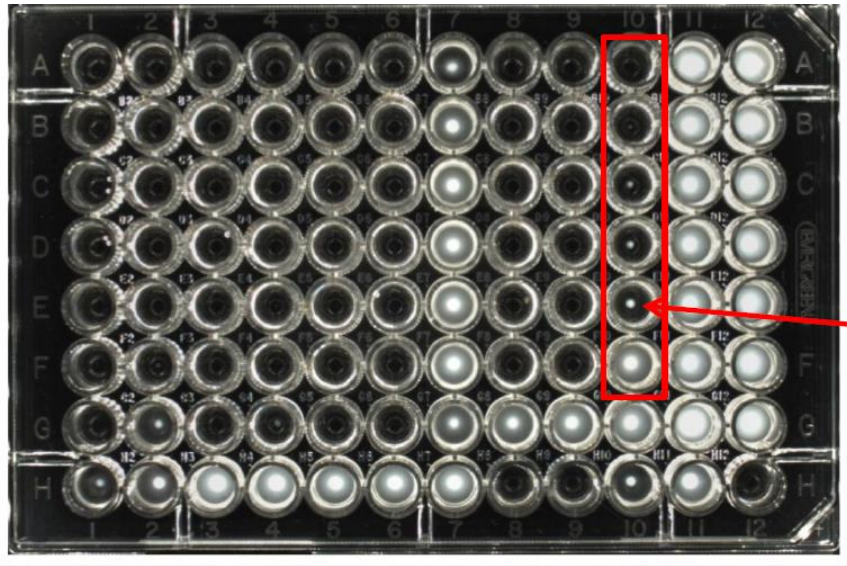


Figure 2. Trimethoprim-Sulfamethoxazole: 80% Inhibition End Point (A10–F10, 152/8–9.5/0.5 $\mu\text{g/mL}$), MIC = E10

pH - CLSI M07-A10 p 69

3. Check the pH of each batch of MHA when the medium is prepared. The exact method used depends largely on the type of equipment available in the laboratory. The agar medium should have a pH between 7.2 and 7.4 at room temperature, and must therefore be checked after solidifying. If the pH is less than 7.2, certain drugs will appear to lose potency (eg, aminoglycosides, macrolides), whereas other antimicrobial agents may appear to have excessive activity (eg, tetracyclines). If the pH is greater than 7.4, the opposite effects can be expected. Check the pH by one of the following means:
- Macerate enough agar to submerge the tip of a pH electrode.
 - Allow a small amount of agar to solidify around the tip of a pH electrode in a beaker or cup.
 - Use a surface electrode.

For Use With M07-A10—MIC Testing

M100-S25

Table 5G. (Continued)

| Antimicrobial Agent | QC Strain | Observation | Probable Cause | Comments/Suggested Actions |
|---------------------|-----------|--------------|---|--|
| Tetracyclines | Any | MIC too high | pH of media too high | Acceptable pH range = 7.2–7.4 |
| Tetracyclines | Any | MIC too high | Ca ⁺⁺ and/or Mg ⁺⁺ content too high | Acceptable range = Ca ⁺⁺ 20–25 mg/L Mg ⁺⁺ 10–12.5 mg/L |

Thank you for your attention

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