

External Quality Assessment Scheme

***Neisseria gonorrhoeae* (Gc), culture and susceptibility testing**

Round 1, 2023

Specimens

Please find enclosed 2 lyophilized samples S001 and S002, and vials of rehydration fluid, each 0.5 mL.

Caution

The specimens simulate clinical patient samples and should therefore be handled with the same care as normal patient samples, capable of transmitting infectious disease.

Examinations

Gc culture (identification or screening), antimicrobial susceptibility testing.

Storage and use

After arrival, the samples should be stored at +2...8°C. The identification information of the sample is located on top of the foil package on the large label. Possible other markings can be ignored.

1. Let the samples and the rehydration fluids warm up to room temperature.
2. Cut the foil packet open at the end where you can feel the thicker part of the loop.
3. Remove the plastic sheath from the loop. Break the loop shaft off from the handle directly into the tube containing warm rehydration fluid (blue cap).
4. Incubate the tube for 45 minutes at +35...37 °C.
5. Check that the black film inside the loop (containing the lyophilized sample) has dissolved completely.
6. Mix well the contents of the tube and culture immediately like a clinical sample.

Result reporting

Please enter the results via LabScala (www.labscale.com). If you cannot find your method from the list, please contact the EQA Coordinator.

Fill in the report to the clinician and confirmation of the findings. Next, report the amount of *Neisseria gonorrhoeae* colonies on the plate, as well as identification tests used.

When antimicrobial susceptibility testing is included in your laboratory's test selection, kindly perform the testing for the isolated *N. gonorrhoeae* strains. Report which guideline is followed in your laboratory for susceptibility testing procedures. As the NORDIC AST breakpoint values are based on the corresponding values published in the EUCAST guideline, the laboratories following NORDIC AST should select EUCAST as their reference group. Susceptibility test results are given only to the antimicrobial agents which are routinely used in your laboratory for *N. gonorrhoeae* isolates.

For the disk diffusion method, report the inhibitory zone diameter (mm). The value should be between 5 and 55 mm for the result to be accepted in the result processing. For MIC method, report the MIC value as mg/L. Note, that a rounded MIC result is to be reported in addition to the actual MIC result. Only the rounded values are included in the report. Guidance for correct rounding can be found below and is also available in LabScala (click the *i*-button in column "MIC result, rounded"). The rounded MIC value should always be selected from the list on the result form, also when it is the same as the actual obtained MIC result (see examples below in the guidance table).

2023-02-28

INSTRUCTIONS

Product no. 5120
LQ761123011-012/US
UN3373

Subcontracting: Sample pretesting

If the kit is incomplete or contains damaged specimens, please report immediately to info@labquality.fi.

The results should be reported no later than **March 27, 2023.**

The expected results of the round are published in LabScala in the View Reports section by March 30, 2023.

Inquiries

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In the last field, report corresponding SIR interpretation (Sensitive/Intermediate/Resistant). The interpretation should be reported by taking into consideration possible resistance mechanisms of the microbe.

Guidance for the rounding of MIC values for *N. gonorrhoeae*

E-test or other MIC test result (mg/L)	Rounded value (mg/L)
<0.002, <0.003, 0.002	0.002
<0.004, <0.006, 0.003, 0.004	0.004
<0.008, <0.012, 0.006, 0.008	0.008
<0.015, <0.016, <0.023, 0.012, 0.015, 0.016	0.016
<0.03, <0.032, <0.047, 0.023, 0.03, 0.032	0.032
<0.06, <0.064, <0.094, 0.047, 0.06, 0.064	0.064
<0.12, <0.125, <0.19, 0.094, 0.12, 0.125	0.125
<0.25, <0.38, 0.19, 0.25	0.25
<0.5, <0.75, 0.38, 0.5	0.5
<1, <1.5, >0.5, 0.75, 1	1
<2, <3, >1, >1.5, 1.5, 2	2
<4, <6, >2, >3, 3, 4	4
<12, <8, >4, >6, 6, 8	8
<16, <24, >12, >8, 12, 16	16
<32, <48, >16, >24, 24, 32	32
<64, <96, >32, >48, 48, 64	64
<128, <192, >64, >96, 128, 96	128
<256, <384, >128, >192, 192, 256	256
<512, <768, >256, >384, 384, 512	512
<1024, <1536, >512, >768, 1024, 768	1024
<2048, >1024, >1536, 1536, 2048	2048

Example 1: Obtained test result is 0.002 mg/L, rounded value is 0.002 mg/L

Example 2: Obtained test result is 0.003 mg/L, rounded value is 0.004 mg/L

Example 3: Obtained test result is >16 mg/L, rounded value is 32 mg/L

Report to the clinician part will be scored.

Neisseria gonorrhoeae (Gc), culture and susceptibility testing

S001



S002



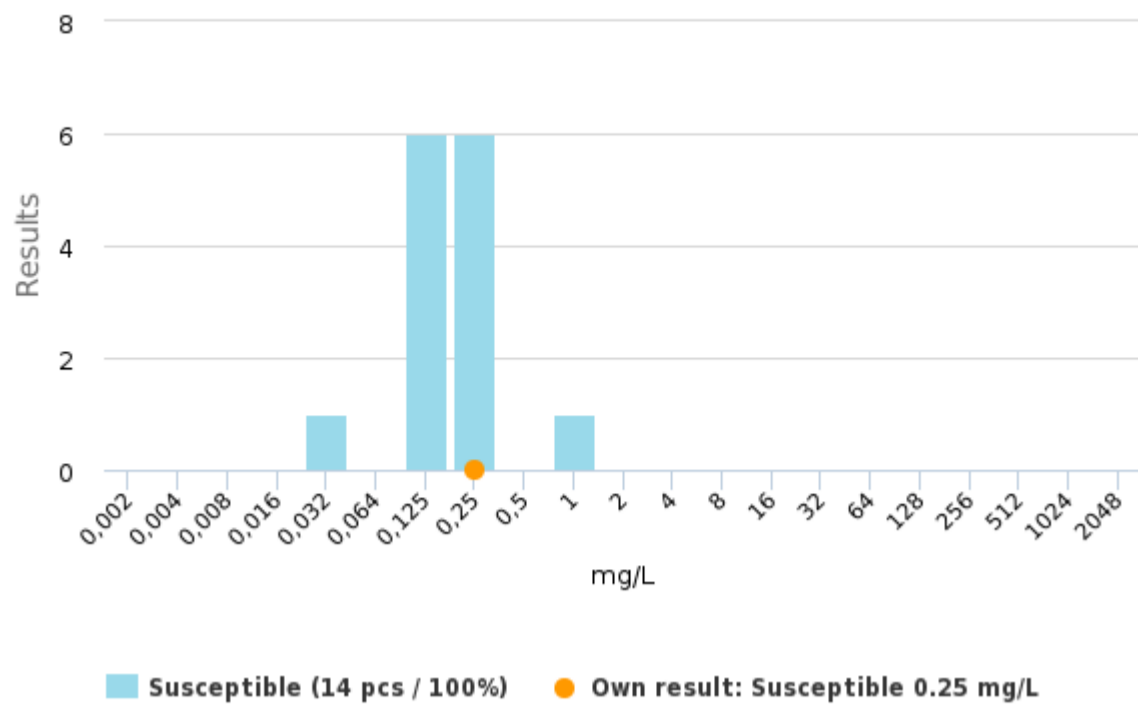
Sample S001

Neisseria gonorrhoeae CL2

Antimicrobial agent	Guideline	DISK							MIC					
		Own result (mm)	x (mm)	sd (mm)	S	I	R	n	Own result (mg/L)	Mo (mg/L)	S	I	R	n
Azithromycin	BSAC	-	30	-	1 (100%)	0 (0%)	0 (0%)	1	-	-	-	-	-	-
	CLSI	-	30	-	1 (100%)	0 (0%)	0 (0%)	1	-	0.25	1 (100%)	0 (0%)	0 (0%)	1
	EUCAST	-	-	-	-	-	-	-	0.25	-	14 (100%)	0 (0%)	0 (0%)	14
	CA-SFM	-	-	-	-	-	-	-	-	0.125	5 (100%)	0 (0%)	0 (0%)	5
	All				2 (100%)	0 (0%)	0 (0%)	2			20 (100%)	0 (0%)	0 (0%)	20
Cefixime	BSAC	-	-	-	-	-	-	-	-	0.032	1 (100%)	0 (0%)	0 (0%)	1
	EUCAST	-	35	-	1 (100%)	0 (0%)	0 (0%)	1	0.016	0.016	9 (100%)	0 (0%)	0 (0%)	9
	CA-SFM	-	-	-	-	-	-	-	-	0.016	3 (100%)	0 (0%)	0 (0%)	3
	All				1 (100%)	0 (0%)	0 (0%)	1			13 (100%)	0 (0%)	0 (0%)	13
Ceftriaxone	BSAC	-	-	-	-	-	-	-	-	0.016	1 (100%)	0 (0%)	0 (0%)	1
	CLSI	-	35	-	1 (100%)	0 (0%)	0 (0%)	1	-	-	-	-	-	
	EUCAST	-	-	-	-	-	-	-	0.004	0.002	22 (100%)	0 (0%)	0 (0%)	22
	CA-SFM	-	-	-	-	-	-	-	-	0.002	6 (100%)	0 (0%)	0 (0%)	6
	All				1 (100%)	0 (0%)	0 (0%)	1			29 (100%)	0 (0%)	0 (0%)	29
Ciprofloxacin	BSAC	-	-	-	-	-	-	-	-	0.008	1 (100%)	0 (0%)	0 (0%)	1
	EUCAST	-	35	-	1 (100%)	0 (0%)	0 (0%)	1	0.004	0.004	22 (96%)	1 (4%)	0 (0%)	23
	CA-SFM	-	-	-	-	-	-	-	-	0.004	5 (100%)	0 (0%)	0 (0%)	5
	All				1 (100%)	0 (0%)	0 (0%)	1			28 (97%)	1 (3%)	0 (0%)	29
Penicillin	BSAC	-	12	-	0 (0%)	0 (0%)	1 (100%)	1	-	-	-	-	-	
	EUCAST	-	26	-	0 (0%)	1 (100%)	0 (0%)	1	0.25	0.125	1 (8%)	11 (92%)	0 (0%)	12
	CA-SFM	-	-	-	-	-	-	-	-	0.125	0 (0%)	3 (100%)	0 (0%)	3
	All				0 (0%)	1 (50%)	1 (50%)	2			1 (7%)	14 (93%)	0 (0%)	15
Spectinomycin	EUCAST	-	-	-	-	-	-	-	16	16	4 (100%)	0 (0%)	0 (0%)	4
	CA-SFM	-	-	-	-	-	-	-	-	16	1 (100%)	0 (0%)	0 (0%)	1
	All				0	0	0	0			5 (100%)	0 (0%)	0 (0%)	5

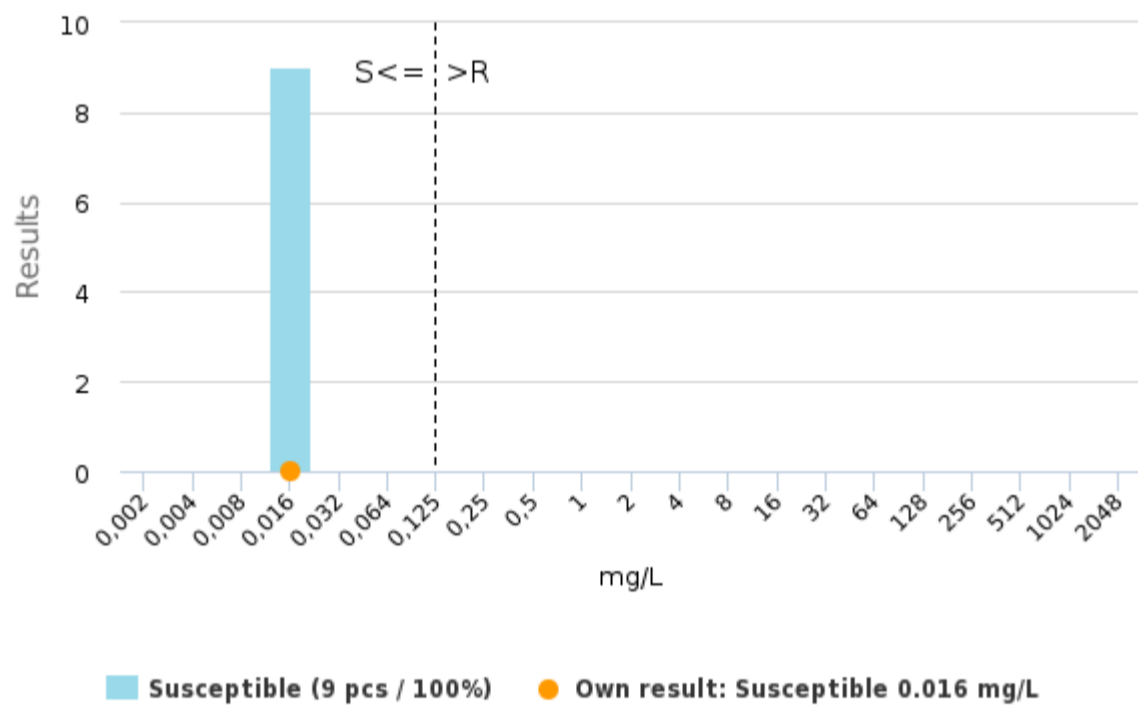
Sample S001 | EUCAST

Azithromycin - MIC



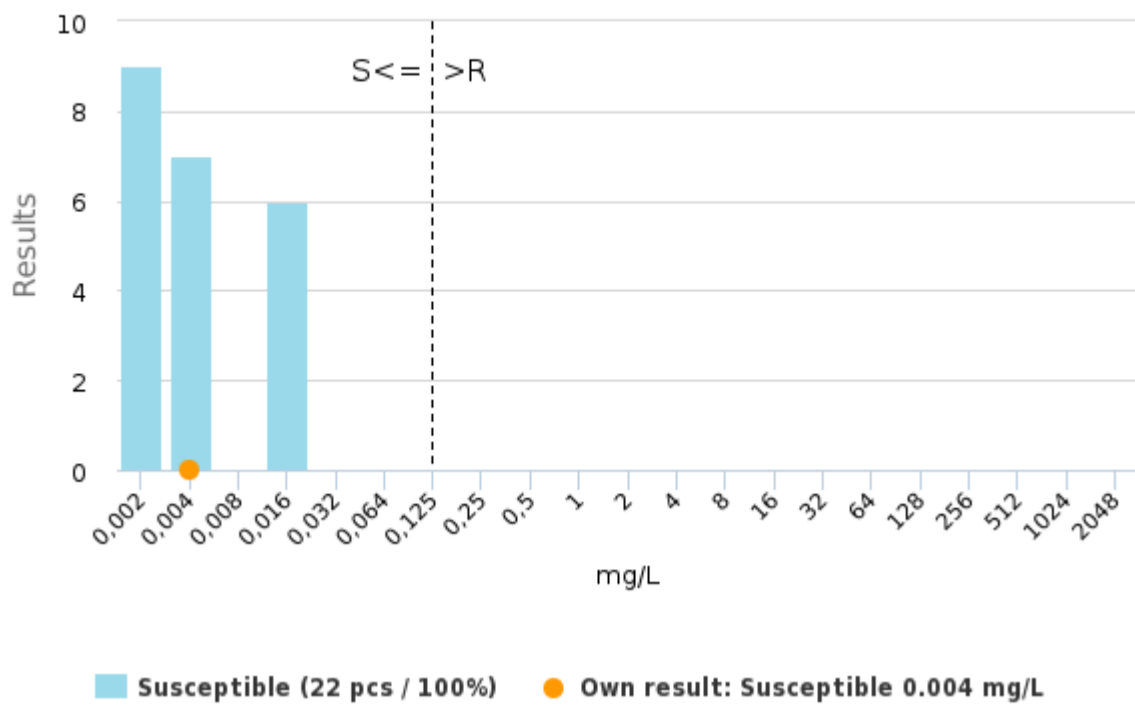
	Mo	min	max	n
Azithromycin	-	0.032	1	14

Cefixime - MIC



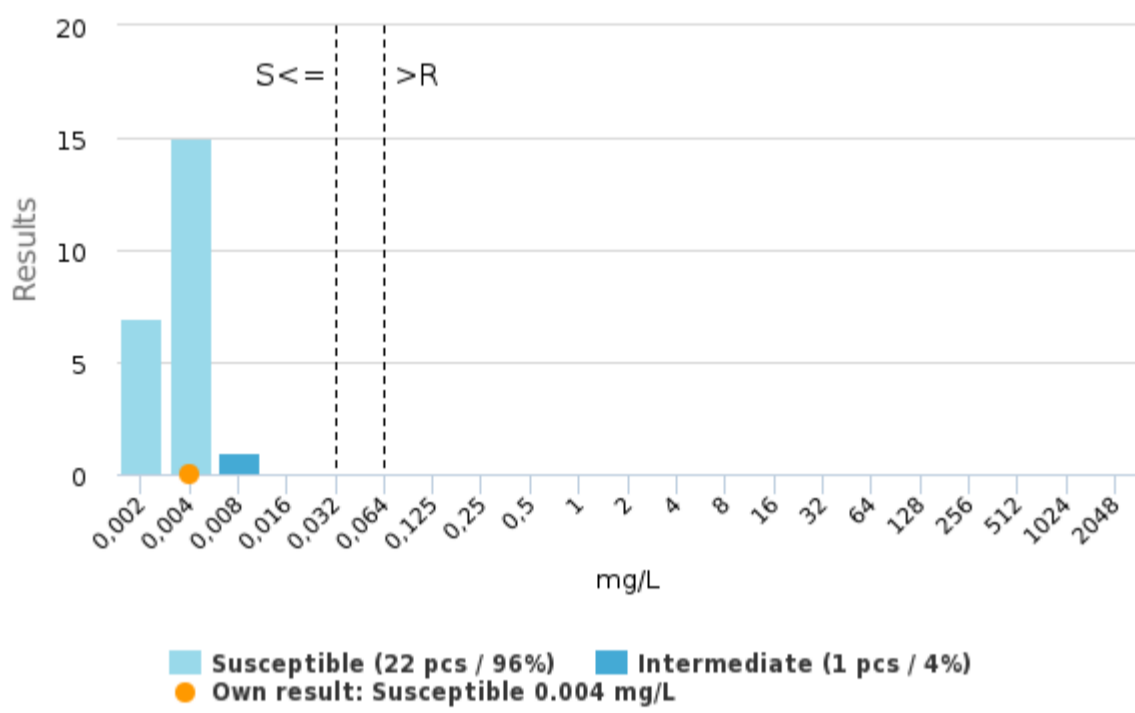
	Mo	min	max	n
Cefixime	0.016	0.016	0.016	9

Ceftriaxone - MIC



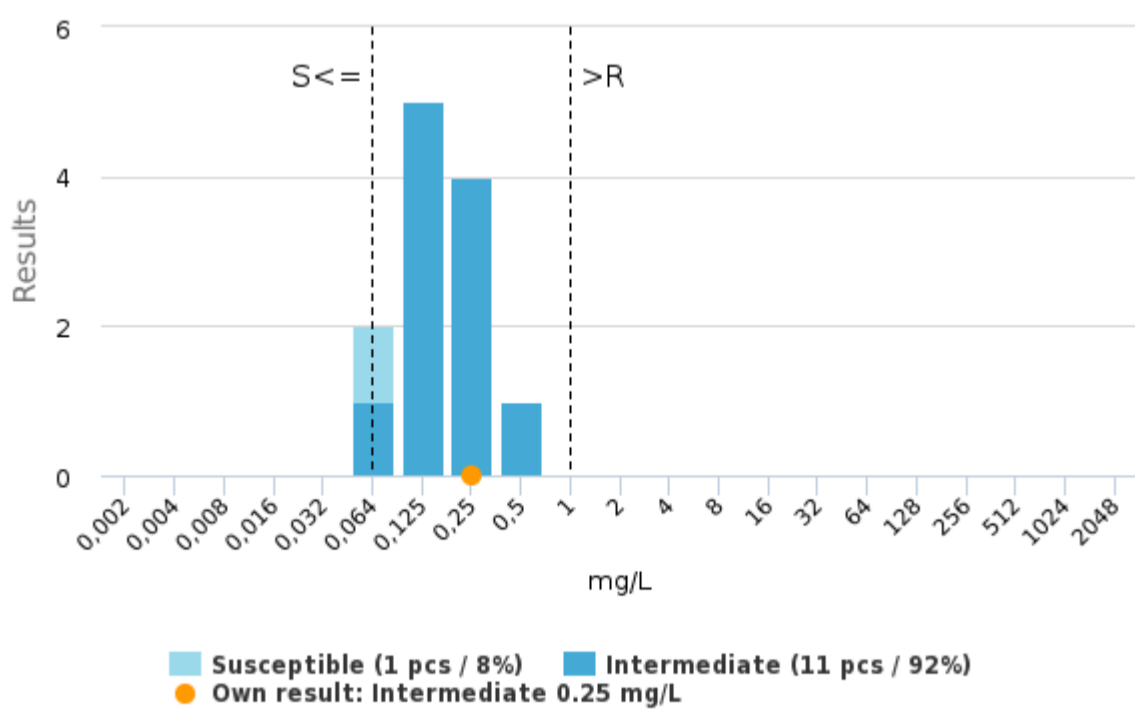
	Mo	min	max	n
Ceftriaxone	0.002	0.002	0.016	22

Ciprofloxacin - MIC

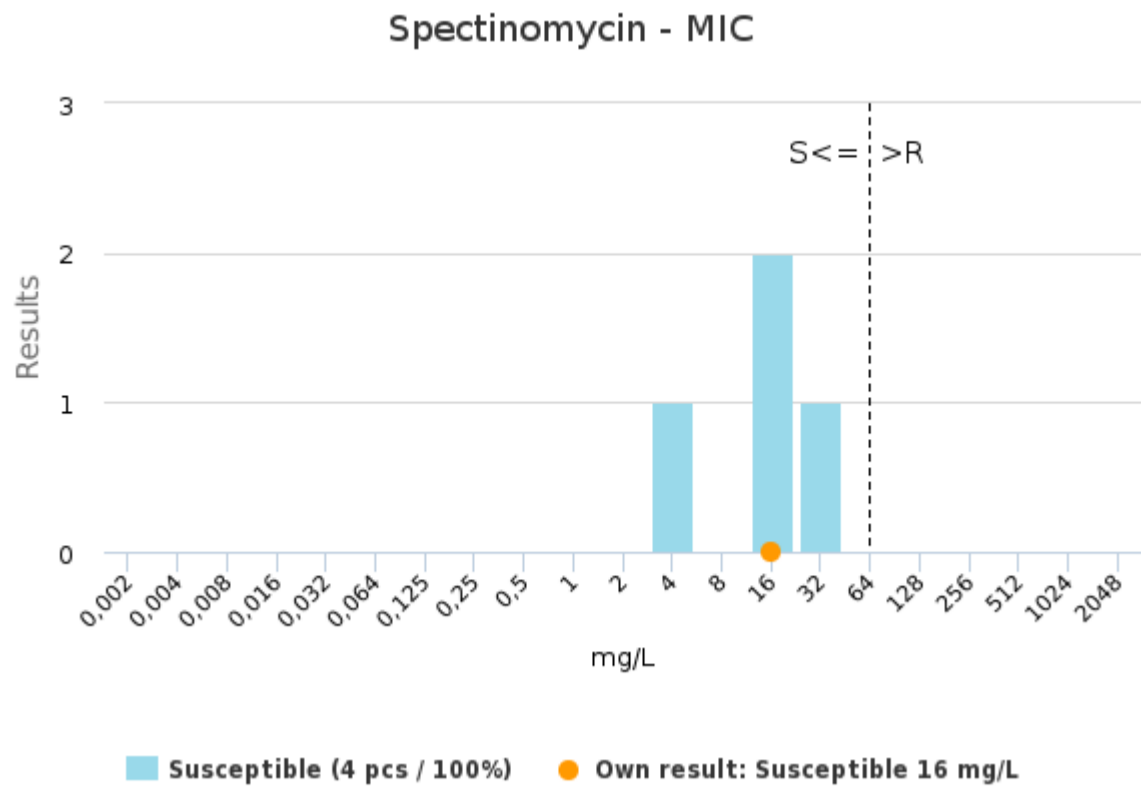


	Mo	min	max	n
Ciprofloxacin	0.004	0.002	0.008	23

Penicillin - MIC



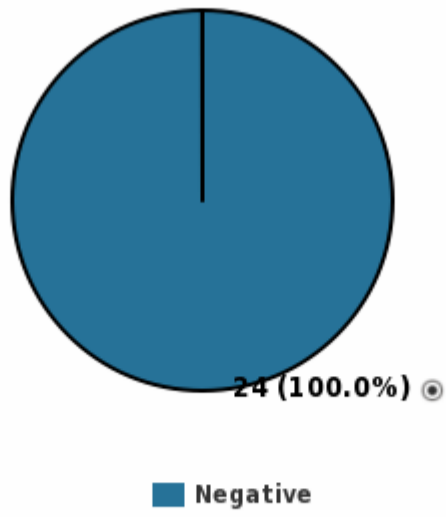
	Mo	min	max	n
Penicillin	0.125	0.064	0.5	12



	Mo	min	max	n
Spectinomycin	16	4	32	4

Sample S001 | Additional questions

Beta-lactamase test



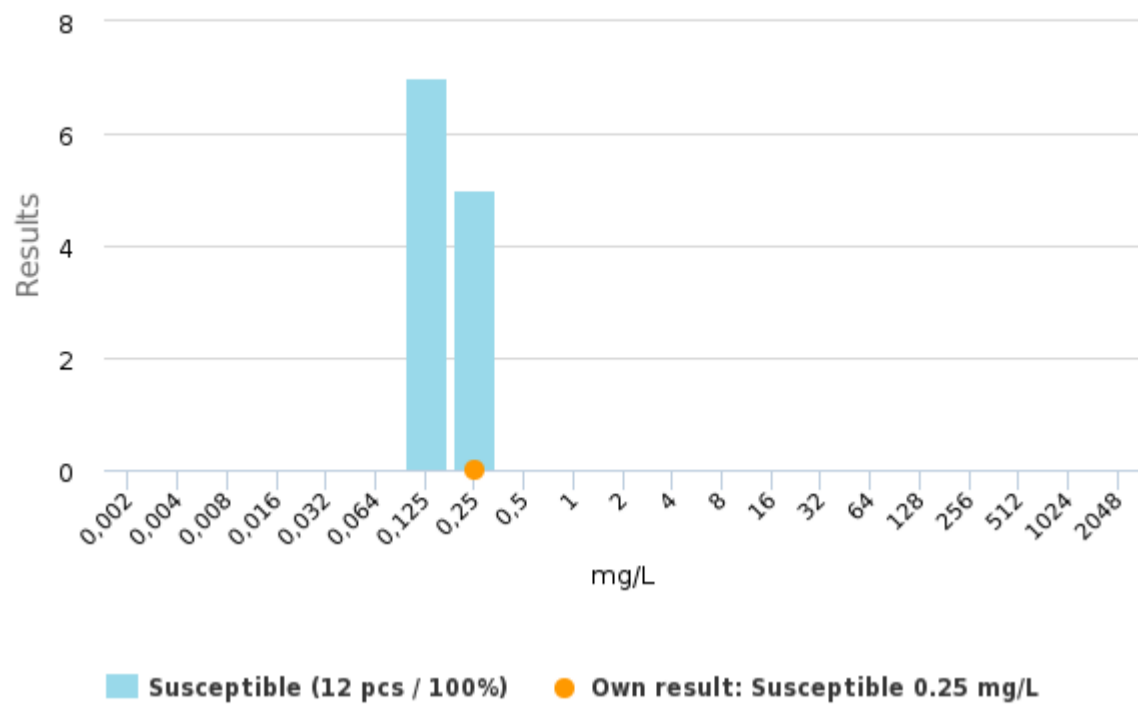
Sample S002

Neisseria gonorrhoeae CL2

Antimicrobial agent	Guideline	DISK							MIC					
		Own result (mm)	x (mm)	sd (mm)	S	I	R	n	Own result (mg/L)	Mo (mg/L)	S	I	R	n
Azithromycin	BSAC	-	29	-	1 (100%)	0 (0%)	0 (0%)	1	-	-	-	-	-	-
	CLSI	-	35	-	1 (100%)	0 (0%)	0 (0%)	1	-	0.25	1 (100%)	0 (0%)	0 (0%)	1
	EUCAST	-	-	-	-	-	-	-	0.25	0.125	12 (100%)	0 (0%)	0 (0%)	12
	CA-SFM	-	-	-	-	-	-	-	-	0.125	5 (100%)	0 (0%)	0 (0%)	5
	All				2 (100%)	0 (0%)	0 (0%)	2			18 (100%)	0 (0%)	0 (0%)	18
Cefixime	BSAC	-	-	-	-	-	-	-	-	0.004	1 (100%)	0 (0%)	0 (0%)	1
	EUCAST	-	35	-	1 (100%)	0 (0%)	0 (0%)	1	0.016	0.016	8 (89%)	0 (0%)	1 (11%)	9
	CA-SFM	-	-	-	-	-	-	-	-	0.016	3 (100%)	0 (0%)	0 (0%)	3
	All				1 (100%)	0 (0%)	0 (0%)	1			12 (92%)	0 (0%)	1 (8%)	13
Ceftriaxone	BSAC	-	-	-	-	-	-	-	-	0.008	1 (100%)	0 (0%)	0 (0%)	1
	CLSI	-	35	-	1 (100%)	0 (0%)	0 (0%)	1	-	-	-	-	-	
	EUCAST	-	-	-	-	-	-	-	0.004	0.004	19 (95%)	0 (0%)	1 (5%)	20
	CA-SFM	-	-	-	-	-	-	-	-	0.002	6 (100%)	0 (0%)	0 (0%)	6
	All				1 (100%)	0 (0%)	0 (0%)	1			26 (96%)	0 (0%)	1 (4%)	27
Ciprofloxacin	BSAC	-	-	-	-	-	-	-	-	0.008	1 (100%)	0 (0%)	0 (0%)	1
	EUCAST	-	35	-	1 (100%)	0 (0%)	0 (0%)	1	0.004	0.004	19 (90%)	1 (5%)	1 (5%)	21
	CA-SFM	-	-	-	-	-	-	-	-	-	5 (100%)	0 (0%)	0 (0%)	5
	All				1 (100%)	0 (0%)	0 (0%)	1			25 (93%)	1 (4%)	1 (4%)	27
Penicillin	BSAC	-	20	-	0 (0%)	1 (100%)	0 (0%)	1	-	-	-	-	-	
	EUCAST	-	27	-	0 (0%)	1 (100%)	0 (0%)	1	0.25	0.25	2 (18%)	8 (73%)	1 (9%)	11
	CA-SFM	-	-	-	-	-	-	-	-	0.125	0 (0%)	3 (100%)	0 (0%)	3
	All				0 (0%)	2 (100%)	0 (0%)	2			2 (14%)	11 (79%)	1 (7%)	14
Spectinomycin	EUCAST	-	-	-	-	-	-	-	8	16	5 (100%)	0 (0%)	0 (0%)	5
	CA-SFM	-	-	-	-	-	-	-	-	8	1 (100%)	0 (0%)	0 (0%)	1
	All				0	0	0	0			6 (100%)	0 (0%)	0 (0%)	6

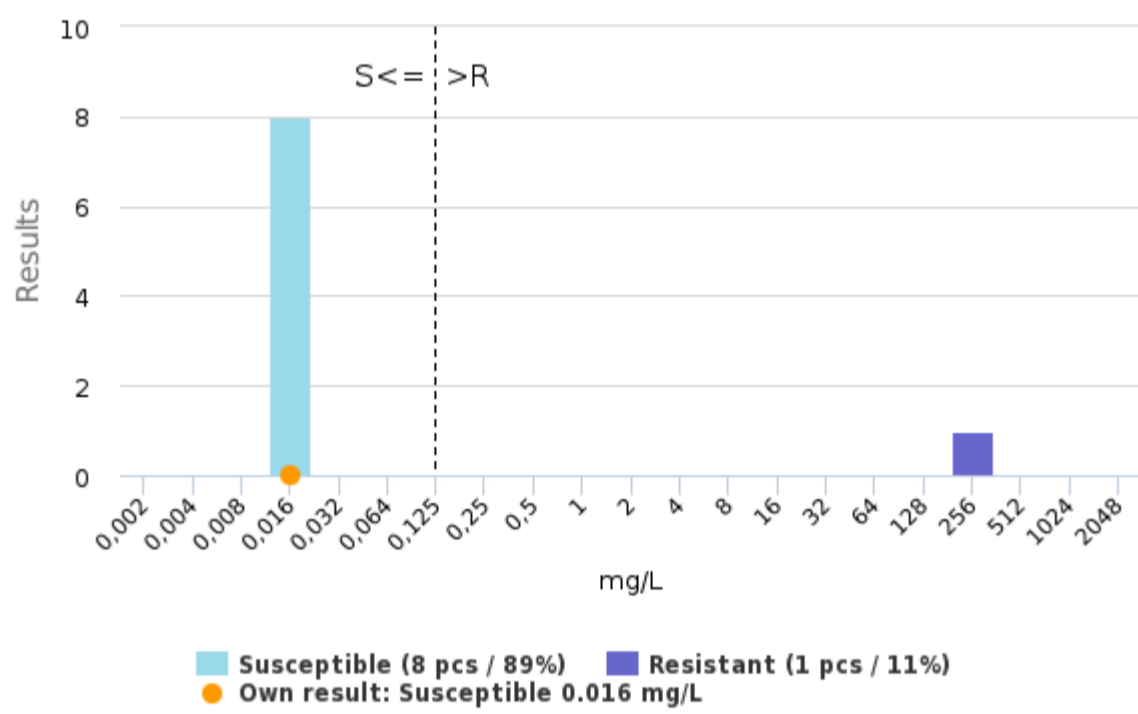
Sample S002 | EUCAST

Azithromycin - MIC

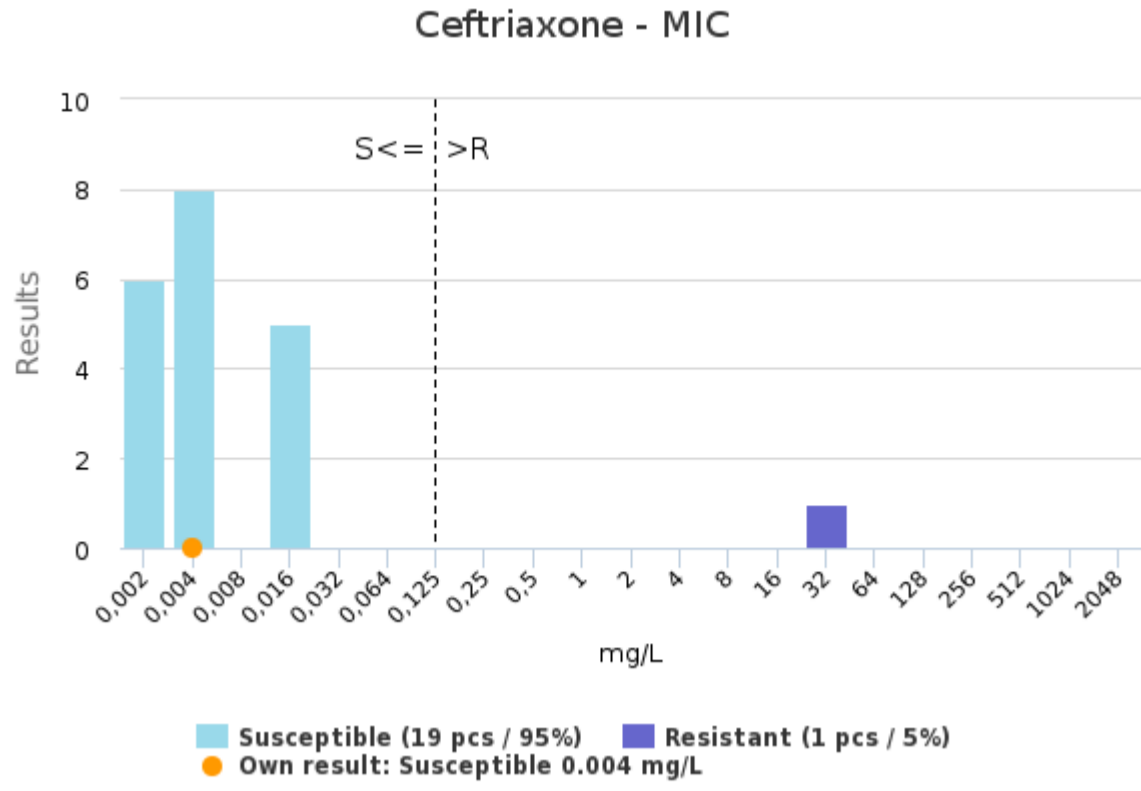


	Mo	min	max	n
Azithromycin	0.125	0.125	0.25	12

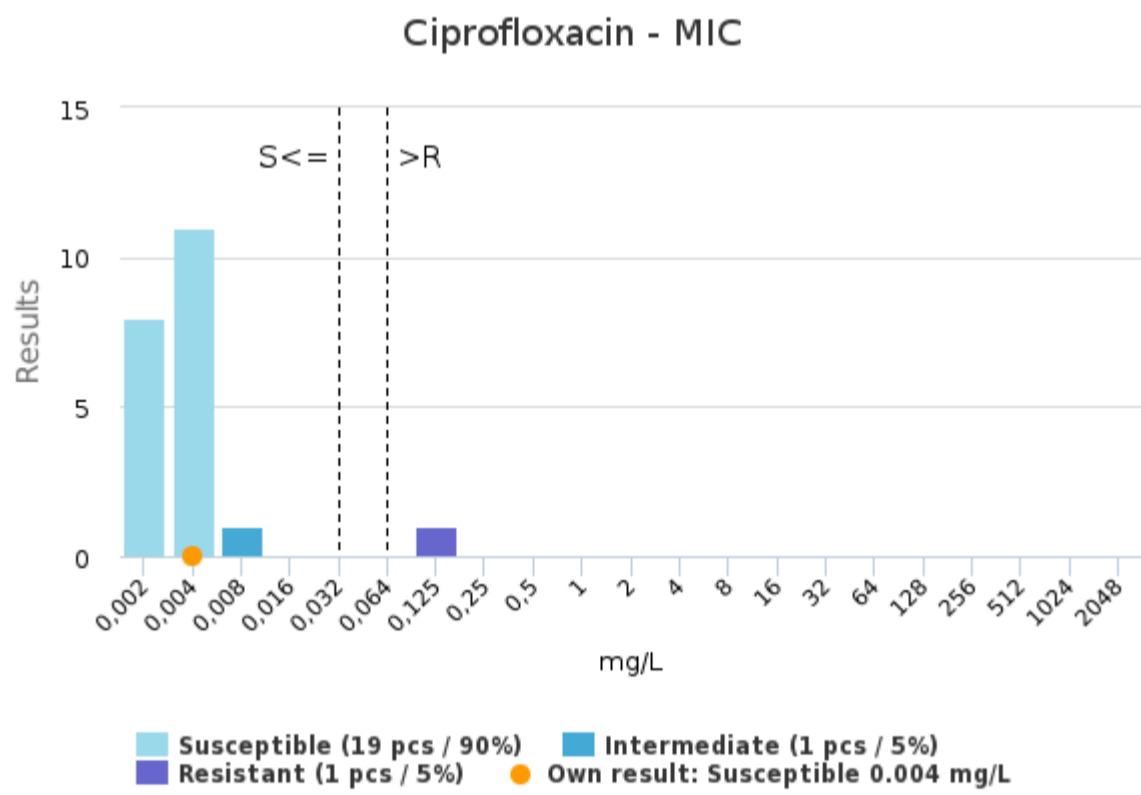
Cefixime - MIC



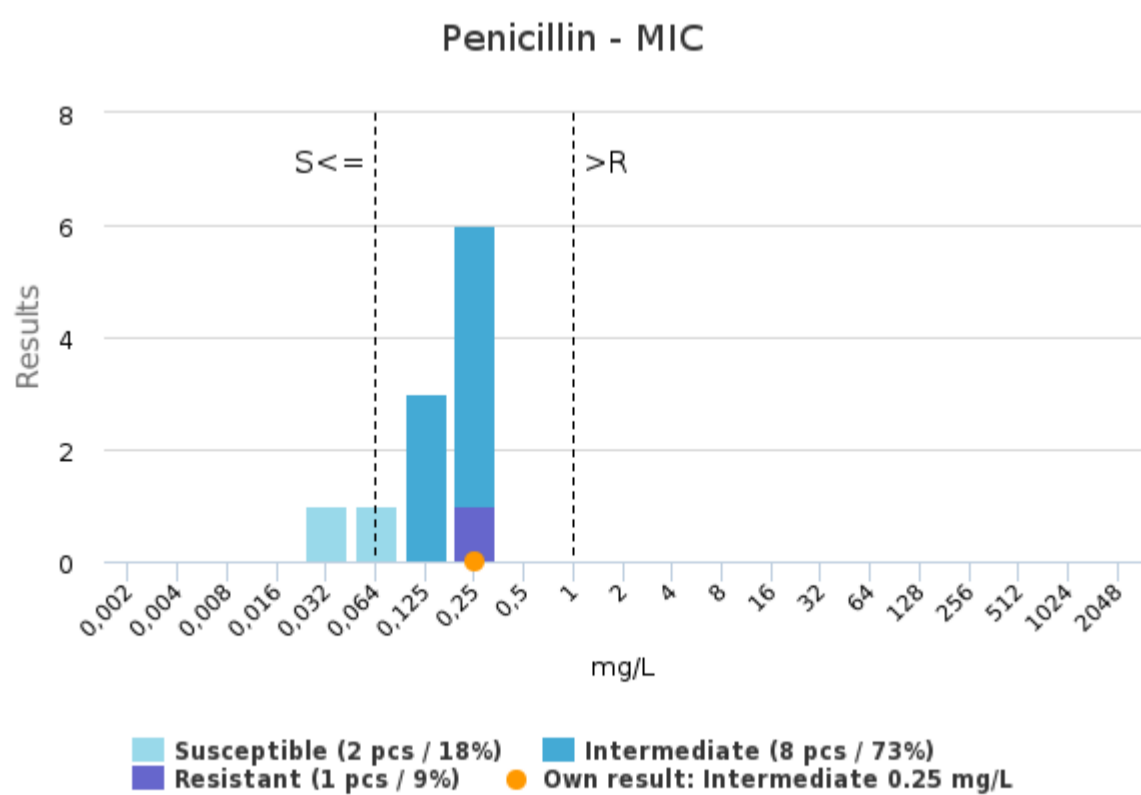
	Mo	min	max	n
Cefixime	0.016	0.016	256	9



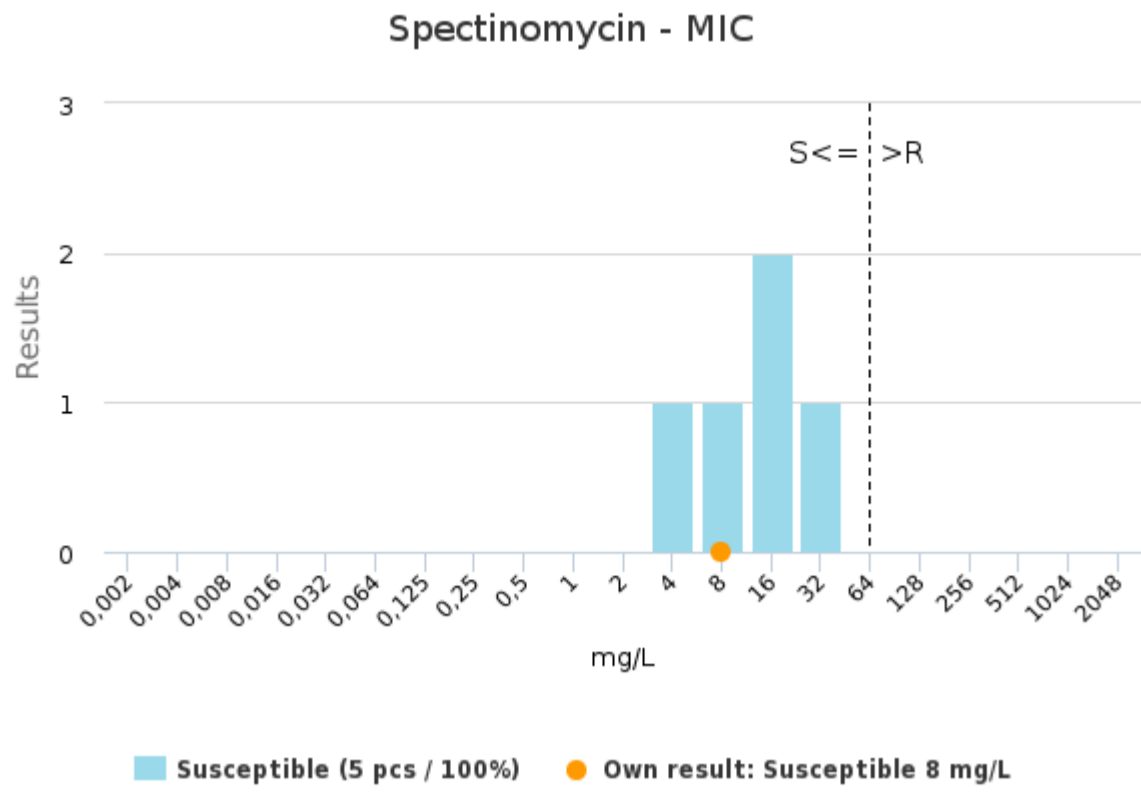
	Mo	min	max	n
Ceftriaxone	0.004	0.002	32	20



	Mo	min	max	n
Ciprofloxacin	0.004	0.002	0.125	21

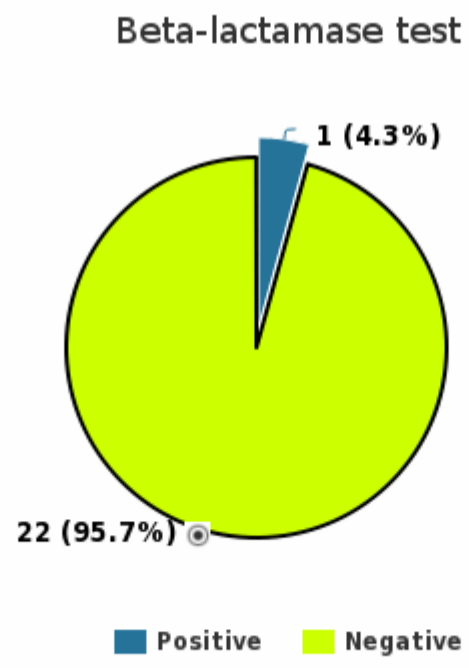


	Mo	min	max	n
Penicillin	0.25	0.032	0.25	11



	Mo	min	max	n
Spectinomycin	16	4	32	5

Sample S002 | Additional questions



Report info

Participants

Altogether 53 laboratories from 13 countries participated in this EQA round.

Report info

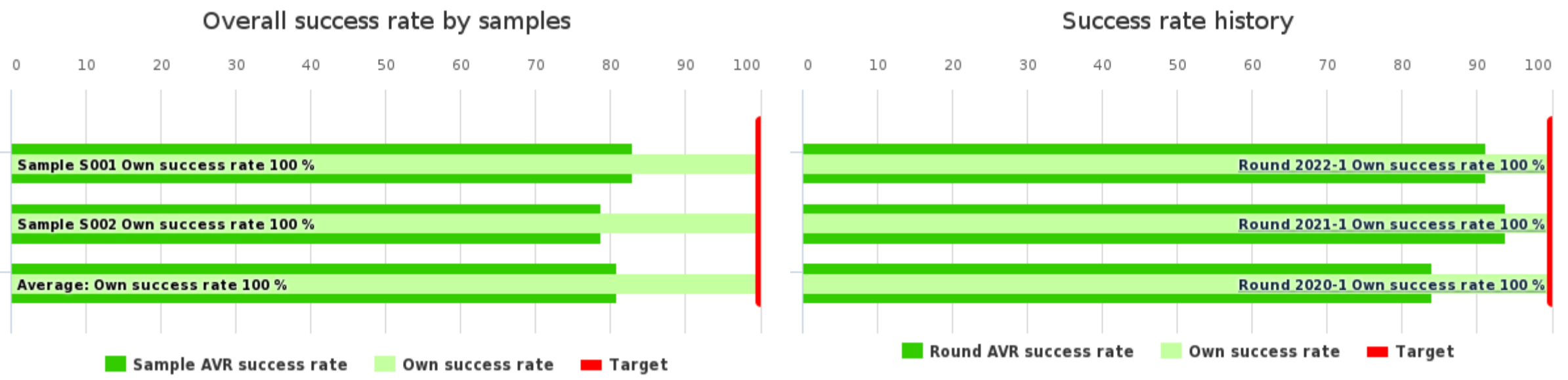
The susceptibility testing results are presented for positive screening samples only. The results are shown in laboratory specific summary tables and histograms. Histograms are drawn for each antimicrobial agent if the laboratory's result is included in a group of at least three results. By "group" is meant results which are obtained and interpreted according to the same standard (EUCAST, CLSI or CA-SFM). Laboratory's own results are indicated with a black radio button in the table and an orange dot in the histograms. Average (x) is used as a reference value for disk results and mode (Mo) is used for MIC results.

If you have not reported antimicrobial susceptibility testing results you will get a note: "You have not reported antimicrobial susceptibility results, only global report is available." For information on report interpretation and performance evaluation, please see the "EQAS Interpretation guidelines" in LabScala User instructions. In case you have any questions regarding the reports, please contact the EOA Coordinator.

Client report

	No of participants	No of responded participants	Response percentage
Neisseria gonorrhoeae (Gc), culture and susceptibility testing, March, 1-2023	53	47	88.7 %

Summary



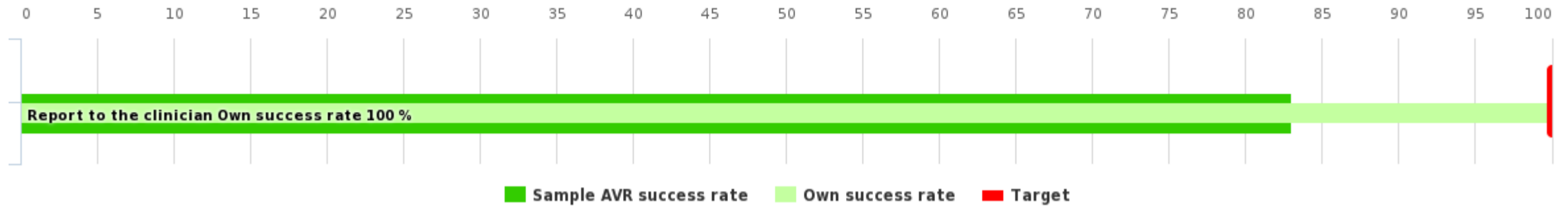
Summary	Own score	Max score	Own success rate	Difference	AVR success rate
Sample S001	4	4	100 %	17 %	83 %
Sample S002	4	4	100 %	21.3 %	78.7 %
Average:			100 %	19.1 %	80.9 %

History	Test nr.	Own success rate	Difference	AVR success rate
Round 2022-1	1	100 %	8.7 %	91.3 %
Round 2021-1	1	100 %	6.3 %	93.8 %
Round 2020-1	1	100 %	15.9 %	84.1 %

Report to the clinician and identification test results

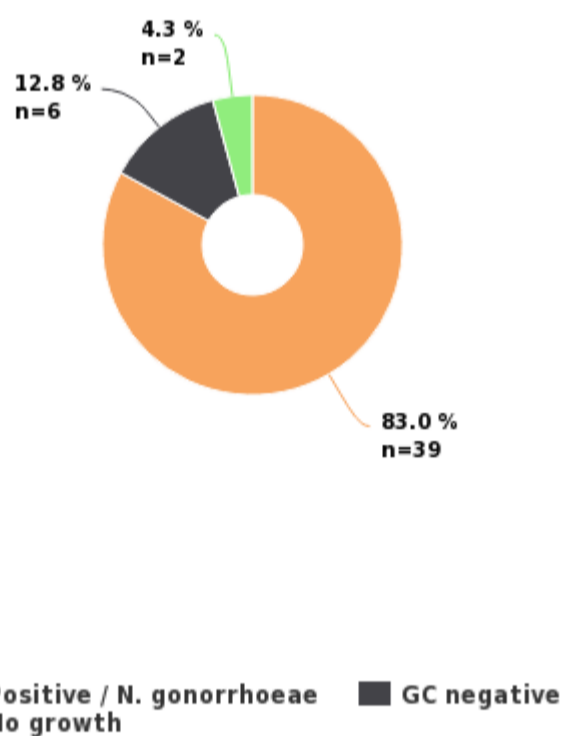
Sample S001 | GC culture: positive (N. gonorrhoeae, Lactobacillus sp.)

Sample S001 success rate



Sample S001 results	Responded	Own score	Max score	Own success rate	Difference	AVR success rate	Count
	Report to the clinician	4	4	100 %	17 %	83 %	47
	Amount of colonies on the plate	-	-	-	-	-	37
	Gram staining	-	-	-	-	-	32
	Oxidase test	-	-	-	-	-	31
	Commercial tests	-	-	-	-	-	5
	Identification by MALDI-TOF	-	-	-	-	-	37
	Nucleic acid detection	-	-	-	-	-	4
	Total:	4	4	100 %	17 %	83 %	193

Sample S001



LABORATORY SPECIFIC SCORING TABLE

Finding	Further action	Own score	Max score	Own success rate	Difference	AVR success rate
Positive / N. gonorrhoeae	Performed by laboratory itself	4	4	100 %	17 %	83 %
Total:		4	4	100 %	17 %	83 %

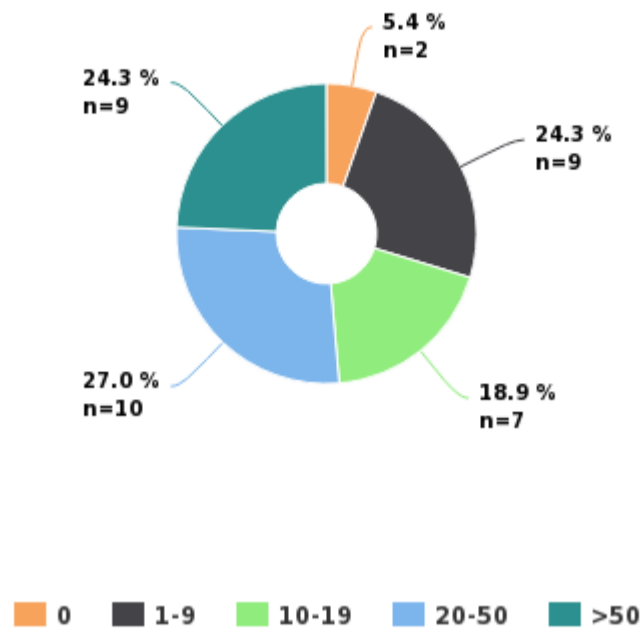
REPORT TO THE CLINICIAN

Finding	Finding count	No confirmation	Referred for confirmation	Confirmed internally	AVR success rate
	47				83 %
<input checked="" type="radio"/> Positive / N. gonorrhoeae	39	6	1	<input checked="" type="radio"/> 32	
GC negative	6	2		4	
No growth	2	2			
Total:	47				83 %

SCORING SUMMARY

Finding	Finding score	Max score
		4
Positive / N. gonorrhoeae	4	4
GC negative	0	4
No growth	0	4

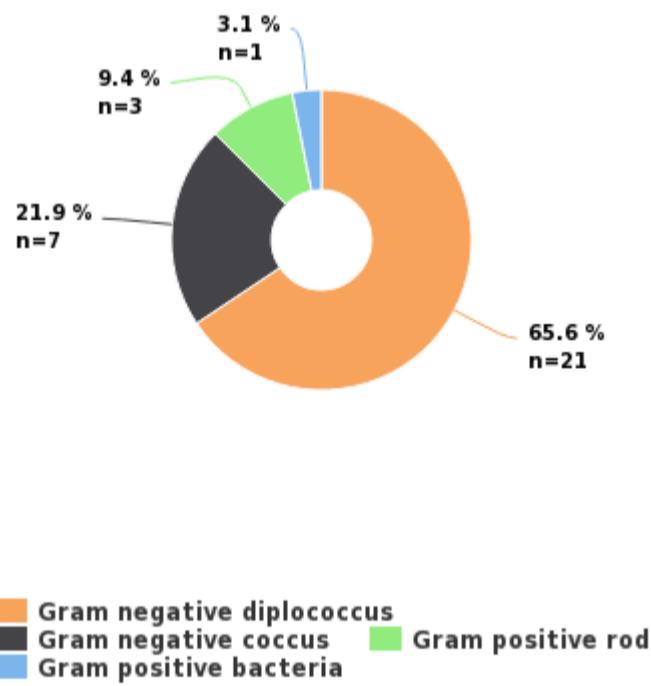
Sample S001 Amount of colonies on the plate



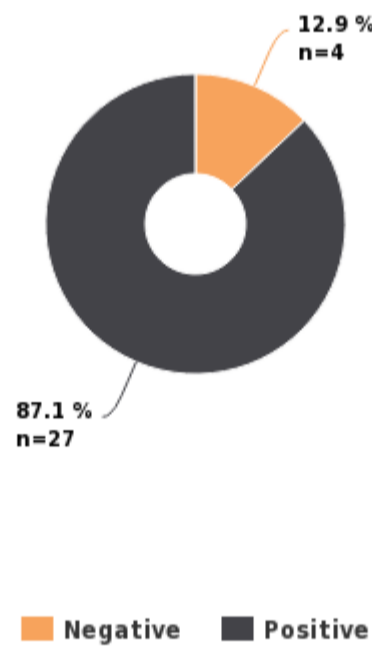
AMOUNT OF COLONIES ON THE PLATE

Result	Result count
0	2
1-9	9
10-19	7
20-50	10
<input checked="" type="radio"/> >50	9
Total:	37

Sample S001 Gram staining



Sample S001 Oxidase test



GRAM STAINING

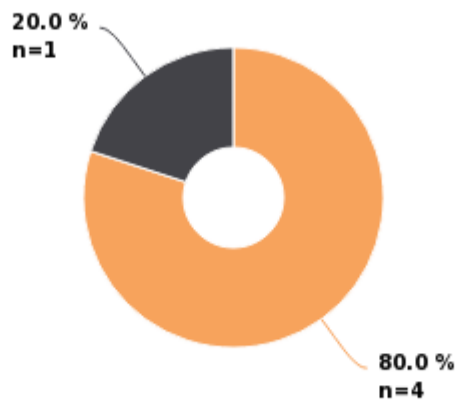
Result	Result count
<input checked="" type="radio"/> Gram negative diplococcus	21
Gram negative coccus	7
Gram positive rod	3
Gram positive bacteria	1
Total:	32

OXIDASE TEST

Result	Result count
Negative	4
<input checked="" type="radio"/> Positive	27
Total:	31

Report to the clinician and identification test results

Sample S001 Commercial tests,



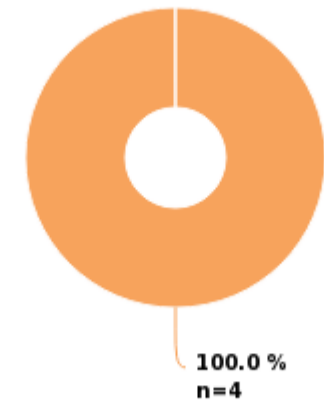
Neisseria gonorrhoeae
Other genus than Neisseria

Sample S001 Identification by MALDI-TOF,



Neisseria gonorrhoeae
Other genus than Neisseria

Sample S001 Nucleic acid detection,



Neisseria gonorrhoeae

COMMERCIAL IDENTIFICATION KITS AND ANALYZERS

Method	Result	Result count
RapidID NH (Remel)	Neisseria gonorrhoeae	1
VITEK 2 NH ID card (bioMerieux)	Neisseria gonorrhoeae	3
	Other genus than Neisseria	1
Total:		5

IDENTIFICATION TESTS: MALDI-TOF

Method	Result	Result count
MALDI Biotyper (Bruker)	Neisseria gonorrhoeae	20
VITEK MS (bioMerieux)	Neisseria gonorrhoeae	16
	Other genus than Neisseria	1
Total:		37

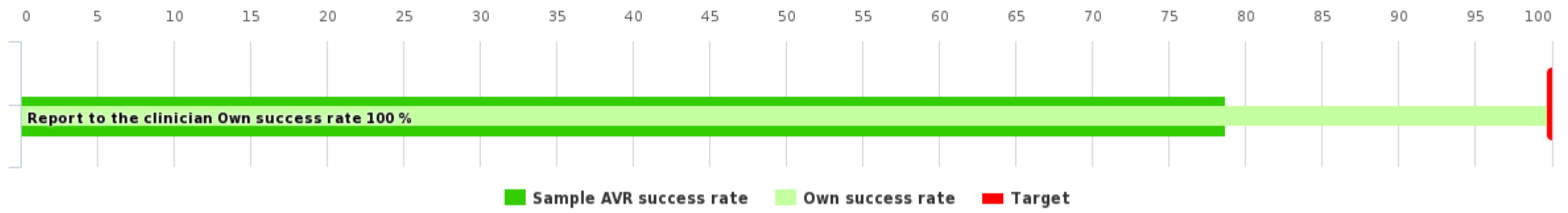
IDENTIFICATION TESTS: NAT

Method	Result	Result count
Abbott Alinity m STI assay (Abbott)	Neisseria gonorrhoeae	1
Aptima Combo 2 CT/NG assay (Hologic)	Neisseria gonorrhoeae	2
Xpert CT/NG (Cepheid)	Neisseria gonorrhoeae	1
Total:		4

Report to the clinician and identification test results

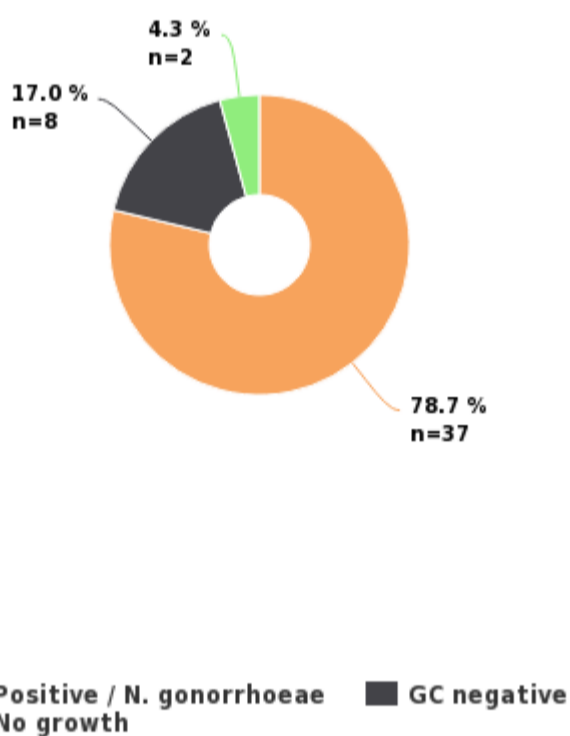
Sample S002 | GC culture: positive (N. gonorrhoeae, Lactobacillus sp.)

Sample S002 success rate



Sample S002 results	Responded	Own score	Max score	Own success rate	Difference	AVR success rate	Count
	Report to the clinician	4	4	100 %	21.3 %	78.7 %	47
	Amount of colonies on the plate	-	-	-	-	-	36
	Gram staining	-	-	-	-	-	30
	Oxidase test	-	-	-	-	-	30
	Commercial tests	-	-	-	-	-	5
	Identification by MALDI-TOF	-	-	-	-	-	35
	Nucleic acid detection	-	-	-	-	-	4
	Total:	4	4	100 %	21.3 %	78.7 %	187

Sample S002



LABORATORY SPECIFIC SCORING TABLE

Finding	Further action	Own score	Max score	Own success rate	Difference	AVR success rate
Positive / N. gonorrhoeae	Performed by laboratory itself	4	4	100 %	21.3 %	78.7 %
Total:		4	4	100 %	21.3 %	78.7 %

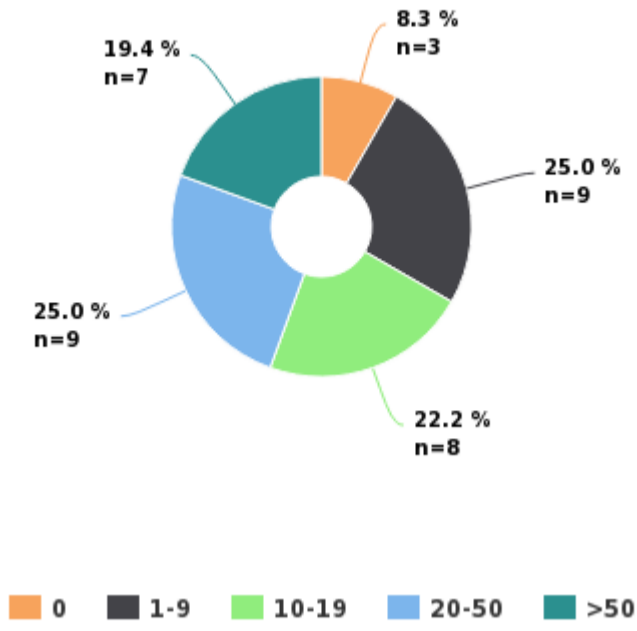
REPORT TO THE CLINICIAN

Finding	Finding count	No confirmation	Referred for confirmation	Confirmed internally	AVR success rate
	47				78.7 %
<input checked="" type="radio"/> Positive / N. gonorrhoeae	37	7	1	<input checked="" type="radio"/> 29	
GC negative	8	2		6	
No growth	2	2			
Total:	47				78.7 %

SCORING SUMMARY

Finding	Finding score	Max score
		4
Positive / N. gonorrhoeae	4	4
GC negative	0	4
No growth	0	4

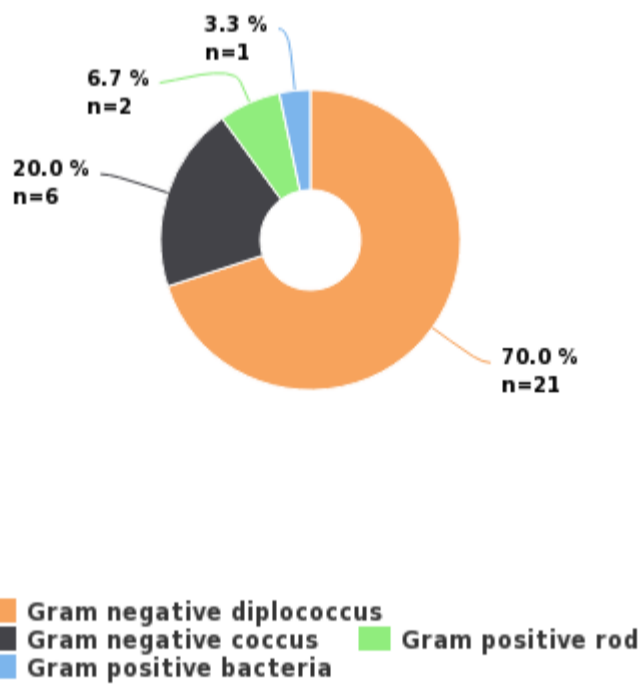
Sample S002 Amount of colonies on the plate



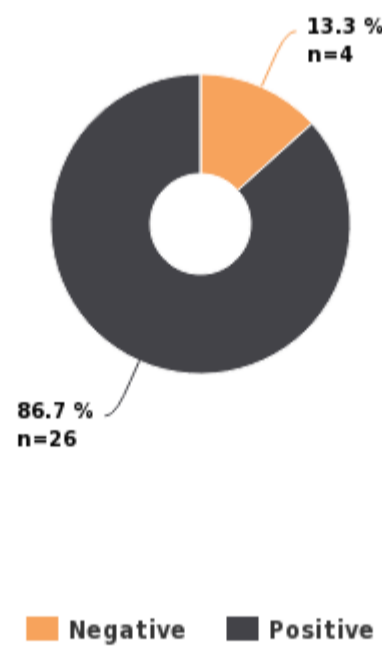
AMOUNT OF COLONIES ON THE PLATE

Result	Result count
0	3
1-9	9
<input checked="" type="radio"/> 10-19	8
20-50	9
>50	7
Total:	36

Sample S002 Gram staining



Sample S002 Oxidase test



GRAM STAINING

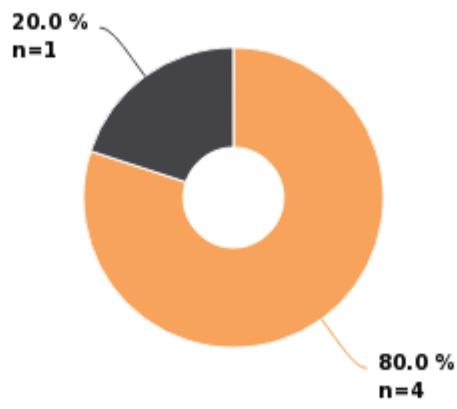
Result	Result count
<input checked="" type="radio"/> Gram negative diplococcus	21
Gram negative coccus	6
Gram positive rod	2
Gram positive bacteria	1
Total:	30

OXIDASE TEST

Result	Result count
Negative	4
<input checked="" type="radio"/> Positive	26
Total:	30

Report to the clinician and identification test results

Sample S002 Commercial tests,



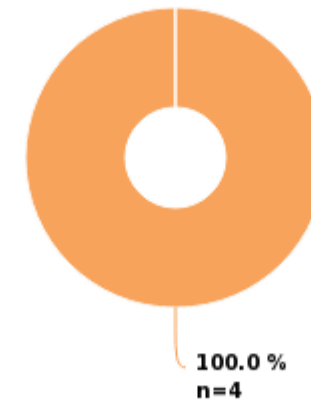
Neisseria gonorrhoeae
Other genus than Neisseria

Sample S002 Identification by MALDI-TOF,



Neisseria gonorrhoeae
Other genus than Neisseria

Sample S002 Nucleic acid detection,



Neisseria gonorrhoeae

COMMERCIAL IDENTIFICATION KITS AND ANALYZERS

Method	Result	Result count
RapidID NH (Remel)	Neisseria gonorrhoeae	1
VITEK 2 NH ID card (bioMerieux)	Neisseria gonorrhoeae	3
	Other genus than Neisseria	1
Total:		5

IDENTIFICATION TESTS: MALDI-TOF

Method	Result	Result count
MALDI Biotyper (Bruker)	Neisseria gonorrhoeae	18
VITEK MS (bioMerieux)	Neisseria gonorrhoeae	16
	Other genus than Neisseria	1
Total:		35

IDENTIFICATION TESTS: NAT

Method	Result	Result count
Abbott Alinity m STI assay (Abbott)	Neisseria gonorrhoeae	1
Aptima Combo 2 CT/NG assay (Hologic)	Neisseria gonorrhoeae	2
Xpert CT/NG (Cepheid)	Neisseria gonorrhoeae	1
Total:		4

Report Info

PARTICIPANTS

Altogether 53 laboratories from 13 countries participated in this EQA round.

REPORT INFO

On the front page you can see summaries of overall success rate and sample specific success rates which have been calculated from the scores. The reported results and the scores are presented in the same report but in separate tables.

In general, the expected results are marked with green color. Accepted results may also be indicated with yellow color. Laboratory's own results are indicated with a black radio button . In the participant specific report there is also a laboratory specific scoring table for each sample, where you can find your own result and the scores given.

If you have not reported results you will get a note: "You have not responded in time, only global report is available".

For information on report interpretation and performance evaluation, please see the "EQAS Interpretation guidelines" in LabScala User instructions. In case you have any questions regarding the reports, please contact the EQA Coordinator.

SCORING

The results in the "Report to the clinician" part can be scored when at least 60% of the participants have reported the correct/expected result and when there are at least three reported results. The report includes a sample specific scoring summary.

Laboratory's scores have been converted to percentage (own success rate, % from maximum scores) with a target at 100%. Own success rate is compared with the success rate of all results.

The following general rules are applied:

4 points is reached by reporting the expected result

1-3 points is given to results that are partly correct/insufficient regarding the expected finding

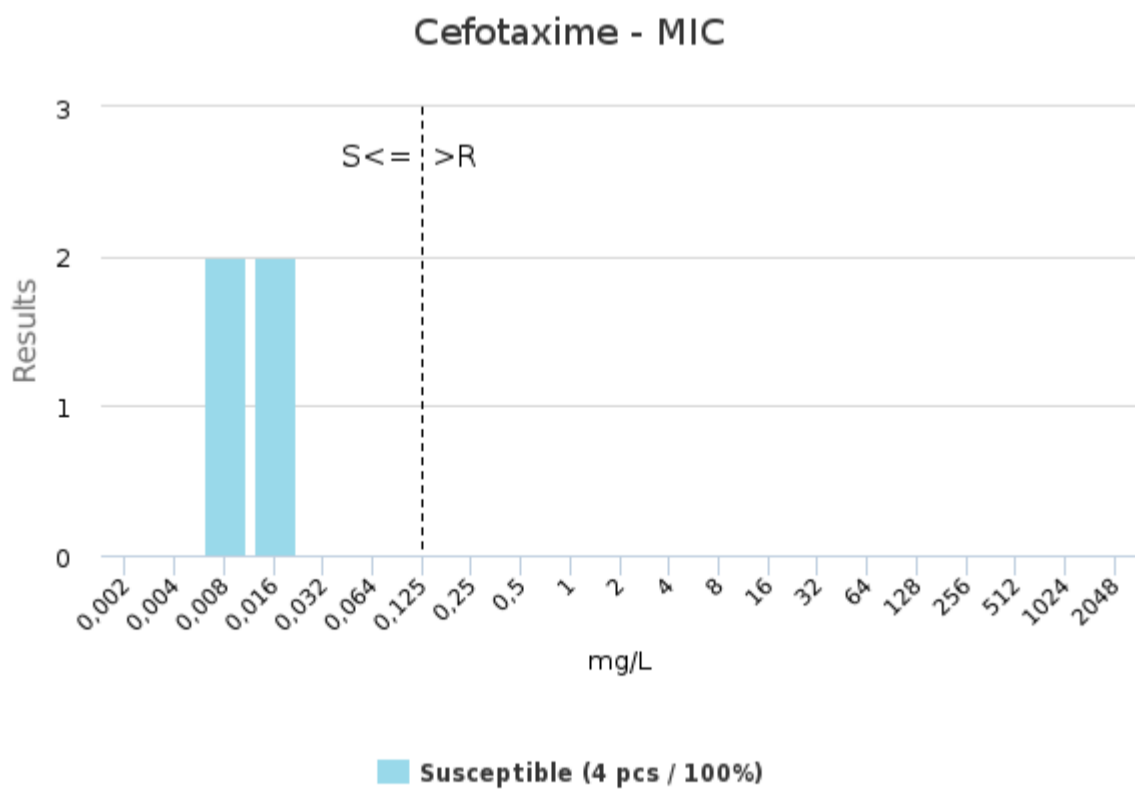
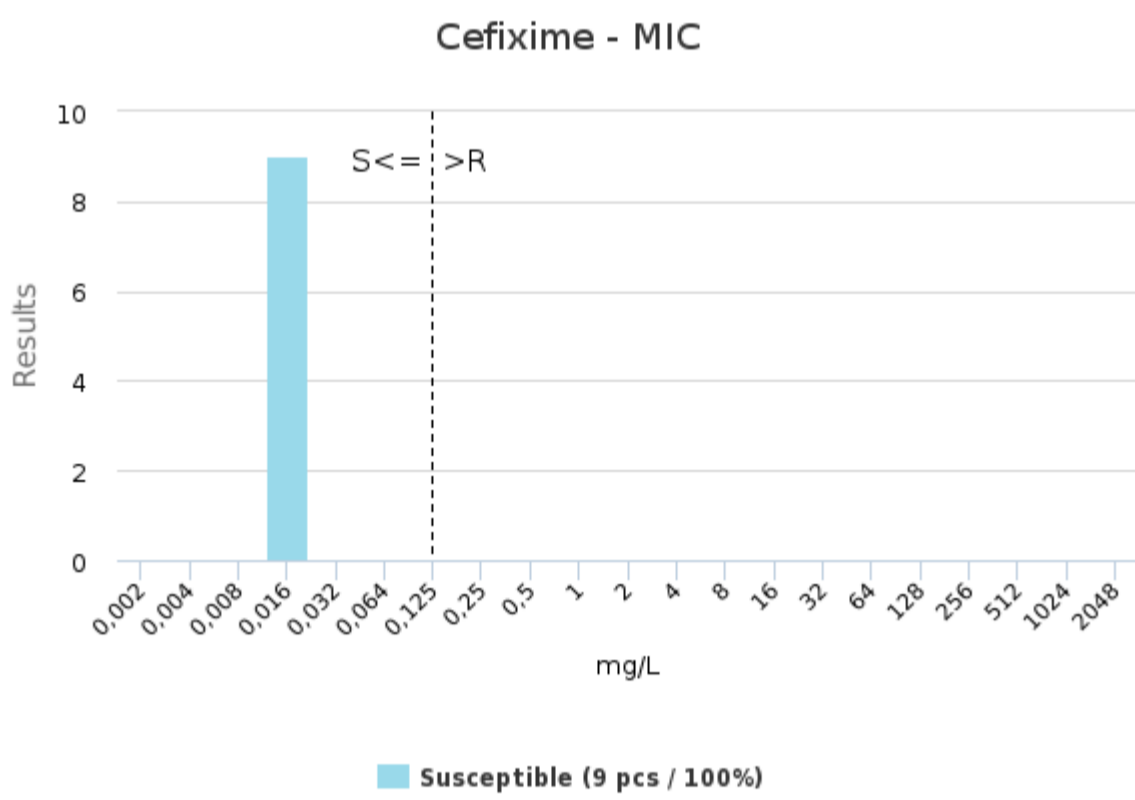
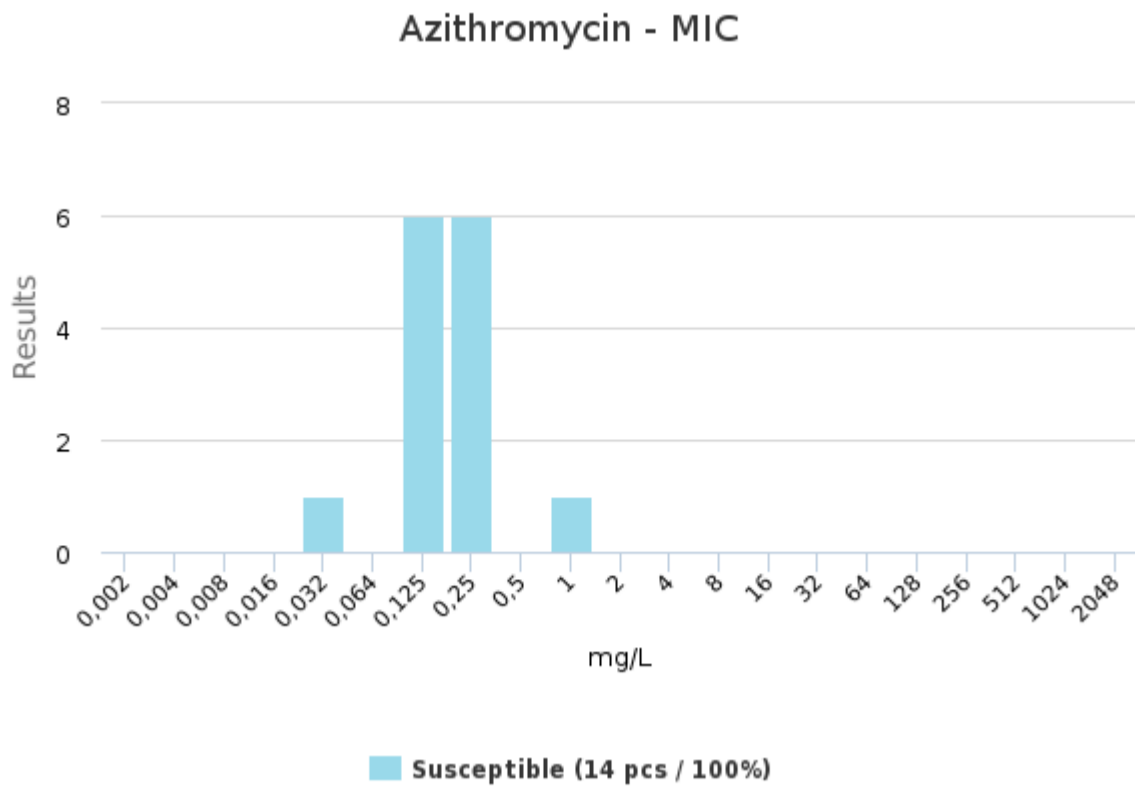
0 points is given for an incorrect/false result

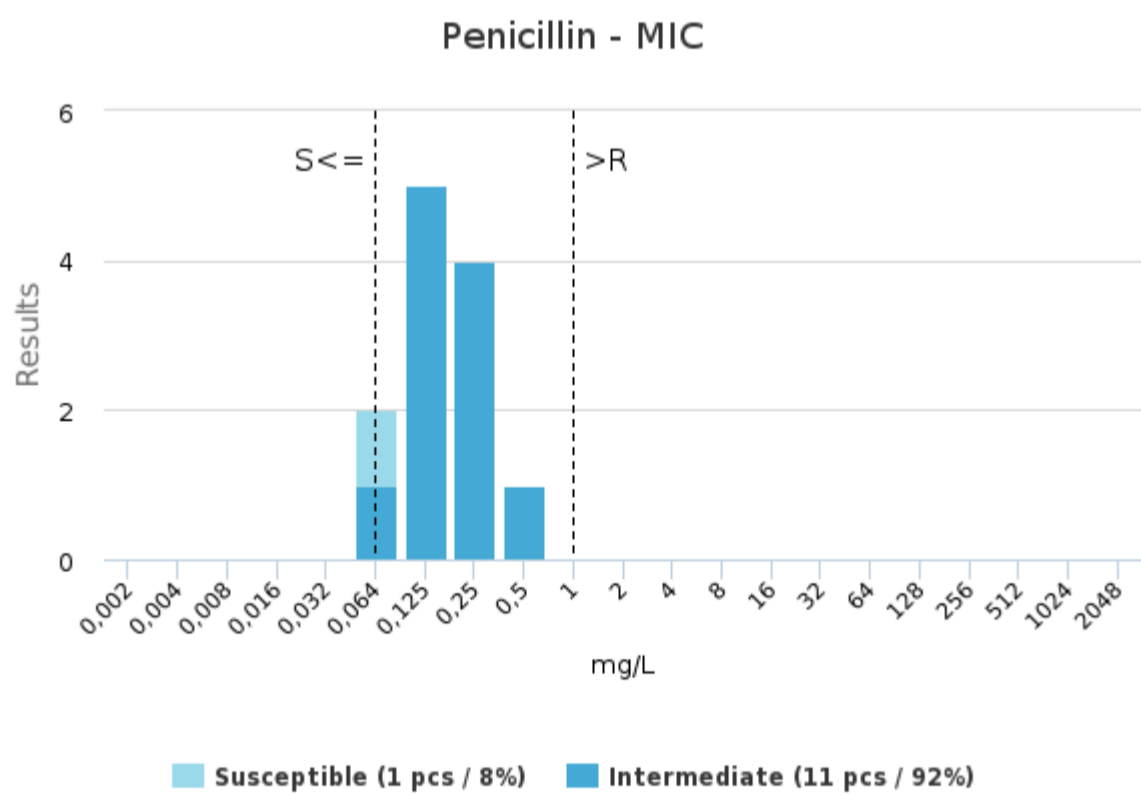
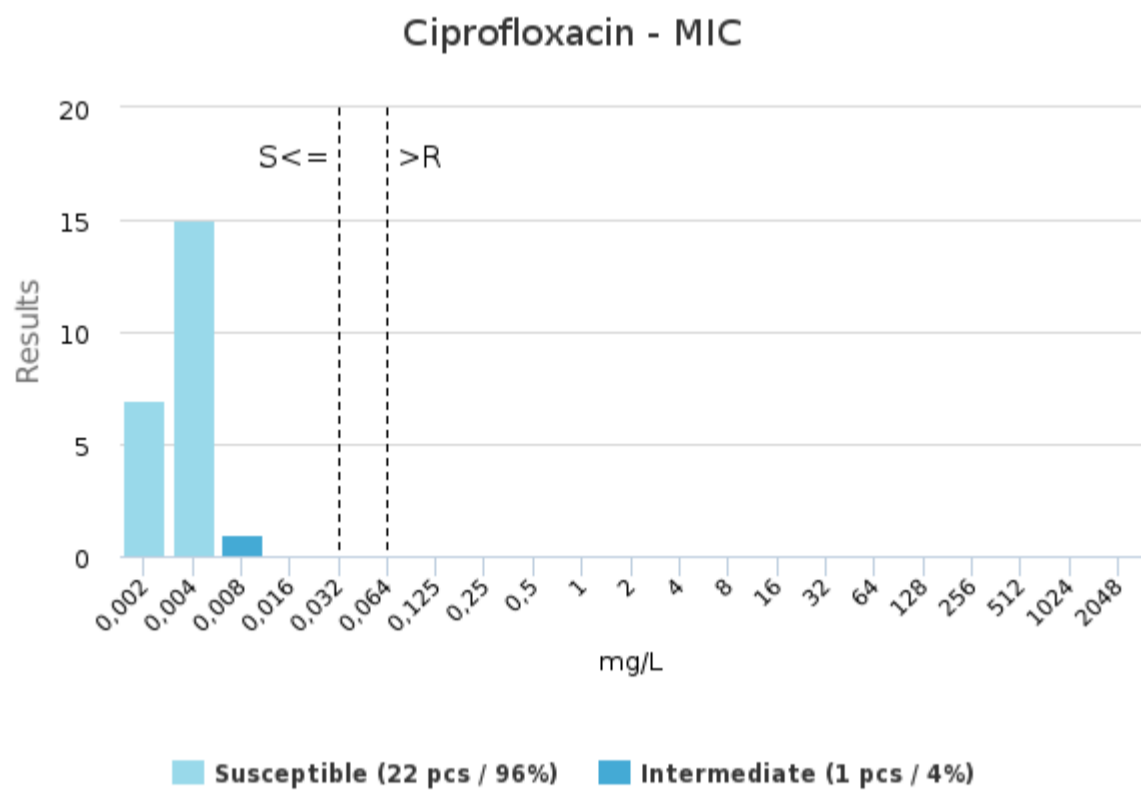
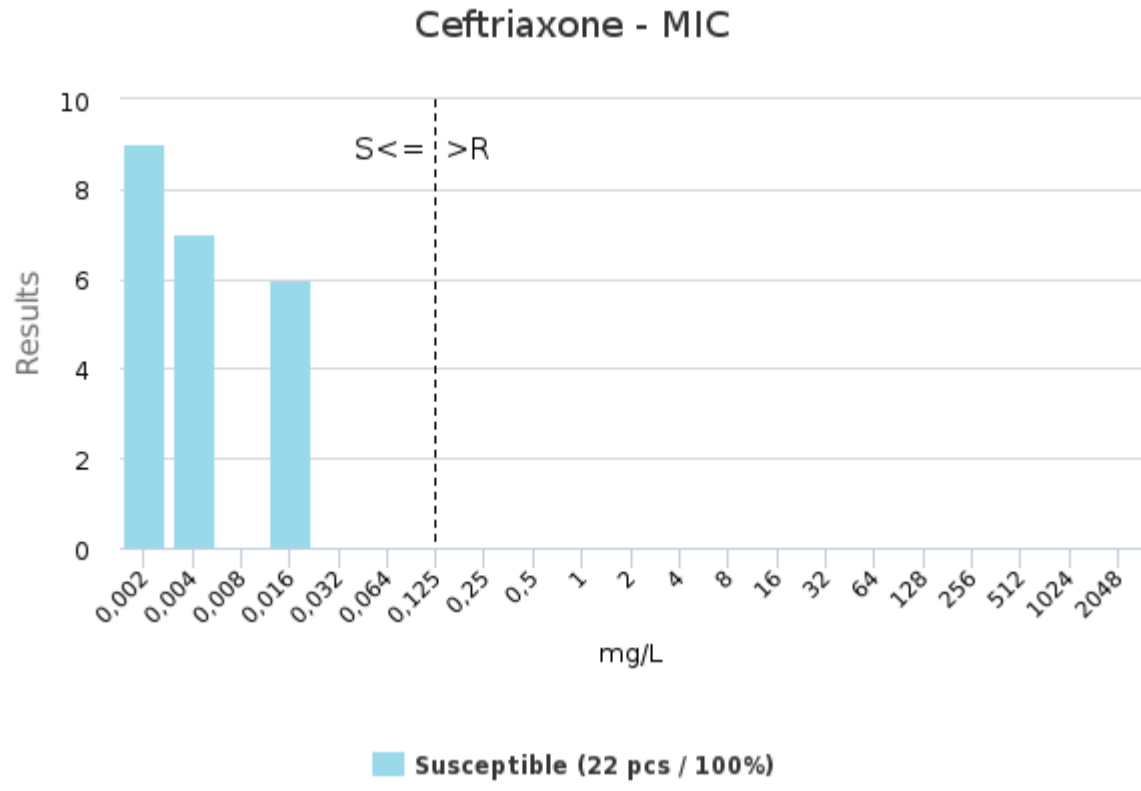
Sample S001

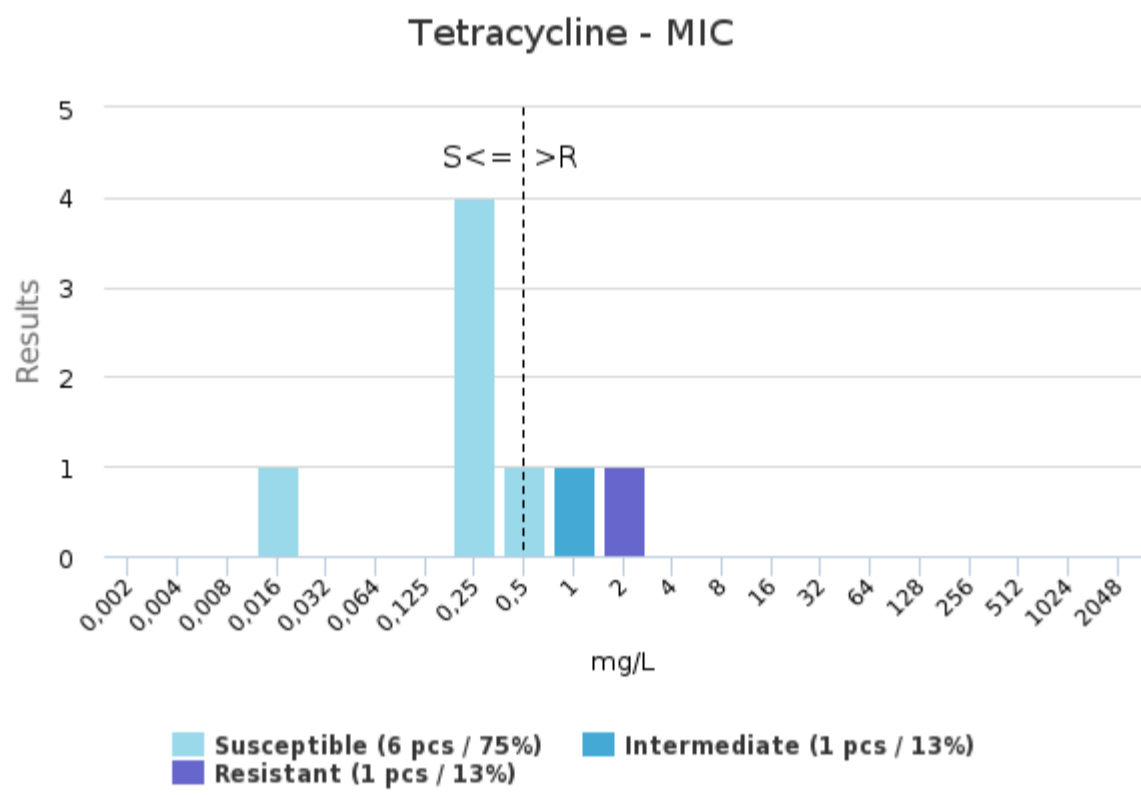
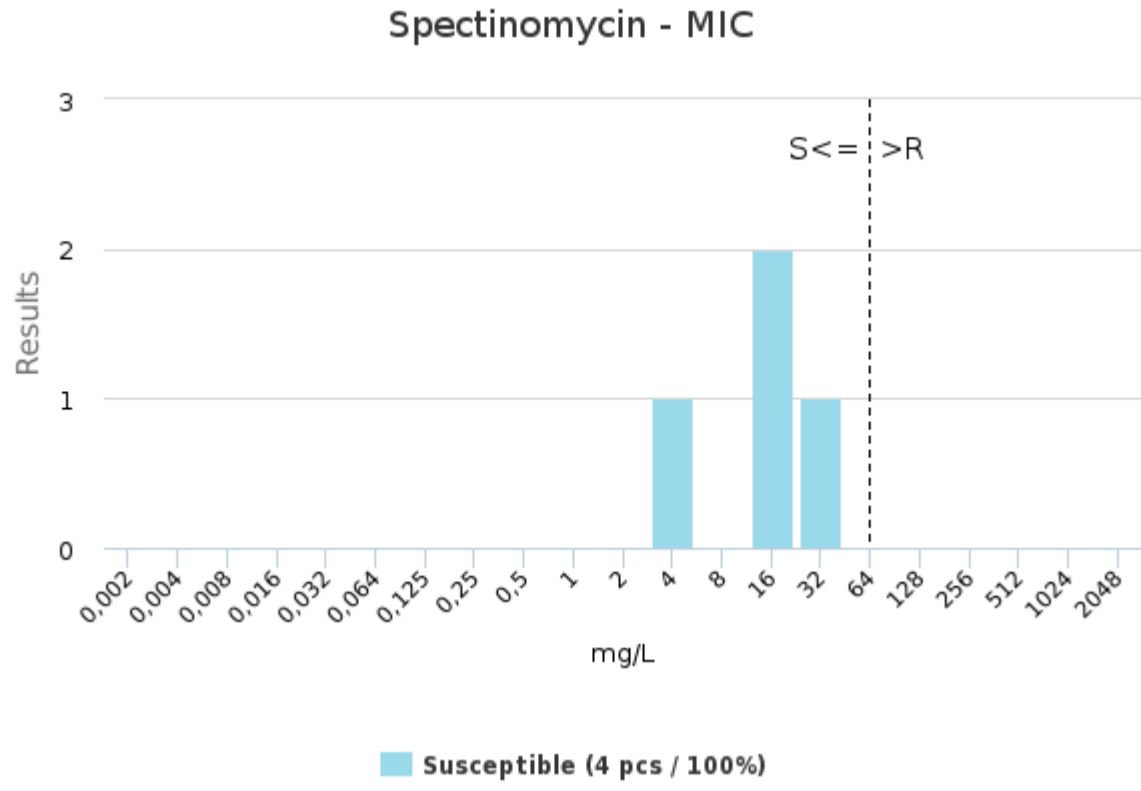
Neisseria gonorrhoeae CL2

Antimicrobial agent	Guideline	DISK						MIC				
		x (mm)	sd (mm)	S	I	R	n	Mo (mg/L)	S	I	R	n
Amoxicillin	CA-SFM	-	-	-	-	-	-	0.125	0 (0%)	1 (100%)	0 (0%)	1
	EUCAST	-	-	-	-	-	-	0.125	1 (100%)	0 (0%)	0 (0%)	1
	All			0	0	0	0		1 (50%)	1 (50%)	0 (0%)	2
Azithromycin	BSAC	30	-	1 (100%)	0 (0%)	0 (0%)	1	-	-	-	-	-
	CA-SFM	-	-	-	-	-	-	0.125	5 (100%)	0 (0%)	0 (0%)	5
	CLSI	30	-	1 (100%)	0 (0%)	0 (0%)	1	0.25	1 (100%)	0 (0%)	0 (0%)	1
	EUCAST	-	-	-	-	-	-	-	14 (100%)	0 (0%)	0 (0%)	14
	All			2 (100%)	0 (0%)	0 (0%)	2		20 (100%)	0 (0%)	0 (0%)	20
Cefixime	BSAC	-	-	-	-	-	-	0.032	1 (100%)	0 (0%)	0 (0%)	1
	CA-SFM	-	-	-	-	-	-	0.016	3 (100%)	0 (0%)	0 (0%)	3
	EUCAST	35	-	1 (100%)	0 (0%)	0 (0%)	1	0.016	9 (100%)	0 (0%)	0 (0%)	9
	All			1 (100%)	0 (0%)	0 (0%)	1		13 (100%)	0 (0%)	0 (0%)	13
Cefotaxime	EUCAST	35	-	1 (100%)	0 (0%)	0 (0%)	1	-	4 (100%)	0 (0%)	0 (0%)	4
	All			1 (100%)	0 (0%)	0 (0%)	1		4 (100%)	0 (0%)	0 (0%)	4
Ceftriaxone	BSAC	-	-	-	-	-	-	0.016	1 (100%)	0 (0%)	0 (0%)	1
	CA-SFM	-	-	-	-	-	-	0.002	6 (100%)	0 (0%)	0 (0%)	6
	CLSI	35	-	1 (100%)	0 (0%)	0 (0%)	1	-	-	-	-	-
	EUCAST	-	-	-	-	-	-	0.002	22 (100%)	0 (0%)	0 (0%)	22
	All			1 (100%)	0 (0%)	0 (0%)	1		29 (100%)	0 (0%)	0 (0%)	29
Ciprofloxacin	BSAC	-	-	-	-	-	-	0.008	1 (100%)	0 (0%)	0 (0%)	1
	CA-SFM	-	-	-	-	-	-	0.004	5 (100%)	0 (0%)	0 (0%)	5
	EUCAST	35	-	1 (100%)	0 (0%)	0 (0%)	1	0.004	22 (96%)	1 (4%)	0 (0%)	23
	All			1 (100%)	0 (0%)	0 (0%)	1		28 (97%)	1 (3%)	0 (0%)	29
Ofloxacin	CA-SFM	-	-	-	-	-	-	0.016	1 (100%)	0 (0%)	0 (0%)	1
	All			0	0	0	0		1 (100%)	0 (0%)	0 (0%)	1
Penicillin	BSAC	12	-	0 (0%)	0 (0%)	1 (100%)	1	-	-	-	-	-
	CA-SFM	-	-	-	-	-	-	0.125	0 (0%)	3 (100%)	0 (0%)	3
	EUCAST	26	-	0 (0%)	1 (100%)	0 (0%)	1	0.125	1 (8%)	11 (92%)	0 (0%)	12
	All			0 (0%)	1 (50%)	1 (50%)	2		1 (7%)	14 (93%)	0 (0%)	15
Spectinomycin	CA-SFM	-	-	-	-	-	-	16	1 (100%)	0 (0%)	0 (0%)	1
	EUCAST	-	-	-	-	-	-	16	4 (100%)	0 (0%)	0 (0%)	4
	All			0	0	0	0		5 (100%)	0 (0%)	0 (0%)	5
Tetracycline	CA-SFM	-	-	-	-	-	-	-	2 (50%)	1 (25%)	1 (25%)	4
	CLSI	32	-	0 (0%)	1 (100%)	0 (0%)	1	-	-	-	-	-
	EUCAST	-	-	-	-	-	-	0.25	6 (75%)	1 (13%)	1 (13%)	8
	All			0 (0%)	1 (100%)	0 (0%)	1		8 (67%)	2 (17%)	2 (17%)	12

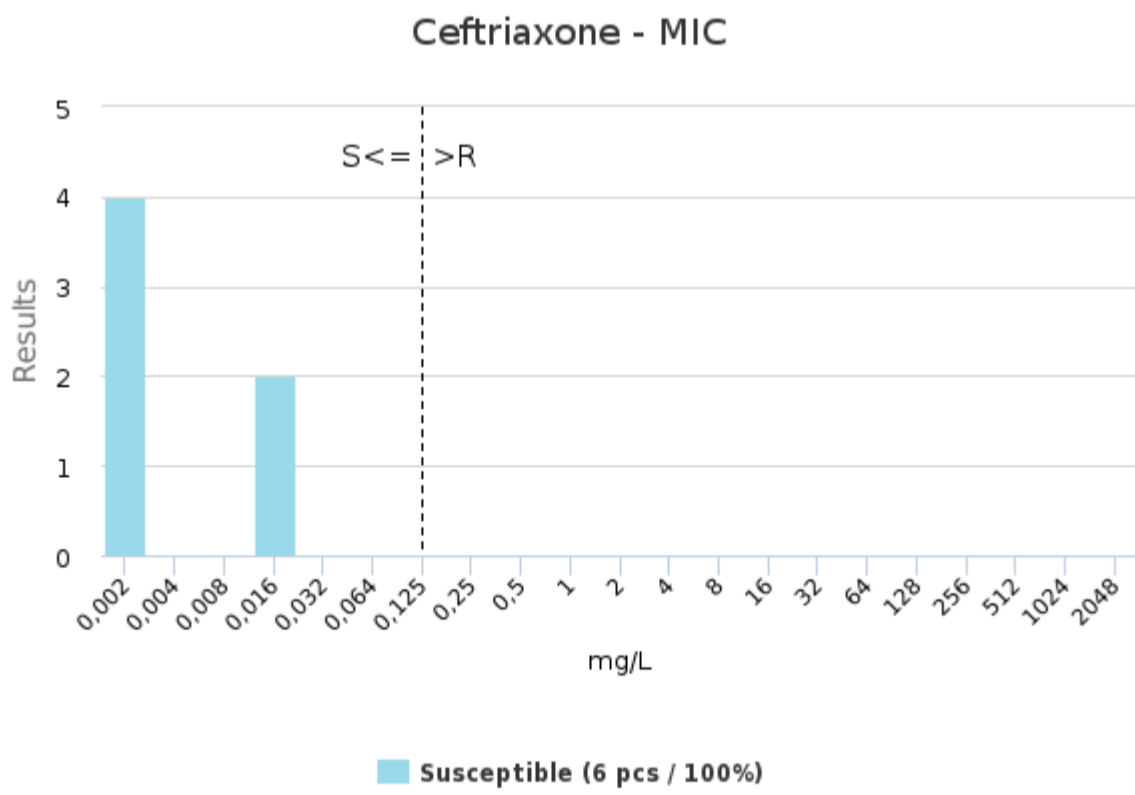
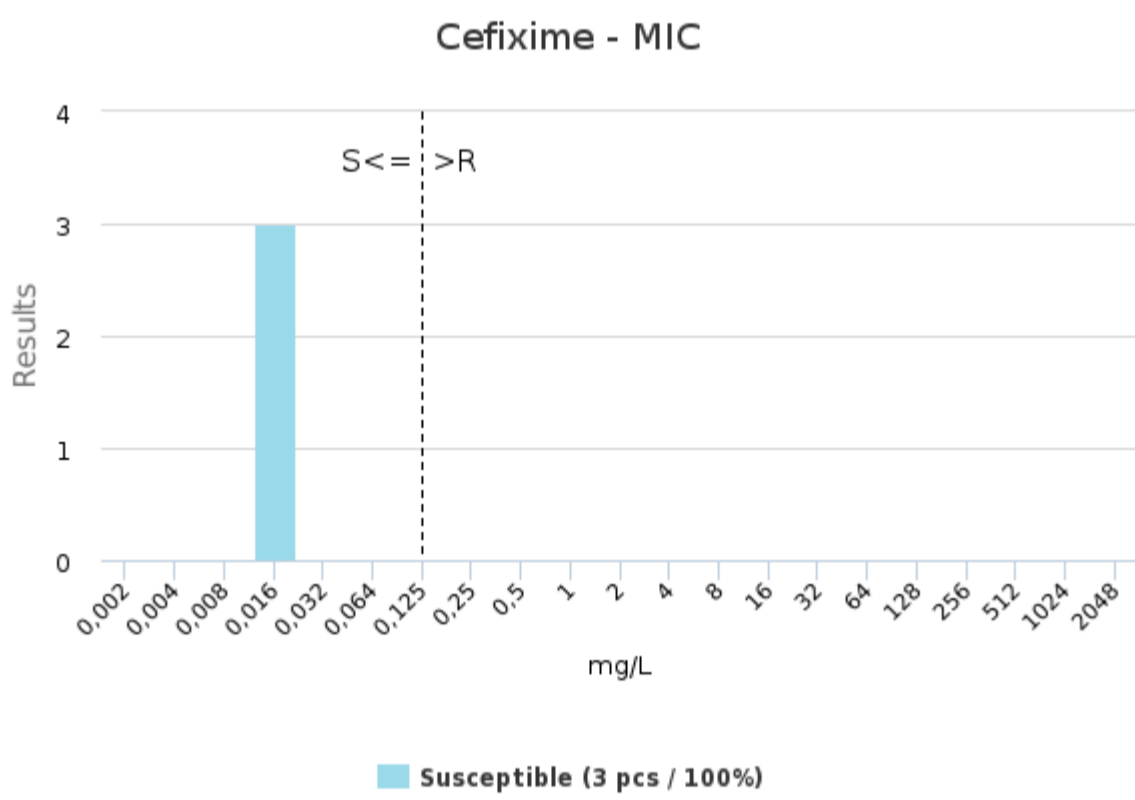
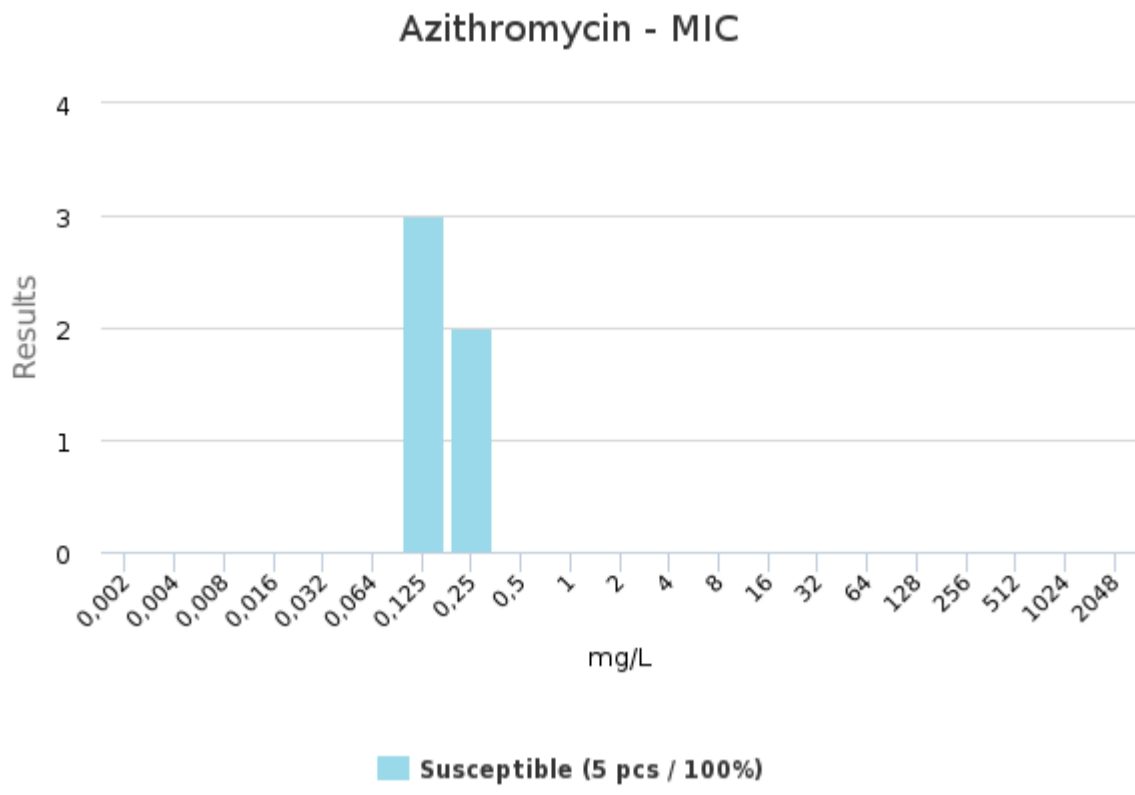
Sample S001 | EUCAST

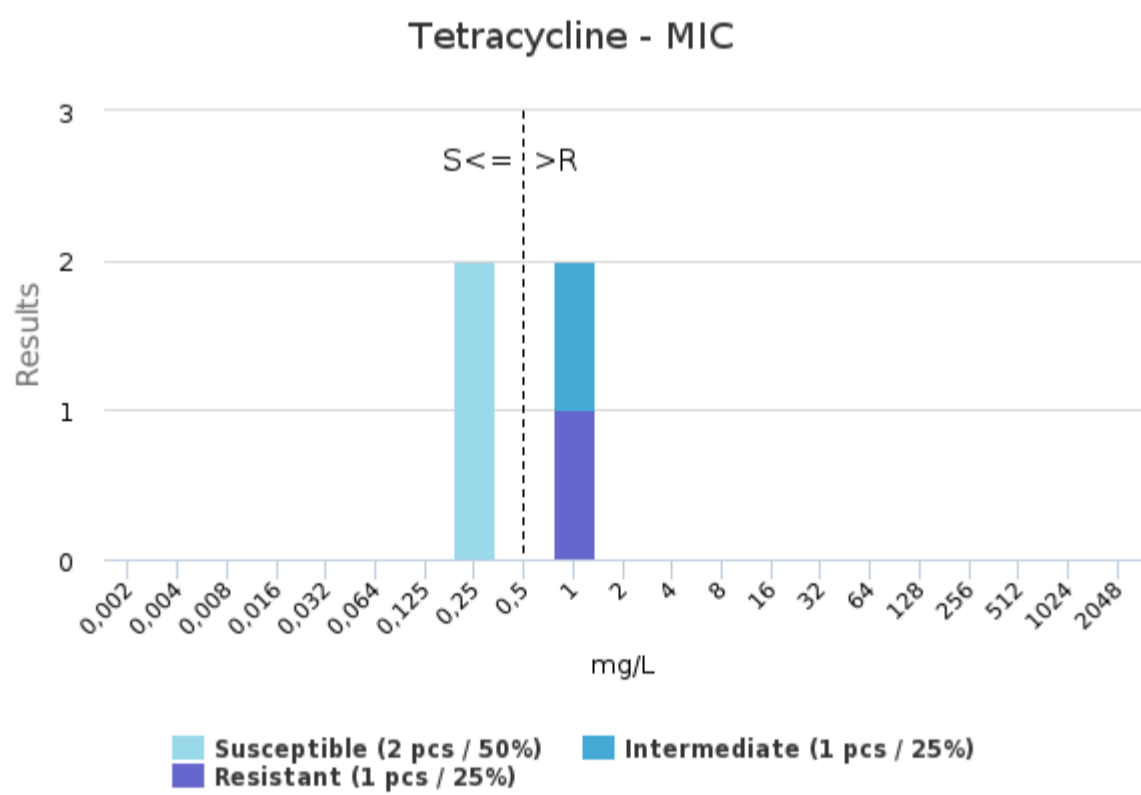
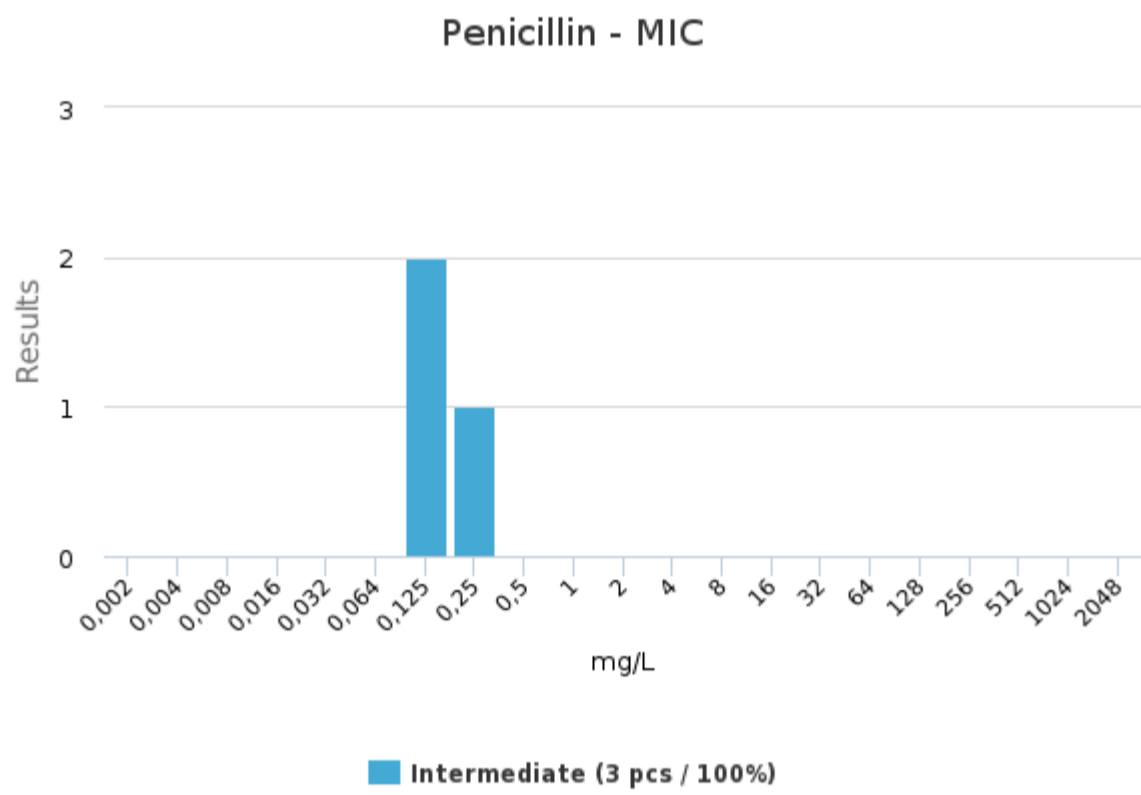
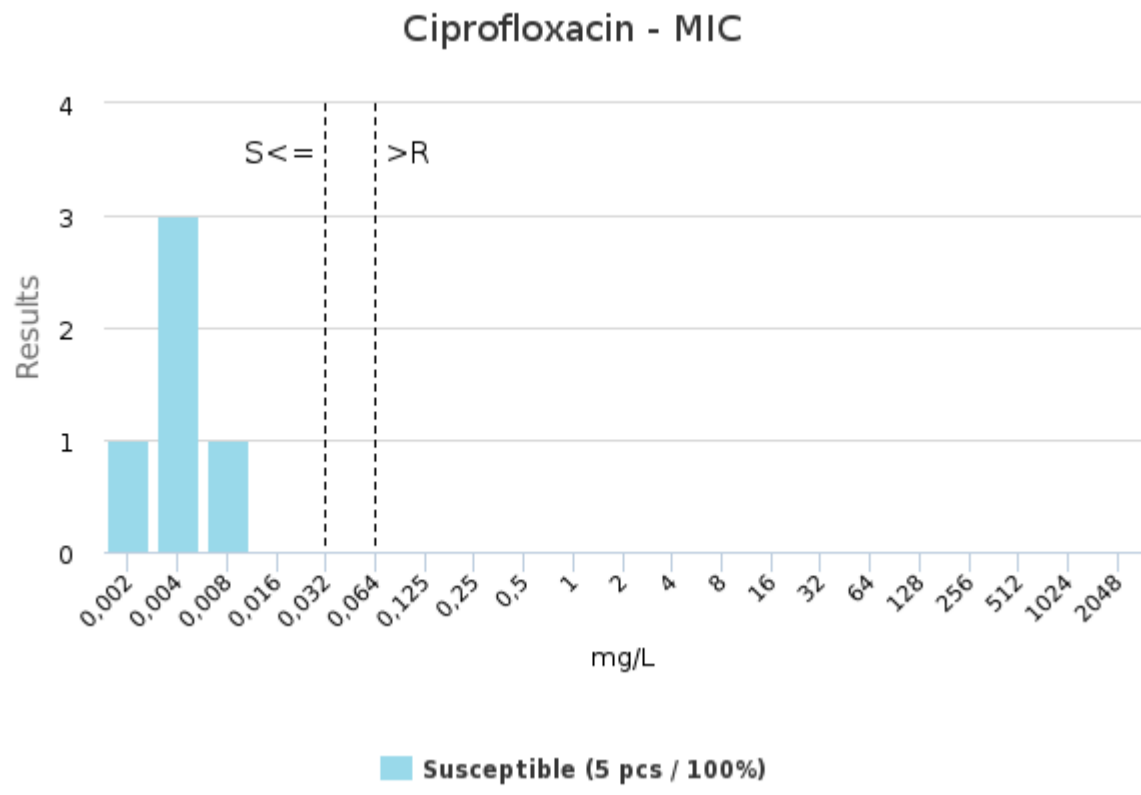






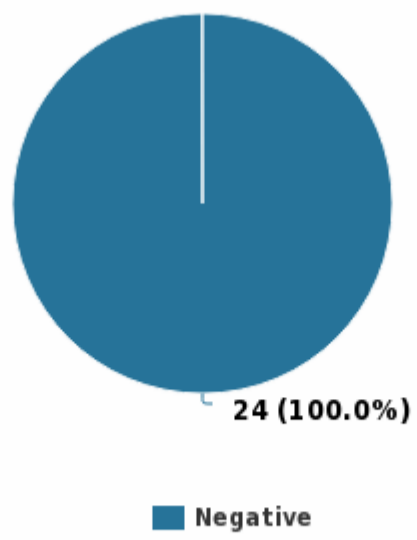
Sample S001 | CA-SFM





Sample S001 | Additional questions

Beta-lactamase test

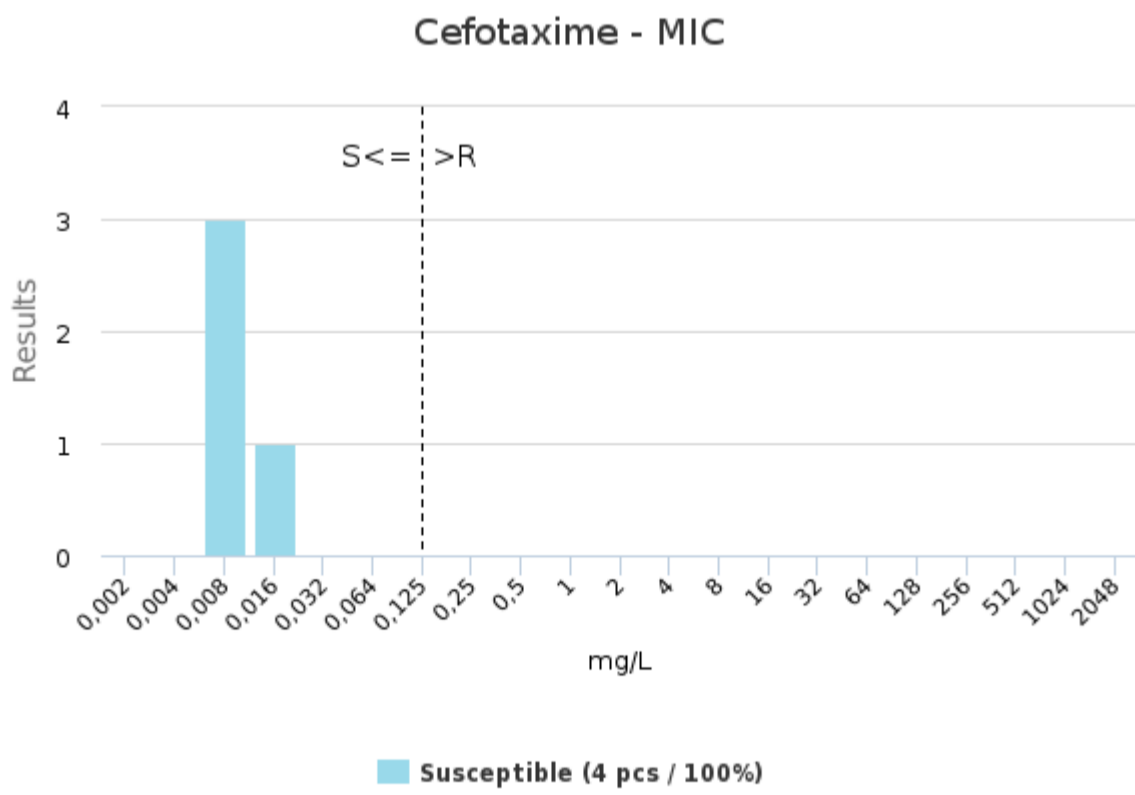
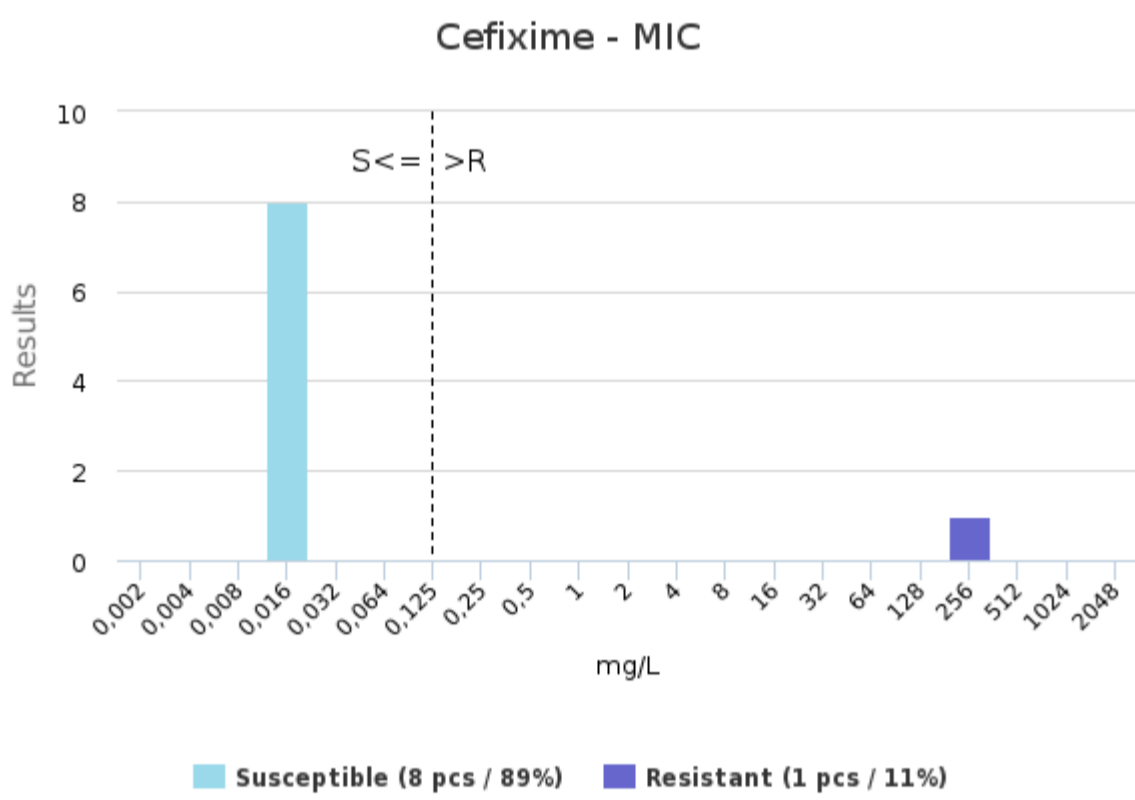
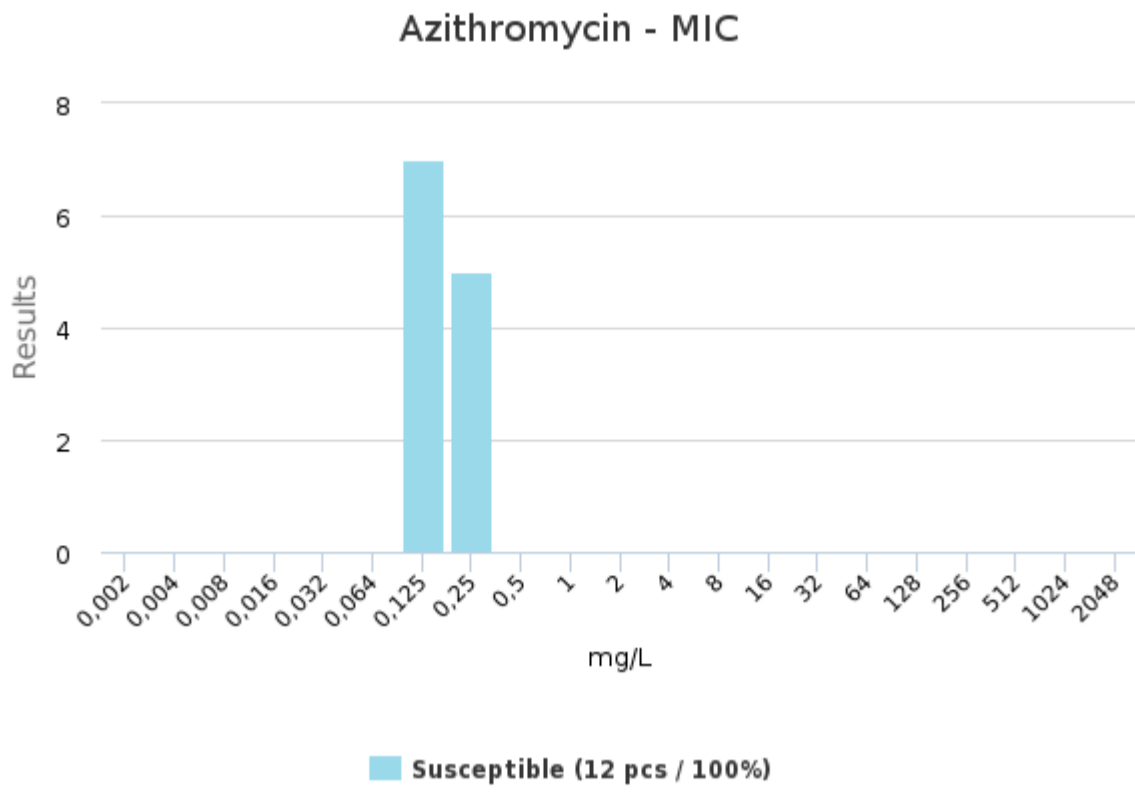


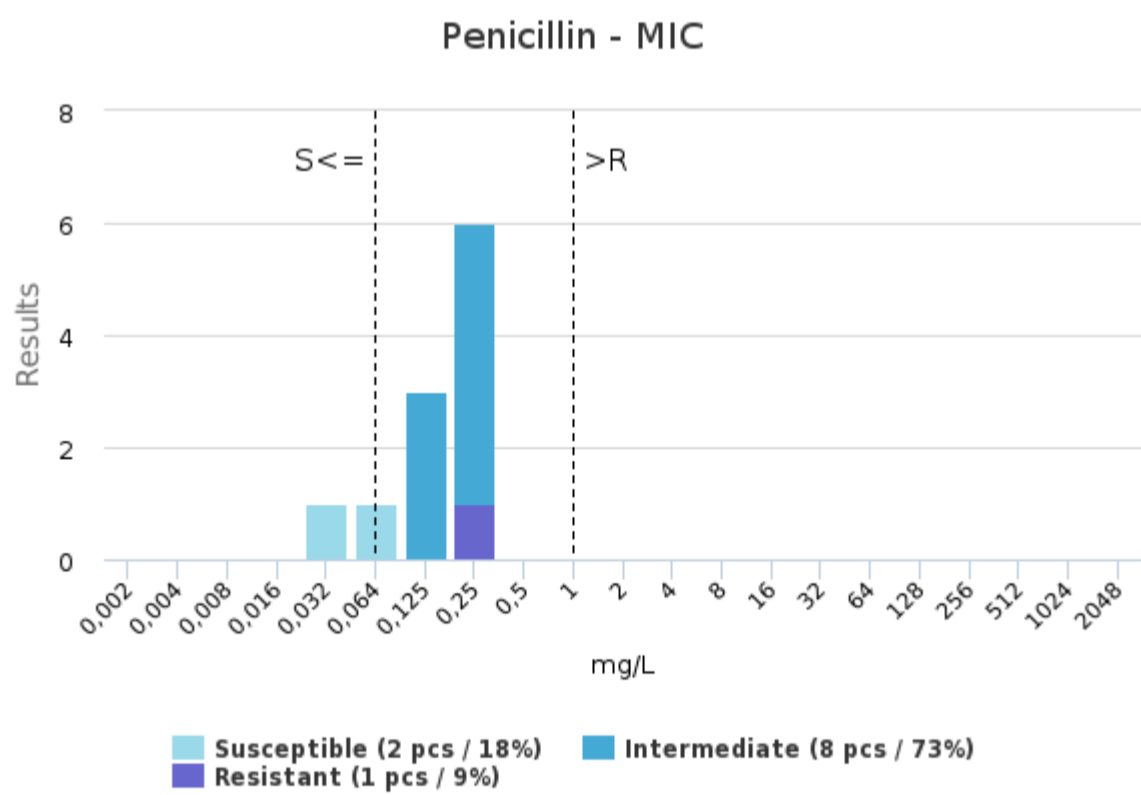
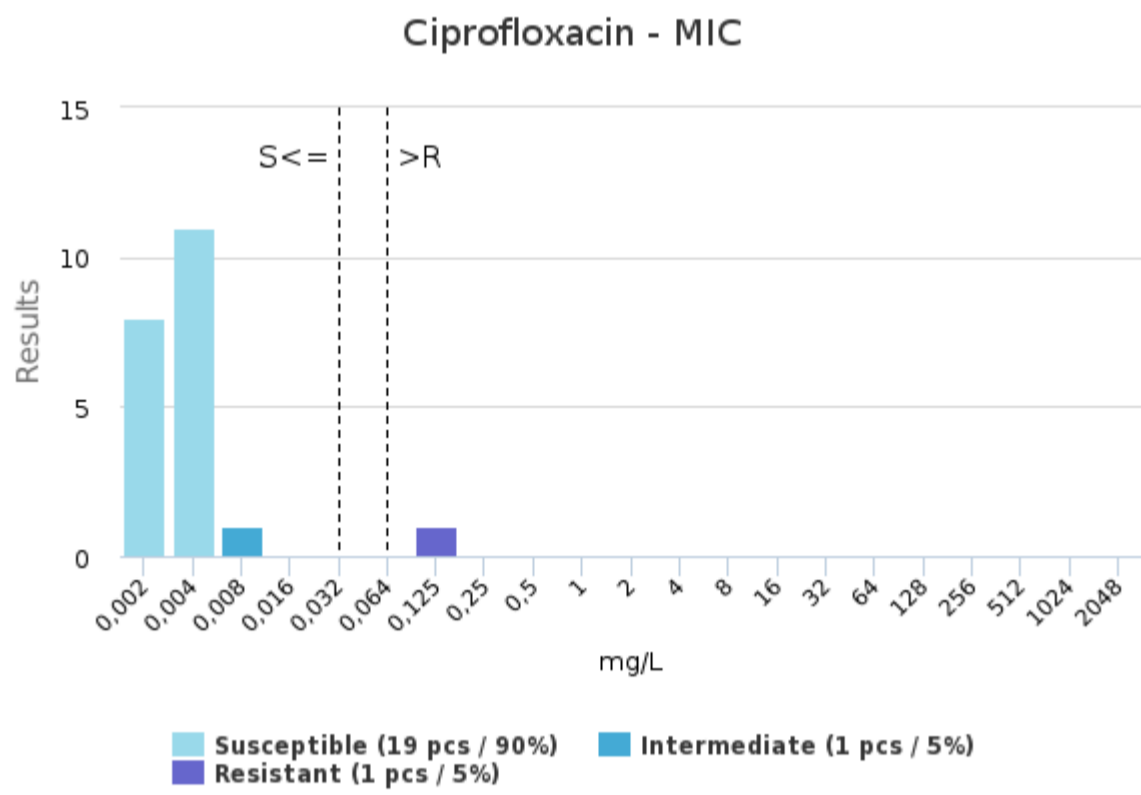
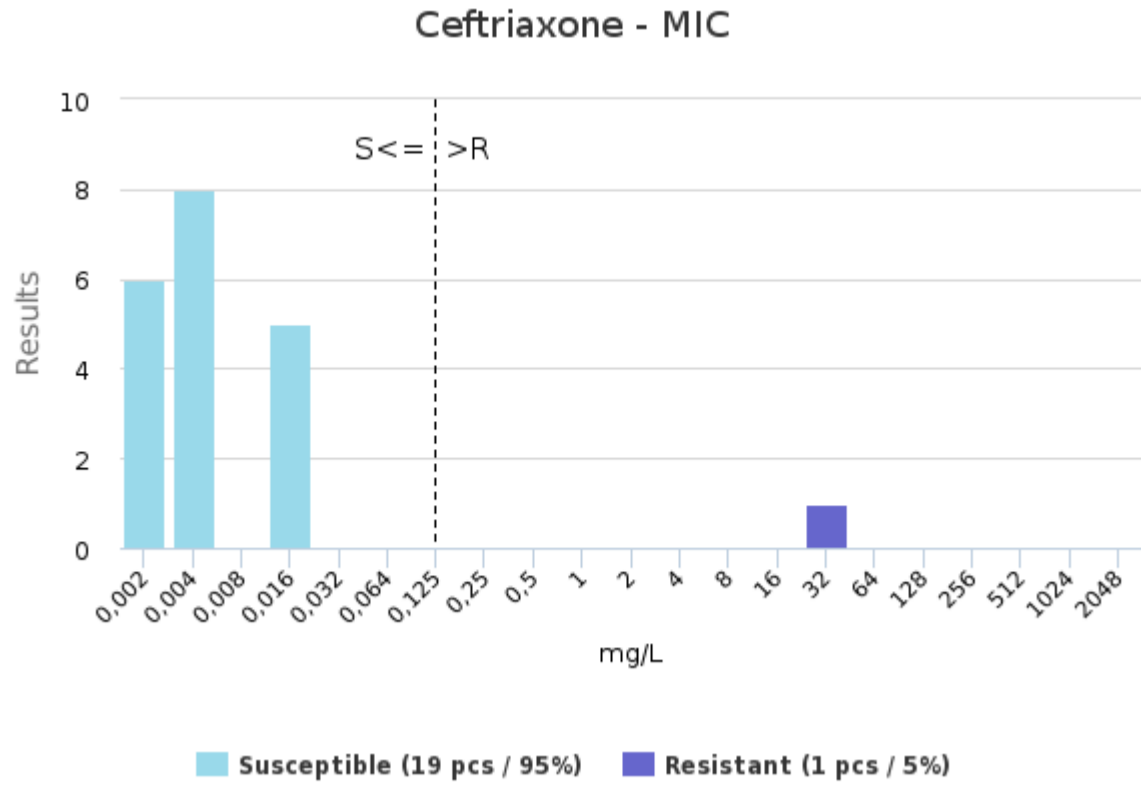
Sample S002

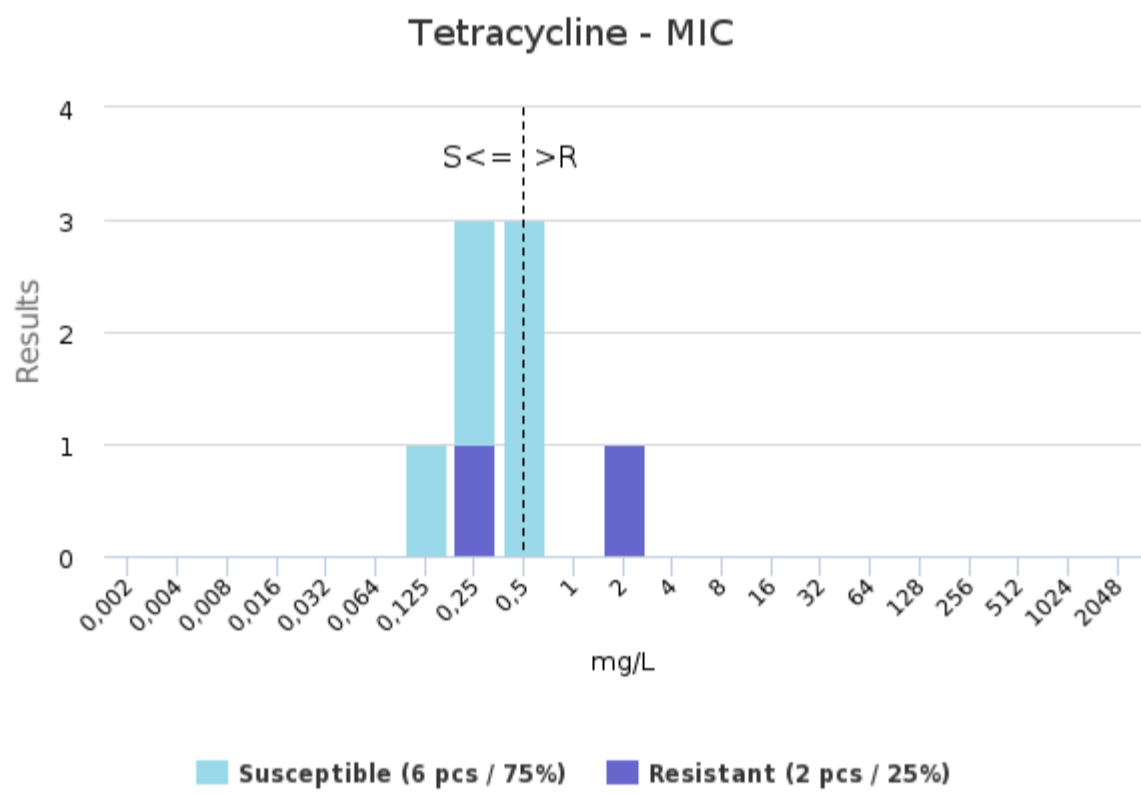
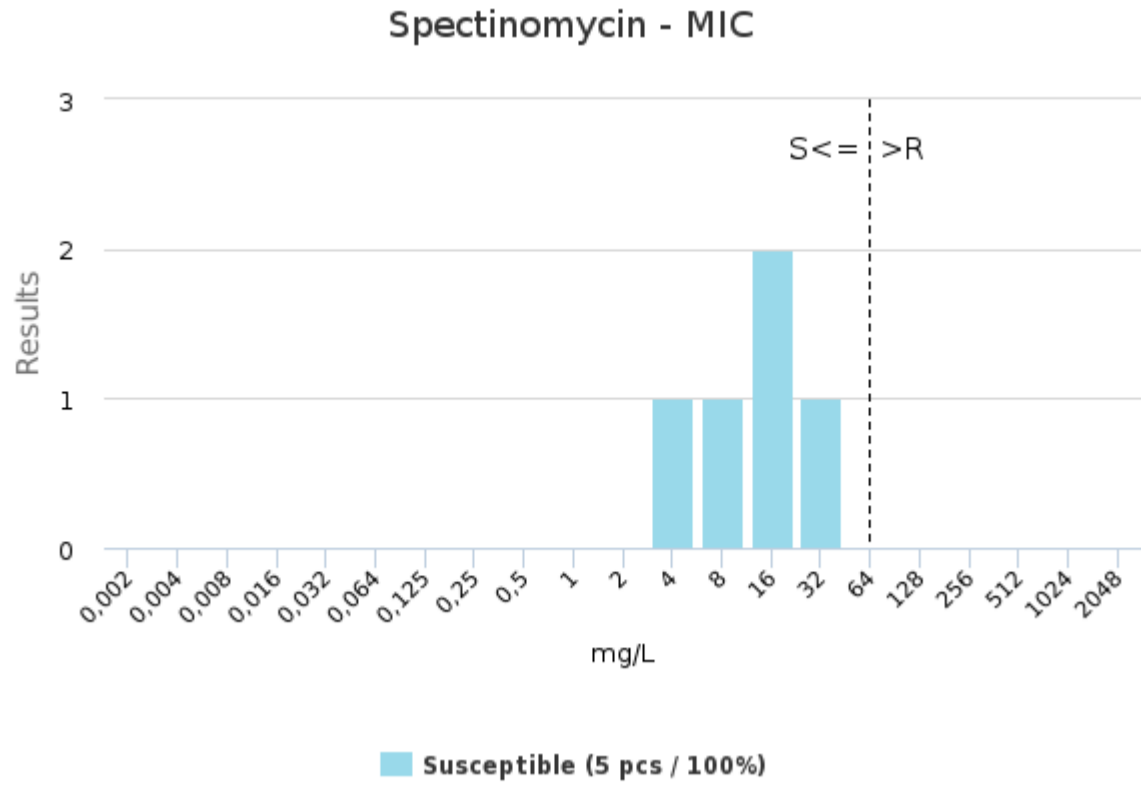
Neisseria gonorrhoeae CL2

Antimicrobial agent	Guideline	DISK						MIC				
		x (mm)	sd (mm)	S	I	R	n	Mo (mg/L)	S	I	R	n
Amoxicillin	CA-SFM	-	-	-	-	-	-	0.125	0 (0%)	1 (100%)	0 (0%)	1
	EUCAST	-	-	-	-	-	-	0.125	1 (100%)	0 (0%)	0 (0%)	1
	All			0	0	0	0		1 (50%)	1 (50%)	0 (0%)	2
Azithromycin	BSAC	29	-	1 (100%)	0 (0%)	0 (0%)	1	-	-	-	-	-
	CA-SFM	-	-	-	-	-	-	0.125	5 (100%)	0 (0%)	0 (0%)	5
	CLSI	35	-	1 (100%)	0 (0%)	0 (0%)	1	0.25	1 (100%)	0 (0%)	0 (0%)	1
	EUCAST	-	-	-	-	-	-	0.125	12 (100%)	0 (0%)	0 (0%)	12
	All			2 (100%)	0 (0%)	0 (0%)	2		18 (100%)	0 (0%)	0 (0%)	18
Cefixime	BSAC	-	-	-	-	-	-	0.004	1 (100%)	0 (0%)	0 (0%)	1
	CA-SFM	-	-	-	-	-	-	0.016	3 (100%)	0 (0%)	0 (0%)	3
	EUCAST	35	-	1 (100%)	0 (0%)	0 (0%)	1	0.016	8 (89%)	0 (0%)	1 (11%)	9
	All			1 (100%)	0 (0%)	0 (0%)	1		12 (92%)	0 (0%)	1 (8%)	13
Cefotaxime	EUCAST	35	-	1 (100%)	0 (0%)	0 (0%)	1	0.008	4 (100%)	0 (0%)	0 (0%)	4
	All			1 (100%)	0 (0%)	0 (0%)	1		4 (100%)	0 (0%)	0 (0%)	4
Ceftriaxone	BSAC	-	-	-	-	-	-	0.008	1 (100%)	0 (0%)	0 (0%)	1
	CA-SFM	-	-	-	-	-	-	0.002	6 (100%)	0 (0%)	0 (0%)	6
	CLSI	35	-	1 (100%)	0 (0%)	0 (0%)	1	-	-	-	-	-
	EUCAST	-	-	-	-	-	-	0.004	19 (95%)	0 (0%)	1 (5%)	20
	All			1 (100%)	0 (0%)	0 (0%)	1		26 (96%)	0 (0%)	1 (4%)	27
Ciprofloxacin	BSAC	-	-	-	-	-	-	0.008	1 (100%)	0 (0%)	0 (0%)	1
	CA-SFM	-	-	-	-	-	-	-	5 (100%)	0 (0%)	0 (0%)	5
	EUCAST	35	-	1 (100%)	0 (0%)	0 (0%)	1	0.004	19 (90%)	1 (5%)	1 (5%)	21
	All			1 (100%)	0 (0%)	0 (0%)	1		25 (93%)	1 (4%)	1 (4%)	27
Ofloxacin	CA-SFM	-	-	-	-	-	-	0.016	1 (100%)	0 (0%)	0 (0%)	1
	All			0	0	0	0		1 (100%)	0 (0%)	0 (0%)	1
Penicillin	BSAC	20	-	0 (0%)	1 (100%)	0 (0%)	1	-	-	-	-	-
	CA-SFM	-	-	-	-	-	-	0.125	0 (0%)	3 (100%)	0 (0%)	3
	EUCAST	27	-	0 (0%)	1 (100%)	0 (0%)	1	0.25	2 (18%)	8 (73%)	1 (9%)	11
	All			0 (0%)	2 (100%)	0 (0%)	2		2 (14%)	11 (79%)	1 (7%)	14
Spectinomycin	CA-SFM	-	-	-	-	-	-	8	1 (100%)	0 (0%)	0 (0%)	1
	EUCAST	-	-	-	-	-	-	16	5 (100%)	0 (0%)	0 (0%)	5
	All			0	0	0	0		6 (100%)	0 (0%)	0 (0%)	6
Tetracycline	CA-SFM	-	-	-	-	-	-	-	2 (50%)	1 (25%)	1 (25%)	4
	CLSI	32	-	0 (0%)	1 (100%)	0 (0%)	1	-	-	-	-	-
	EUCAST	-	-	-	-	-	-	-	6 (75%)	0 (0%)	2 (25%)	8
	All			0 (0%)	1 (100%)	0 (0%)	1		8 (67%)	1 (8%)	3 (25%)	12

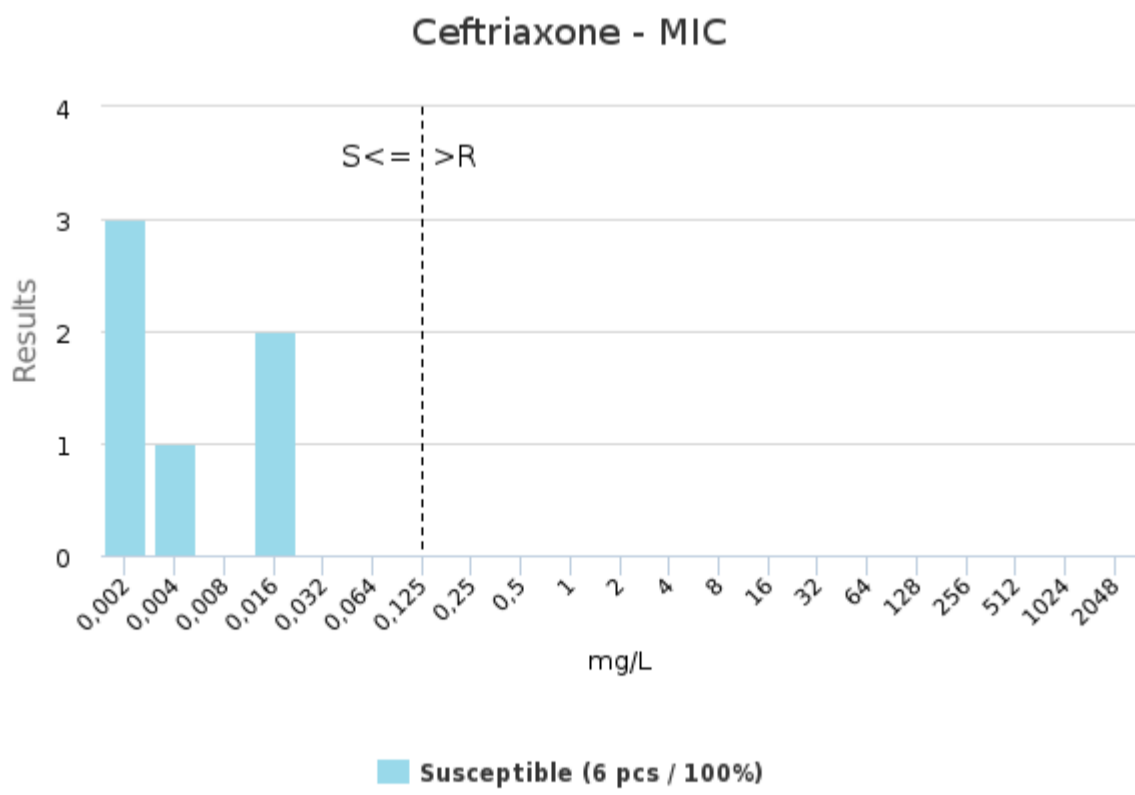
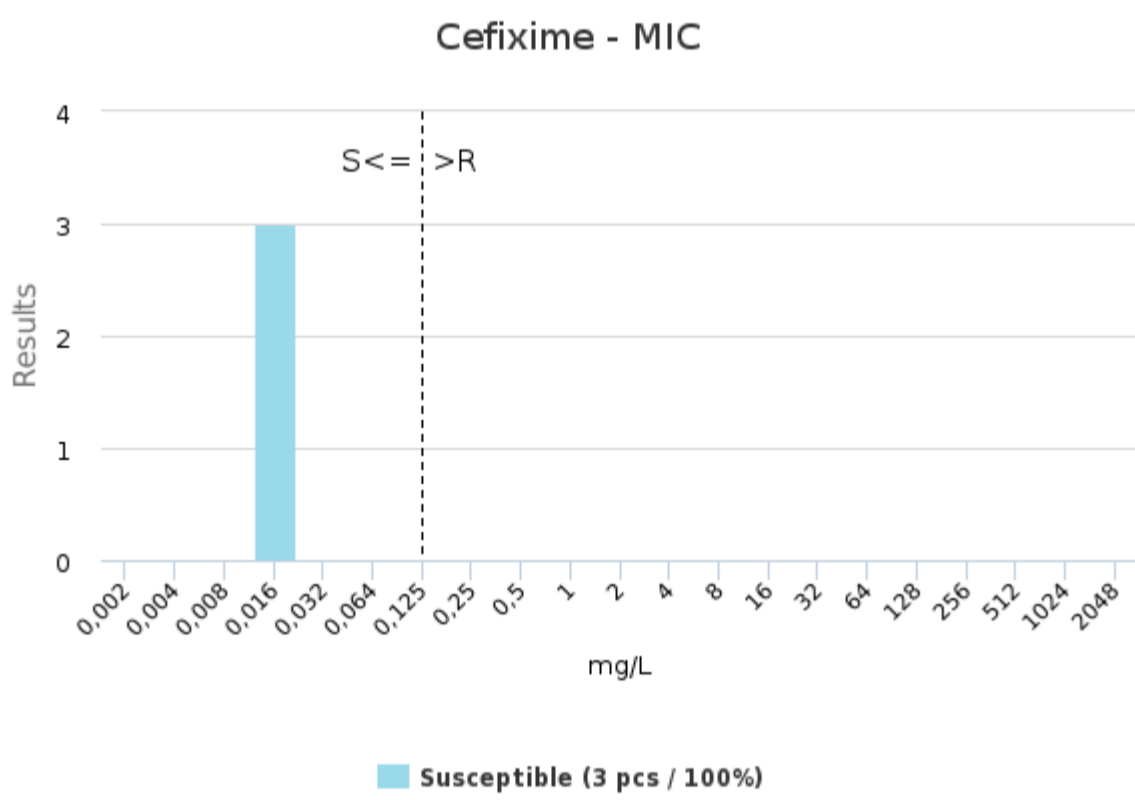
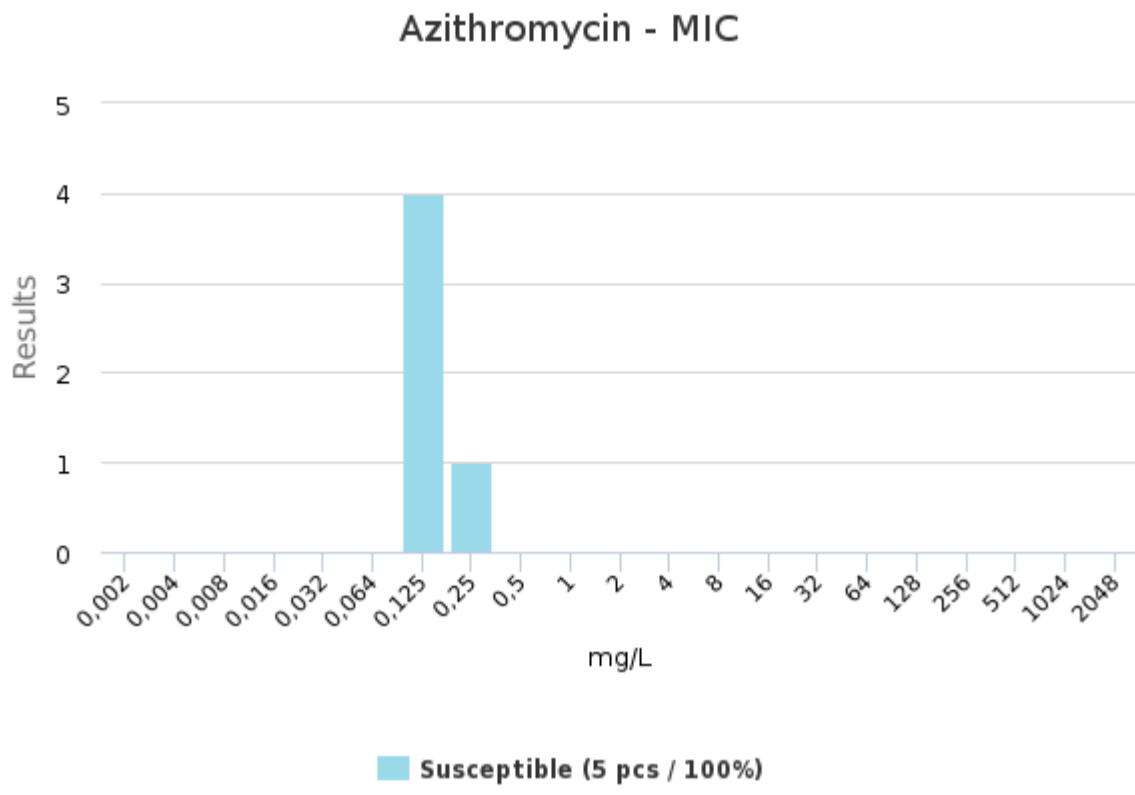
Sample S002 | EUCAST

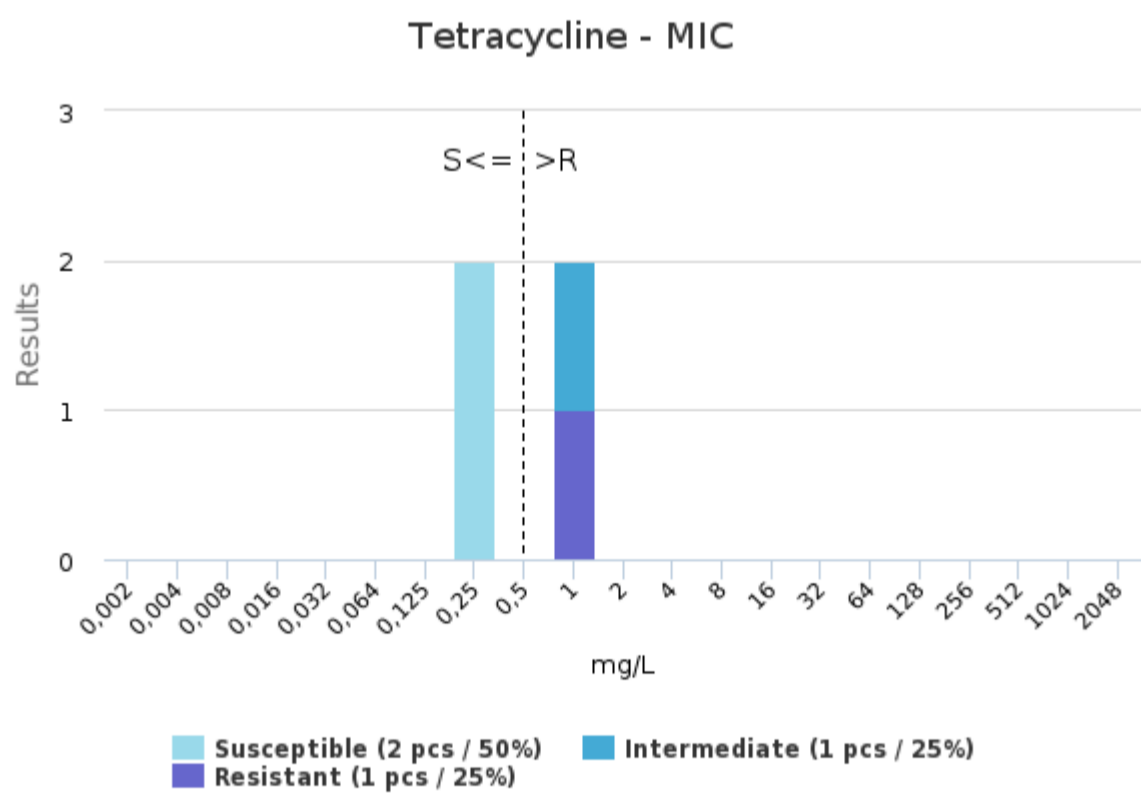
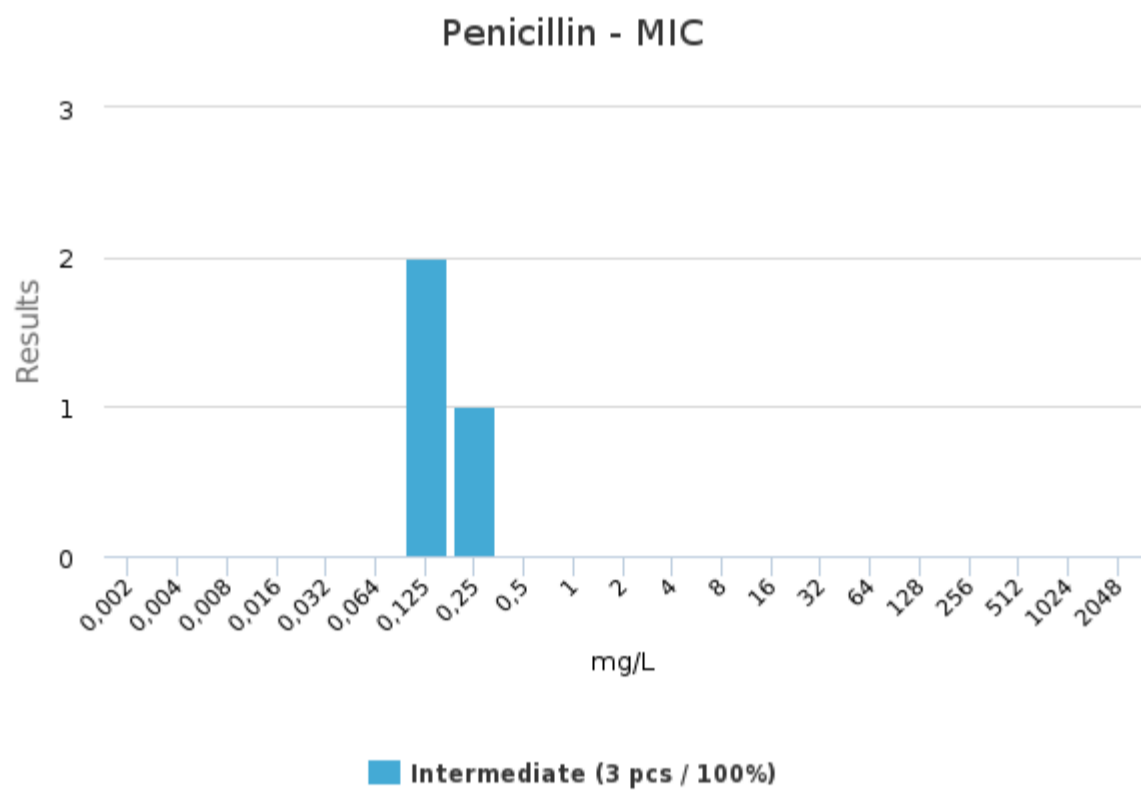
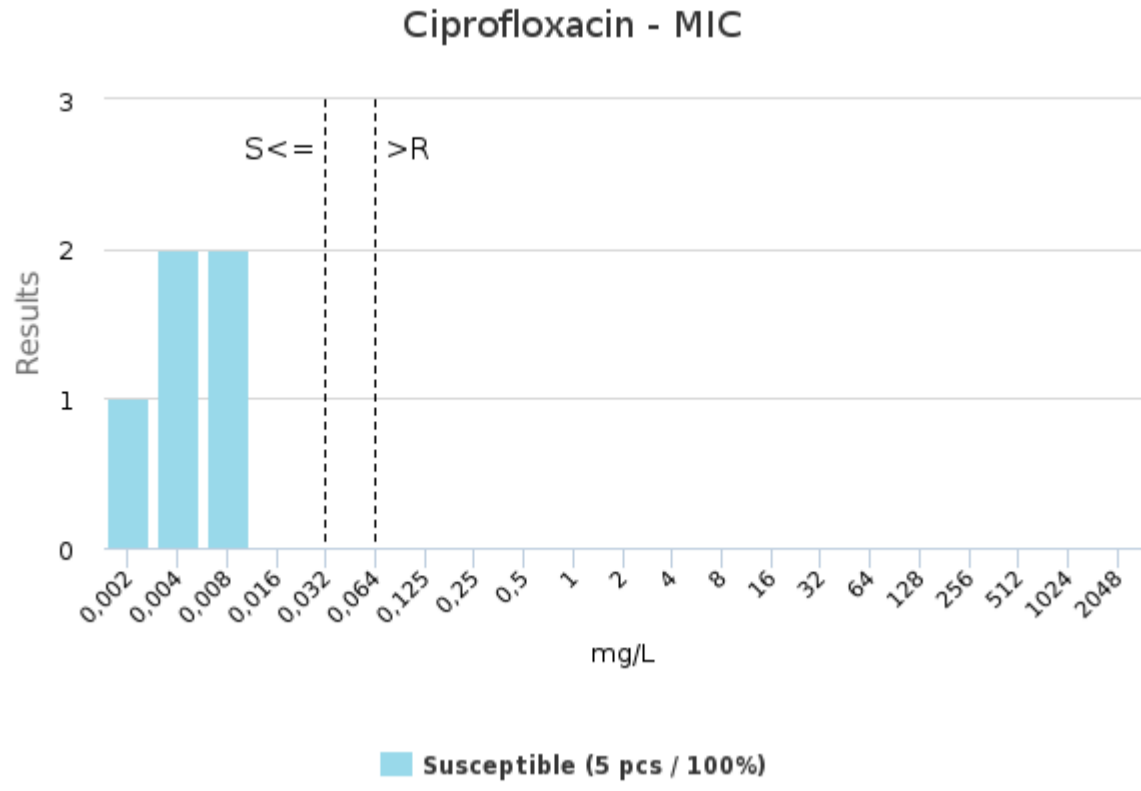




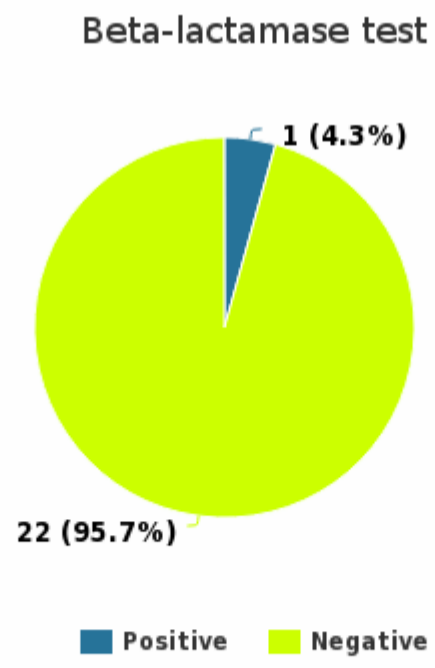


Sample S002 | CA-SFM





Sample S002 | Additional questions



Report info

Participants

Altogether 53 laboratories from 13 countries participated in this EQA round.

Report info

The susceptibility testing results are presented for positive screening samples only. The results are shown in laboratory specific summary tables and histograms. Histograms are drawn for each antimicrobial agent if the laboratory's result is included in a group of at least three results. By "group" is meant results which are obtained and interpreted according to the same standard (EUCAST, CLSI or CA-SFM). Laboratory's own results are indicated with a black radio button in the table and an orange dot in the histograms. Average (x) is used as a reference value for disk results and mode (Mo) is used for MIC results.

If you have not reported antimicrobial susceptibility testing results you will get a note: "You have not reported antimicrobial susceptibility results, only global report is available." For information on report interpretation and performance evaluation, please see the "EQAS Interpretation guidelines" in LabScala User instructions. In case you have any questions regarding the reports, please contact the EOA Coordinator.

LABQUALITY Neisseria gonorrhoeae (Gc), culture and susceptibility testing, March, 1-2023

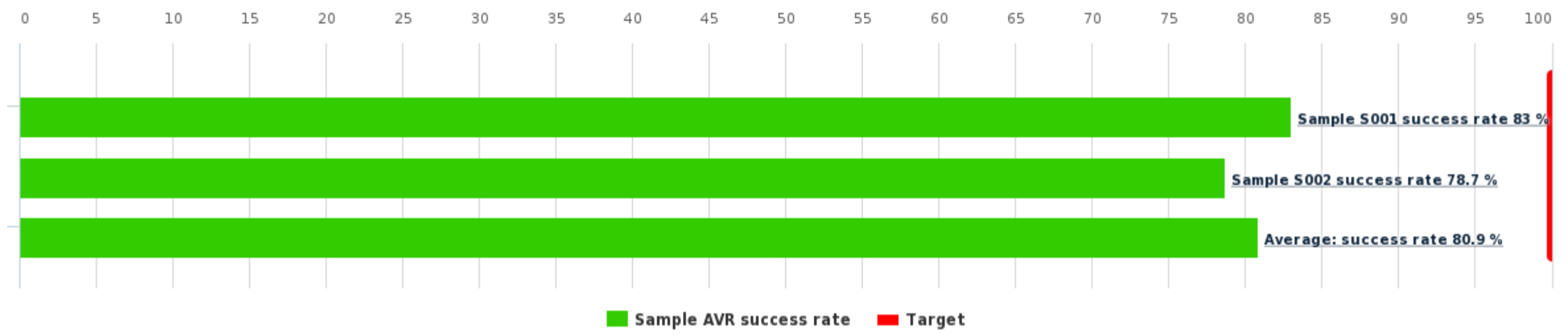
Report to the clinician and identification test results

GLOBAL REPORT

	No of participants	No of responded participants	Response percentage
Neisseria gonorrhoeae (Gc), culture and susceptibility testing, March, 1-2023	53	47	88.7 %

Summary

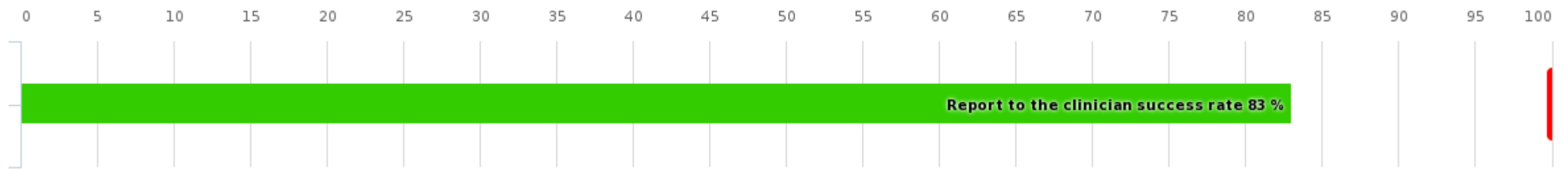
Overall success rate by samples



Summary	AVR success rate
Sample S001	83 %
Sample S002	78.7 %
Average:	80.9 %

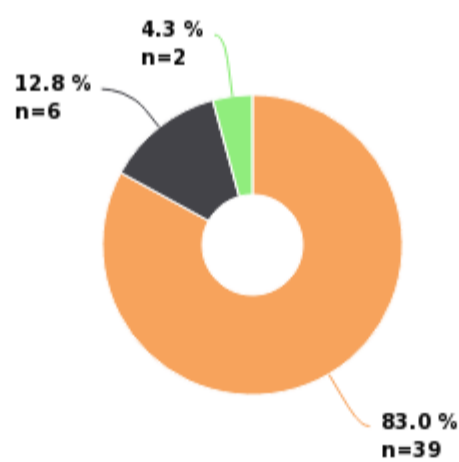
Sample S001 | GC culture: positive (*N. gonorrhoeae*, *Lactobacillus* sp.)

Sample S001 success rate



Sample S001 results	Responded	AVR success rate	Count
	Report to the clinician	83 %	47
	Amount of colonies on the plate	-	37
	Gram staining	-	32
	Oxidase test	-	31
	Commercial tests	-	5
	Identification by MALDI-TOF	-	37
	Nucleic acid detection	-	4
	Total:	83 %	193

Sample S001



■ Positive / *N. gonorrhoeae*
■ GC negative
 ■ No growth

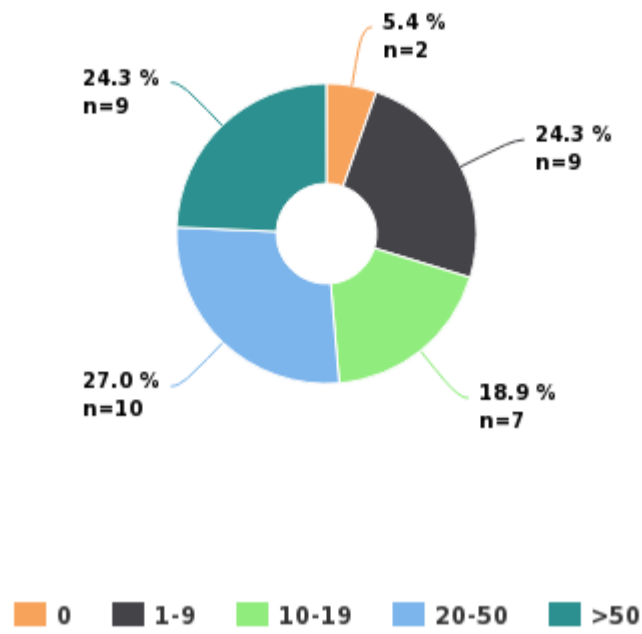
REPORT TO THE CLINICIAN

Finding	Finding count	No confirmation	Referred for confirmation	Confirmed internally	AVR success rate
	47				83 %
Positive / <i>N. gonorrhoeae</i>	39	6	1	32	
GC negative	6	2		4	
No growth	2	2			
Total:	47				83 %

SCORING SUMMARY

Finding	Finding score	Max score
		4
Positive / <i>N. gonorrhoeae</i>	4	4
GC negative	0	4
No growth	0	4

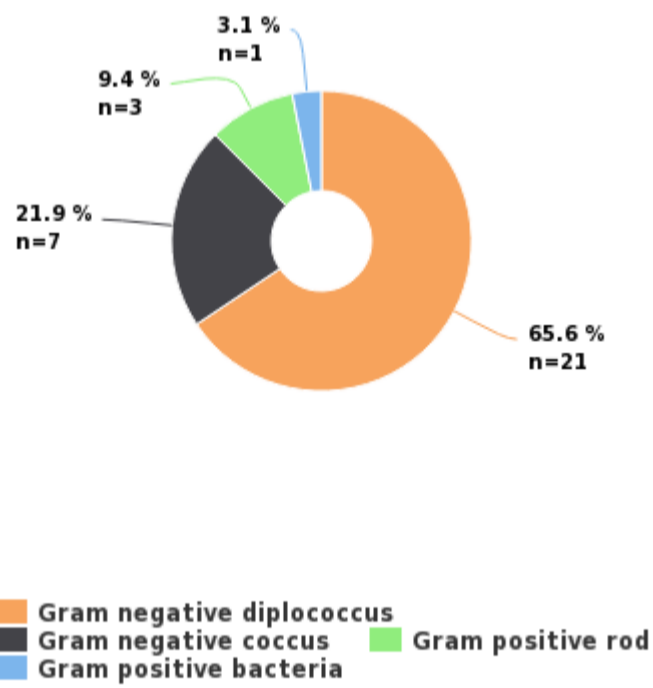
Sample S001 Amount of colonies on the plate



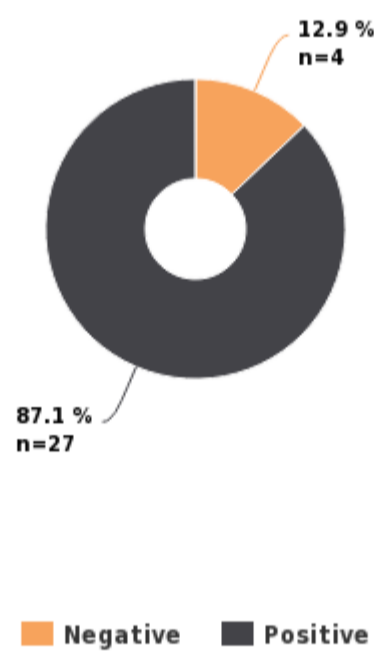
AMOUNT OF COLONIES ON THE PLATE

Result	Result count
0	2
1-9	9
10-19	7
20-50	10
>50	9
Total:	37

Sample S001 Gram staining



Sample S001 Oxidase test



GRAM STAINING

Result	Result count
Gram negative diplococcus	21
Gram negative coccus	7
Gram positive rod	3
Gram positive bacteria	1
Total:	32

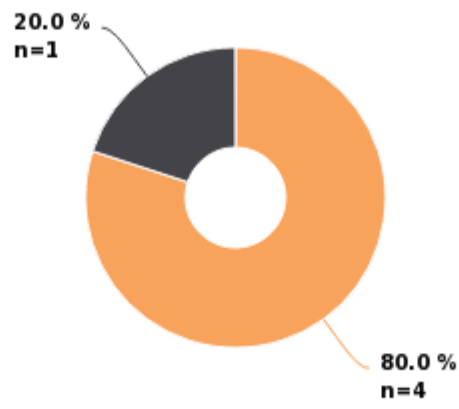
OXIDASE TEST

Result	Result count
Negative	4
Positive	27
Total:	31

LABQUALITY Neisseria gonorrhoeae (Gc), culture and susceptibility testing, March, 1-2023

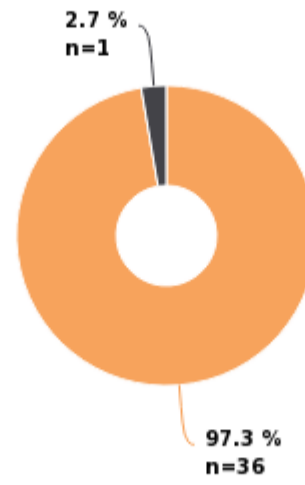
Report to the clinician and identification test results

Sample S001 Commercial tests,



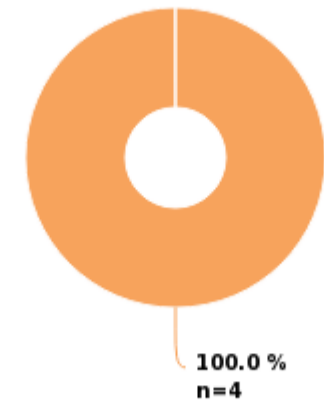
Neisseria gonorrhoeae
Other genus than Neisseria

Sample S001 Identification by MALDI-TOF,



Neisseria gonorrhoeae
Other genus than Neisseria

Sample S001 Nucleic acid detection,



Neisseria gonorrhoeae

COMMERCIAL IDENTIFICATION KITS AND ANALYZERS

Method	Result	Result count
RapidID NH (Remel)	Neisseria gonorrhoeae	1
VITEK 2 NH ID card (bioMerieux)	Neisseria gonorrhoeae	3
	Other genus than Neisseria	1
Total:		5

IDENTIFICATION TESTS: MALDI-TOF

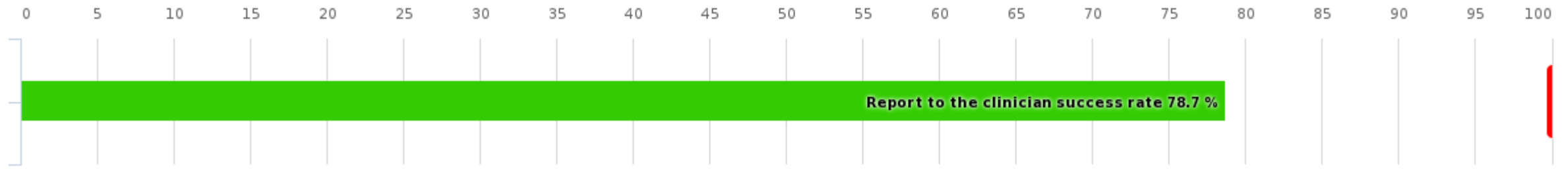
Method	Result	Result count
MALDI Biotyper (Bruker)	Neisseria gonorrhoeae	20
VITEK MS (bioMerieux)	Neisseria gonorrhoeae	16
	Other genus than Neisseria	1
Total:		37

IDENTIFICATION TESTS: NAT

Method	Result	Result count
Abbott Alinity m STI assay (Abbott)	Neisseria gonorrhoeae	1
Aptima Combo 2 CT/NG assay (Hologic)	Neisseria gonorrhoeae	2
Xpert CT/NG (Cepheid)	Neisseria gonorrhoeae	1
Total:		4

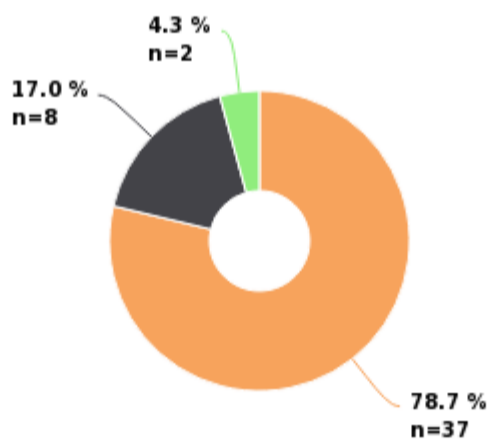
Sample S002 | GC culture: positive (N. gonorrhoeae, Lactobacillus sp.)

Sample S002 success rate



Sample S002 results	Responded	AVR success rate	Count
	Report to the clinician	78.7 %	47
	Amount of colonies on the plate	-	36
	Gram staining	-	30
	Oxidase test	-	30
	Commercial tests	-	5
	Identification by MALDI-TOF	-	35
	Nucleic acid detection	-	4
	Total:	78.7 %	187

Sample S002



■ Positive / N. gonorrhoeae
 ■ GC negative
 ■ No growth

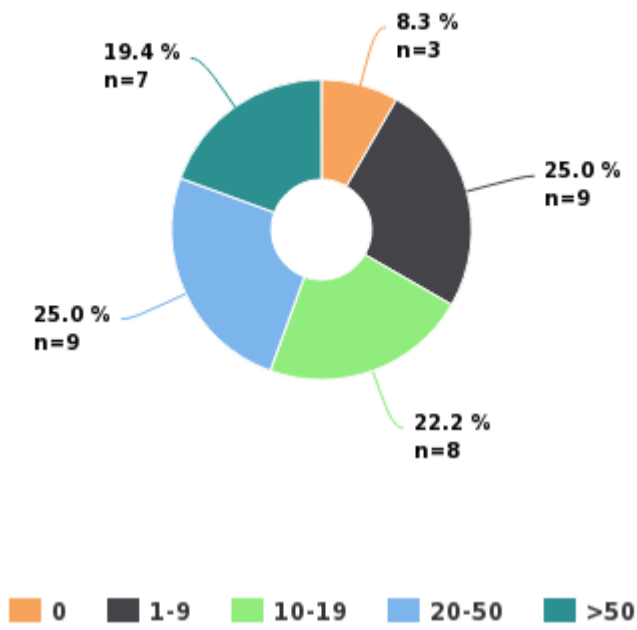
REPORT TO THE CLINICIAN

Finding	Finding count	No confirmation	Referred for confirmation	Confirmed internally	AVR success rate
	47				78.7 %
Positive / N. gonorrhoeae	37	7	1	29	
GC negative	8	2		6	
No growth	2	2			
Total:	47				78.7 %

SCORING SUMMARY

Finding	Finding score	Max score
		4
Positive / N. gonorrhoeae	4	4
GC negative	0	4
No growth	0	4

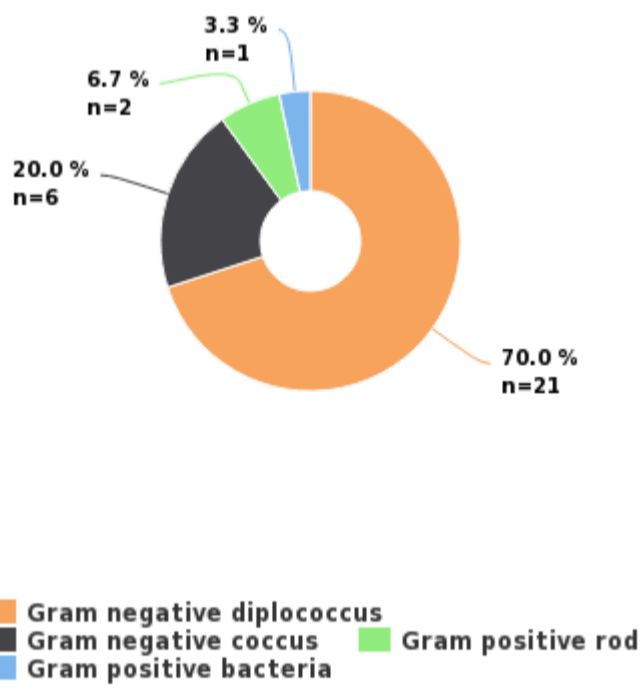
Sample S002 Amount of colonies on the plate



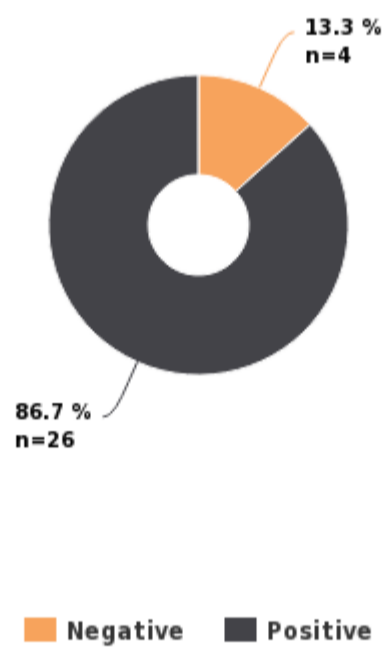
AMOUNT OF COLONIES ON THE PLATE

Result	Result count
0	3
1-9	9
10-19	8
20-50	9
>50	7
Total:	36

Sample S002 Gram staining



Sample S002 Oxidase test



GRAM STAINING

Result	Result count
Gram negative diplococcus	21
Gram negative coccus	6
Gram positive rod	2
Gram positive bacteria	1
Total:	30

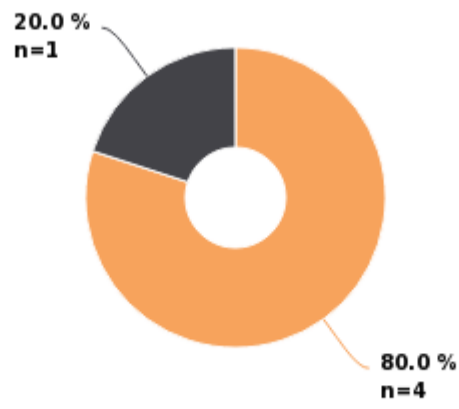
OXIDASE TEST

Result	Result count
Negative	4
Positive	26
Total:	30

LABQUALITY Neisseria gonorrhoeae (Gc), culture and susceptibility testing, March, 1-2023

Report to the clinician and identification test results

Sample S002 Commercial tests,



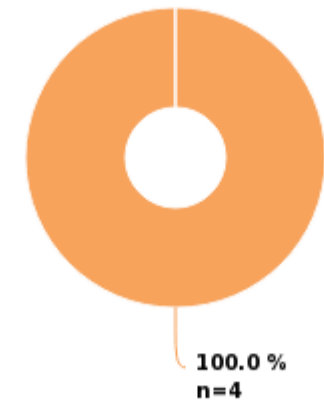
Neisseria gonorrhoeae
Other genus than Neisseria

Sample S002 Identification by MALDI-TOF,



Neisseria gonorrhoeae
Other genus than Neisseria

Sample S002 Nucleic acid detection,



Neisseria gonorrhoeae

COMMERCIAL IDENTIFICATION KITS AND ANALYZERS

Method	Result	Result count
RapidID NH (Remel)	Neisseria gonorrhoeae	1
VITEK 2 NH ID card (bioMerieux)	Neisseria gonorrhoeae	3
	Other genus than Neisseria	1
Total:		5

IDENTIFICATION TESTS: MALDI-TOF

Method	Result	Result count
MALDI Biotyper (Bruker)	Neisseria gonorrhoeae	18
VITEK MS (bioMerieux)	Neisseria gonorrhoeae	16
	Other genus than Neisseria	1
Total:		35

IDENTIFICATION TESTS: NAT

Method	Result	Result count
Abbott Alinity m STI assay (Abbott)	Neisseria gonorrhoeae	1
Aptima Combo 2 CT/NG assay (Hologic)	Neisseria gonorrhoeae	2
Xpert CT/NG (Cepheid)	Neisseria gonorrhoeae	1
Total:		4

LABQUALITY Neisseria gonorrhoeae (Gc), culture and susceptibility testing, March, 1-2023

Report to the clinician and identification test results

Report Info

PARTICIPANTS

Altogether 53 laboratories from 13 countries participated in this EQA round.

REPORT INFO

On the front page you can see summaries of overall success rate and sample specific success rates which have been calculated from the scores. The reported results and the scores are presented in the same report but in separate tables.

In general, the expected results are marked with green color. Accepted results may also be indicated with yellow color. Laboratory's own results are indicated with a black radio button . In the participant specific report there is also a laboratory specific scoring table for each sample, where you can find your own result and the scores given.

If you have not reported results you will get a note: "You have not responded in time, only global report is available".

For information on report interpretation and performance evaluation, please see the "EQAS Interpretation guidelines" in LabScala User instructions. In case you have any questions regarding the reports, please contact the EQA Coordinator.

SCORING

The results in the "Report to the clinician" part can be scored when at least 60% of the participants have reported the correct/expected result and when there are at least three reported results. The report includes a sample specific scoring summary.

Laboratory's scores have been converted to percentage (own success rate, % from maximum scores) with a target at 100%. Own success rate is compared with the success rate of all results.

The following general rules are applied:

4 points is reached by reporting the expected result

1-3 points is given to results that are partly correct/insufficient regarding the expected finding

0 points is given for an incorrect/false result

External Quality Assessment Scheme

***Neisseria gonorrhoeae* (Gc), culture and susceptibility testing**

Round 1, 2023

Specimens

Samples of this EQA round were lyophilized strains in culture loops. The sample lots were tested in an accredited Finnish reference laboratory and the results were consistent with the certificates provided by the sample manufacturer. Based on the quality controls conducted by the sample material manufacturer, pre-testing and the results obtained in the round, the sample lots are to be considered as homogeneous, stable and suitable for external quality assessment. The materials were sent without temperature control packaging.

The use of samples only for external quality assessment. The consent of Labquality must be requested for the use of the microbial strains contained in the samples for other purposes.

The content of the samples was as follows:

Sample S001 (LQ761123011)
Neisseria gonorrhoeae CL2
Lactobacillus sp. ASCP 62191

Sample S002 (LQ761123012)
Neisseria gonorrhoeae CL2
Lactobacillus sp. ASCP 62191

Report info

Please see the description of the data analysis on the last page of the laboratory-specific reports and global reports. It is important to read the Final report first, because it contains important information of the samples and results in each round.

Comments – Expert

Sample S001

The sample contained *Neisseria gonorrhoeae* and *Lactobacillus* strains and was thus positive in *Neisseria gonorrhoeae* culture. Of all the participants returning their results, full score (4p.) was received by 39 laboratories (83%). Six laboratories reported the sample as negative and two laboratories reported no growth. According to the manufacturer, the sample contained a fairly low amount of *N. gonorrhoeae*, which was evident in the results and reported colony counts, which ranged from 0 to >50.

Sample S002

The sample contained *Neisseria gonorrhoeae* and *Lactobacillus* strains and was thus positive in *Neisseria gonorrhoeae* culture. Of all the laboratories involved and returning their results, full score (4p.) was received by 37 laboratories (78.7%). Eight laboratories reported the sample as negative and two laboratories as no growth.

Sample S002 contained a higher amount of *N. gonorrhoeae* strain than the other sample of the round, but despite this, the reported colony counts varied between 0 to >50. Both the microbial concentration estimate provided by the manufacturer as well as the pretesting culture results from the reference laboratory support the understanding that the sample contained at least a

2023-04-17

FINAL REPORT

Product no. 5120

Subcontracting: Sample pretesting

Samples sent	2023-02-28
Round closed	2023-03-27
Expected results	2023-03-30
Final report	2023-04-17

Request for correction

Typing errors in laboratory's result forms are on laboratory's responsibility. Labquality accepts responsibility only for result processing. Requests must be notified by writing within three weeks from the date of this letter.

Authorized by

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moderate amount of *N. gonorrhoeae*, but there may have been deficiencies in the homogeneity of the samples as the strain did not grow fully optimally on used growth media. Or is it just a matter of suboptimal growth and/or handling conditions for gonococcus? For example, have the agar plates been left at room temperature for too long time, or was the used growth medium rich enough? The amount of Gc in the sample was that much high that the laboratories which reported sample as negative should pay attention to the selectivity of the culture media as well as other growth conditions.

Since the 60% consensus among all participants is clearly exceeded for both samples, the samples will be scored.

Table 1. The MIC results reported by two Finnish reference laboratories of the strain *N. gonorrhoeae* CL2. Both laboratories implement the EUCAST guideline.

Antimicrobial agent	Ref. Lab 1		Ref. Lab 2	
	MIC (mg/L)	SIR	MIC (mg/L)	SIR
Azithromycin	0.094	S	0.125	S
Ceftriaxone	<0.002	S	<0.002	S
Ciprofloxacin	0.004	S	0.003	S
Penicillin G	0.25	I	0.125	I
Tetracycline	NA	NA	0.38	S

Both samples S001 and S002 contained the same *Neisseria gonorrhoeae* CL2 strain. As might have been expected, the sensitivity results were also similar. *Neisseria gonorrhoeae* CL2 strain has not been in the rounds in recent years. The strain is susceptible to azithromycin, ceftriaxone, ciprofloxacin and tetracycline. Penicillin sensitivity is slightly reduced. The betalactamase production was not analyzed this time.

In total 36 laboratories reported antimicrobial susceptibility test results for sample S001 and 35 laboratories for sample S002. Ceftriaxone, ciprofloxacin, azithromycin and penicillin had the highest amount of antimicrobial test results, as expected. The results were very well within the expected limits. One laboratory may have had an error in the interpretation or recording of the sensitivity results of ciprofloxacin, cefriaxone and cefixime in sample S002, which it reported as resistant. There was variation in tetracycline sensitivity test results, as usual.

Few susceptibility test results were reported for cefixime, spectinomycin and cefotaxime as well. Two laboratories reported susceptibility test results with disks.

Exceptions in scoring

No exceptions.

End of report

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