LABQUALITY

External Quality Assessment Scheme

Cerebrospinal fluid, bacterial culture 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 patient samples and should be handled with the same care as patient samples, i.e., as potential transmitters of serious diseases.

Background information
Sample S001
14-year-old boy who lost consciousness during ice-hockey practice. He had earlier been bitten by a dog.

Sample S002
A rapid decline in the general condition of a 56-year-old patient with pneumonia.

Examinations
Bacterial culture from cerebrospinal fluid.

Storage and use
After arrival the specimens should be stored at +2…8 °C.

1. Let the specimen and the rehydration fluid 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 handle (appr. 2 cm) directly into the tube containing warm rehydration fluid.
4. Incubate the tube for 30 minutes at +35…37°C.
5. Check that the black film dissolves completely out of the loop. Mix well and discard the loop.
6. The specimen is ready for culture and should be handled like a clinical specimen.

Result reporting
Kindly report your results via LabScala (www.labscala.com). See short guidance for filling the result forms below.

Guidance for filling the forms
First choose the appropriate option in *Test selection*. If your laboratory routinely reports merely the gram stain result to the clinician, then choose option *Screening laboratory*. When your laboratory identifies the findings to the species level, then choose option *Laboratories performing identification*.

Report to the clinician
Give your answer as you would routinely report it to the clinician. Note, that different drop-down menus will open for screening laboratories and for participants that perform species identification. If you have not observed any growth in the sample, choose option *No growth/Negative*.

Other results
Report possible results of plate and enrichment culture. Add the results by using the + -button at the end of the row. You may report multiple culture results. If your media is not included in the drop-down list, please choose

2023-02-07

INSTRUCTIONS

Product no. 5150
LQ761223011-012/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 3, 2023**.

The expected results of the round are published in LabScala in the View Reports section by March 7, 2023.

Inquiries
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Other media. When reporting gram stain results also choose the source (colony, enrichment broth, rehydrated sample).

You may report multiple microbe findings by clicking the *Add finding* button at the end of the blue bar with text *Microbe*.

Report to the clinician part will be scored.

Kindly contact the EQA Coordinator if you need assistance with filling the result form.

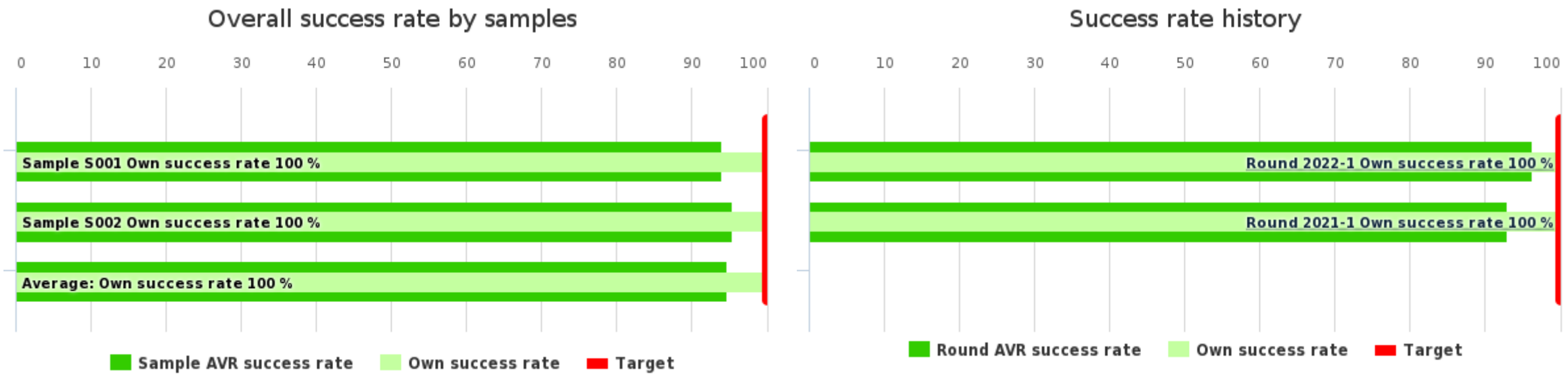
S001

S002

Client report

	No of participants	No of responded participants	Response percentage
Cerebrospinal fluid, bacterial culture, February, 1-2023	51	50	98 %

Summary



Summary	Own score	Max score	Own success rate	Difference	AVR success rate
Sample S001	4	4	100 %	6 %	94 %
Sample S002	4	4	100 %	4.5 %	95.5 %
Average:			100 %	5.2 %	94.8 %

History	Test nr.	Own success rate	Difference	AVR success rate
Round 2022-1	1	100 %	3.6 %	96.4 %
Round 2021-1	1	100 %	7 %	93 %

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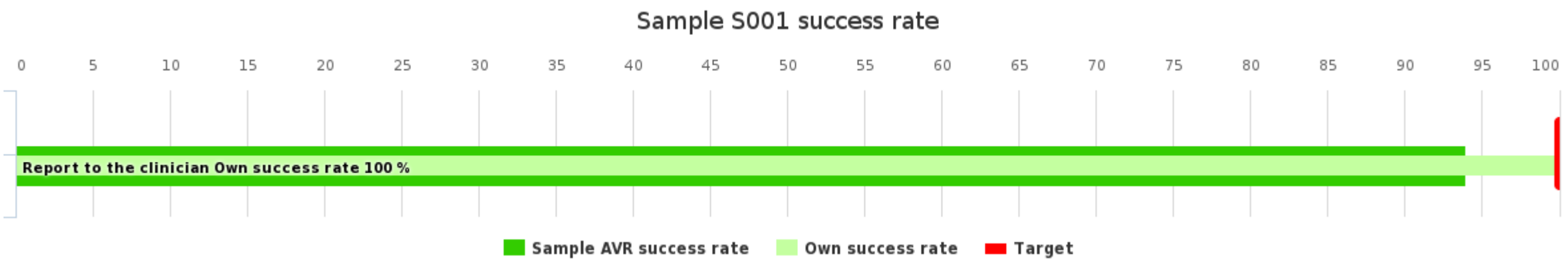
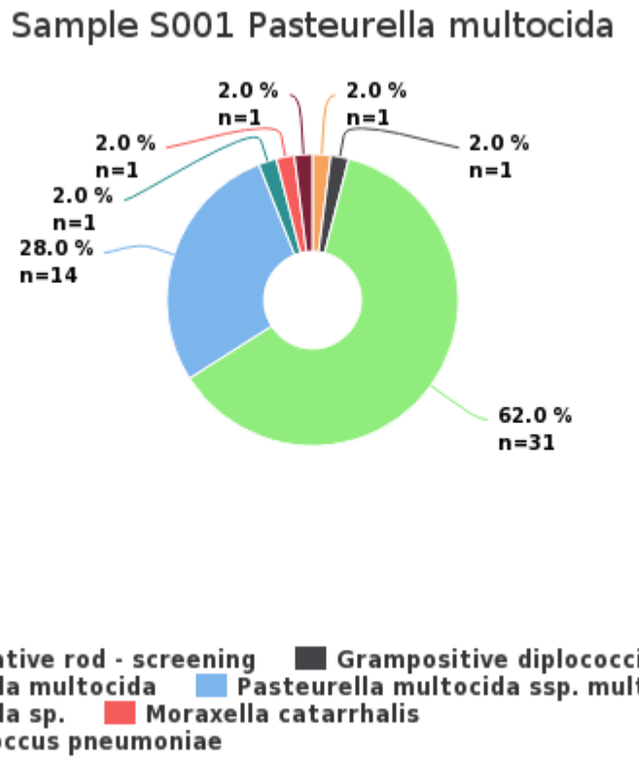
Sample S001 | Pasteurella multocida



Sample S001 results	Responded	Own score	Max score	Own success rate	Difference	AVR success rate	Count
	Report to the clinician	4	4	100 %	6 %	94 %	50
	Plate Culture	-	-	-	-	-	110
	Enrichment Culture	-	-	-	-	-	30
	Gram staining	-	-	-	-	-	39



LABORATORY SPECIFIC SCORING TABLE

Finding group	Finding	Further action	Own score	Max score	Own success rate	Difference	AVR success rate
Pasteurella multocida	Pasteurella multocida	Not referred for further action	4	4	100 %	6 %	94 %
Total:			4	4	100 %	6 %	94 %

REPORT TO THE CLINICIAN

Finding group	Finding	Finding count	Referred	Not referred	AVR success rate
Pasteurella multocida		**50**			**94 %**
	Gramnegative rod - screening	1	1		
	Grampositive diplococci - screening	1	1		
	◉ Pasteurella multocida	31	9	◉ 22	
	Pasteurella multocida ssp. multocida	14	7	7	
	Pasteurella sp.	1	1		
	Moraxella catarrhalis	1		1	
	Streptococcus pneumoniae	1		1	
Total:		50			94 %

SCORING SUMMARY

Finding group	Finding	Finding score	Referred	Max score
Pasteurella multocida				**4**
	Gramnegative rod - screening	3	1	4
	Grampositive diplococci - screening	0		4
	Pasteurella multocida	4		4
	Pasteurella multocida ssp. multocida	4		4

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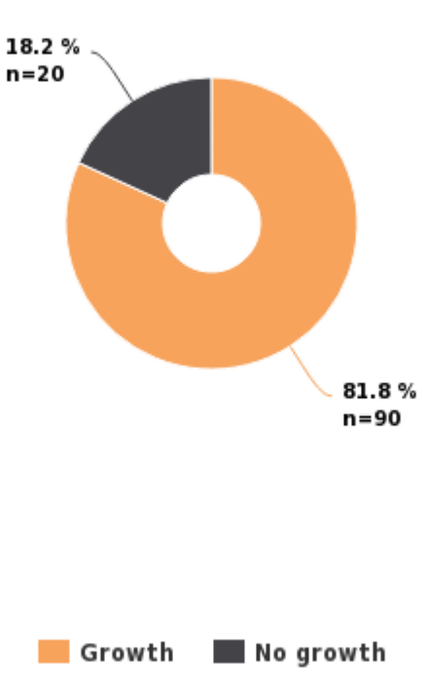
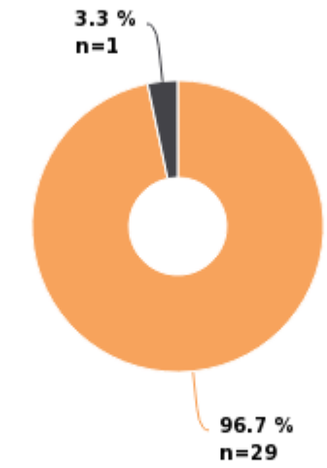
	Pasteurella sp.	3	1	4
	Moraxella catarrhalis	0		4
	Streptococcus pneumoniae	0		4
Total:				4

Sample S001 Plate Culture, Pasteurella multocida



Sample S001 Enrichment Culture, Pasteurella multocida



Sample S001 Gram staining, Pasteurella multocida

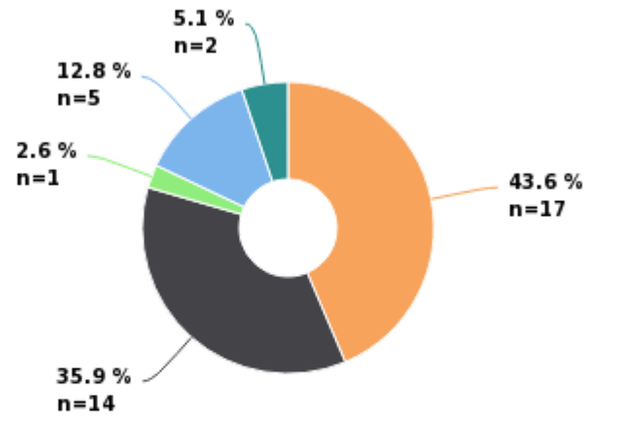


PLATE CULTURE

Finding group	Method	Growth	No growth	Total:
Pasteurella multocida				**110**
	Anaerobic agar	3	1	4
	Blood agar	42	-	42
	Candida agar	-	3	3
	Chocolate agar	40	1	41
	CN agar	-	3	3
	Fastidious Anaerobe (FA) agar	4	-	4
	MacConkey agar	-	6	6
	Mannitol Salt agar	-	1	1
	Other media	1	1	2
	Sabouraud agar	-	2	2
	Schaedler agar	-	2	2
	Total:	90	20	110

ENRICHMENT CULTURE

Finding group	Method	Growth	No growth	Total:
Pasteurella multocida				**30**
	BacT/Alert bioMerieux	4	-	4
	BD Bactec Becton Dickinson	1	-	1
	BD Bactec Peds Plus/F Becton Dickinson	3	-	3
	Brain Heart Infusion broth	7	-	7
	Cooked Meat broth	1	-	1
	Fastidious Anaerobe (FA) broth	2	-	2
	Meningomedium	1	-	1
	Other media	2	-	2
	Schaedler broth	4	1	5
	Tioglycolate broth	4	-	4
	Total:	29	1	30

GRAM STAINING

Finding group	Result	Result count
Pasteurella multocida		**39**
	Gramnegative rod	17
	Gramnegative coccobacilli	14
	Gramnegative cocci	1

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	Gramnegative bacteria	5
	Grampositive diplococci	2
Total:		39

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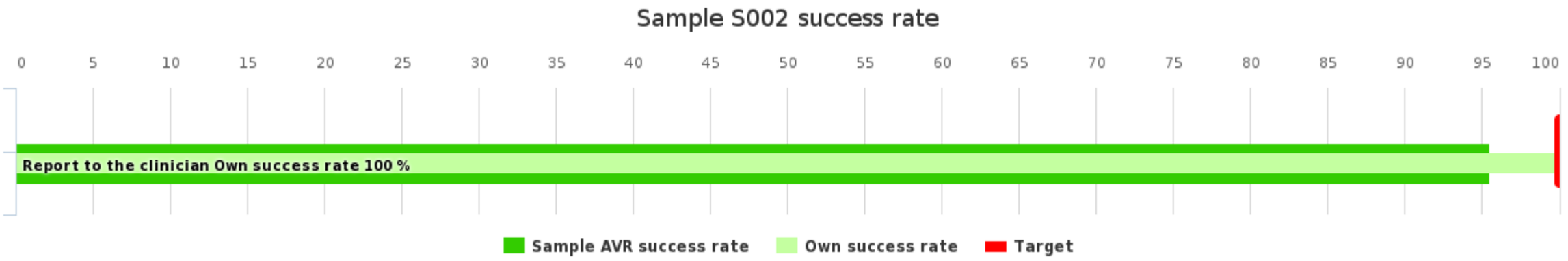
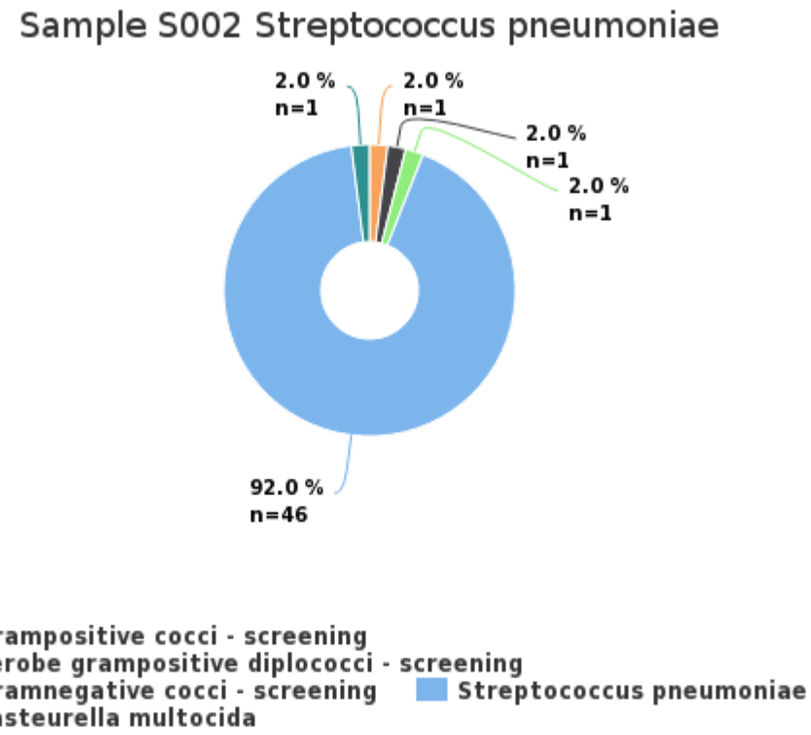
Sample S002 | Streptococcus pneumoniae



Sample S002 results	Responded	Own score	Max score	Own success rate	Difference	AVR success rate	Count
	Report to the clinician	4	4	100 %	4.5 %	95.5 %	50
	Plate Culture	-	-	-	-	-	114
	Enrichment Culture	-	-	-	-	-	32
	Gram staining	-	-	-	-	-	38



LABORATORY SPECIFIC SCORING TABLE

Finding group	Finding	Further action	Own score	Max score	Own success rate	Difference	AVR success rate
Streptococcus pneumoniae	Streptococcus pneumoniae	Not referred for further action	4	4	100 %	4.5 %	95.5 %
Total:			4	4	100 %	4.5 %	95.5 %

REPORT TO THE CLINICIAN

Finding group	Finding	Finding count	Referred	Not referred	AVR success rate
Streptococcus pneumoniae		**50**			**95.5 %**
	Grampositive cocci - screening	1	1		
	Aerobe grampositive diplococci - screening	1		1	
	Gramnegative cocci - screening	1	1		
	◉ Streptococcus pneumoniae	46	30	◉ 16	
	Pasteurella multocida	1		1	
Total:		50			95.5 %

SCORING SUMMARY

Finding group	Finding	Finding score	Referred	Max score
Streptococcus pneumoniae				**4**
	Grampositive cocci - screening	3	1	4
	Aerobe grampositive diplococci - screening	3		4
	Gramnegative cocci - screening	0		4
	Streptococcus pneumoniae	4		4
	Pasteurella multocida	0		4
Total:				4

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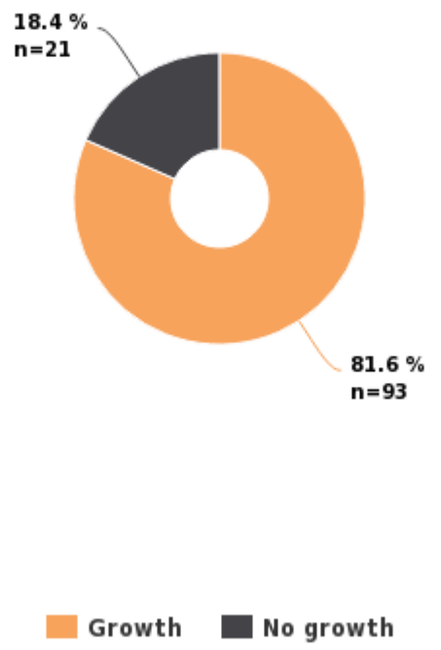
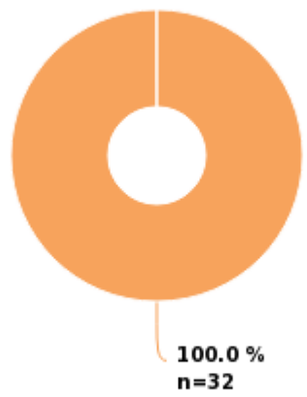
Sample S002 Plate Culture, Streptococcus pneumoniae



Sample S002 Enrichment Culture, Streptococcus pneumoniae



Sample S002 Gram staining, Streptococcus pneumoniae

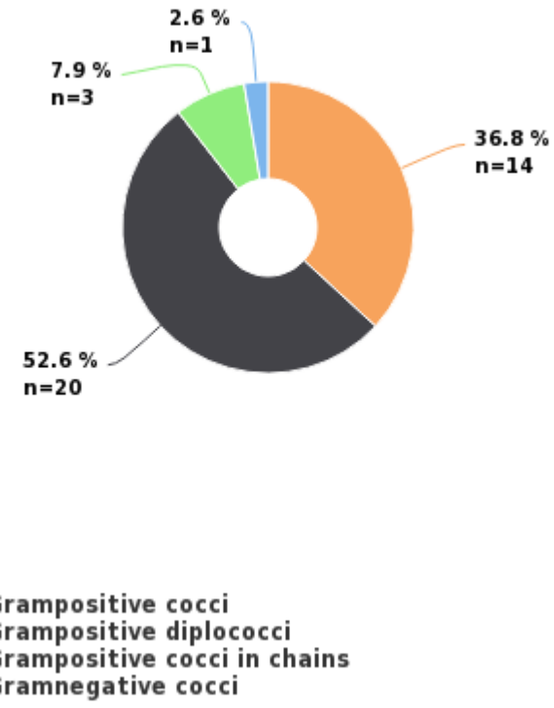


PLATE CULTURE

Finding group	Method	Growth	No growth	Total:
Streptococcus pneumoniae				**114**
	Anaerobic agar	2	1	3
	Anaerobic Blood agar	-	1	1
	Blood agar	42	-	42
	Candida agar	-	3	3
	Chocolate agar	38	4	42
	CN agar	3	-	3
	Fastidious Anaerobe (FA) agar	5	-	5
	MacConkey agar	-	7	7
	Mannitol Salt agar	-	1	1
	Other media	2	1	3
	Sabouraud agar	-	2	2
	Schaedler agar	1	1	2
	Total:	93	21	114

ENRICHMENT CULTURE

Finding group	Method	Growth
Streptococcus pneumoniae		
	BacT/Alert bioMerieux	5
	BD Bactec Peds Plus/F Becton Dickinson	3
	Brain Heart Infusion broth	7
	Cooked Meat broth	1
	Fastidious Anaerobe (FA) broth	2
	Meningomedium	1
	Other media	2
	Schaedler broth	6
	Tioglycolate broth	5
	Total:	32

GRAM STAINING

Finding group	Result	Result count
Streptococcus pneumoniae		**38**
	Grampositive cocci	14
	Grampositive diplococci	20
	Grampositive cocci in chains	3
	Gramnegative cocci	1
Total:		38

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Report Info

PARTICIPANTS

Altogether 51 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

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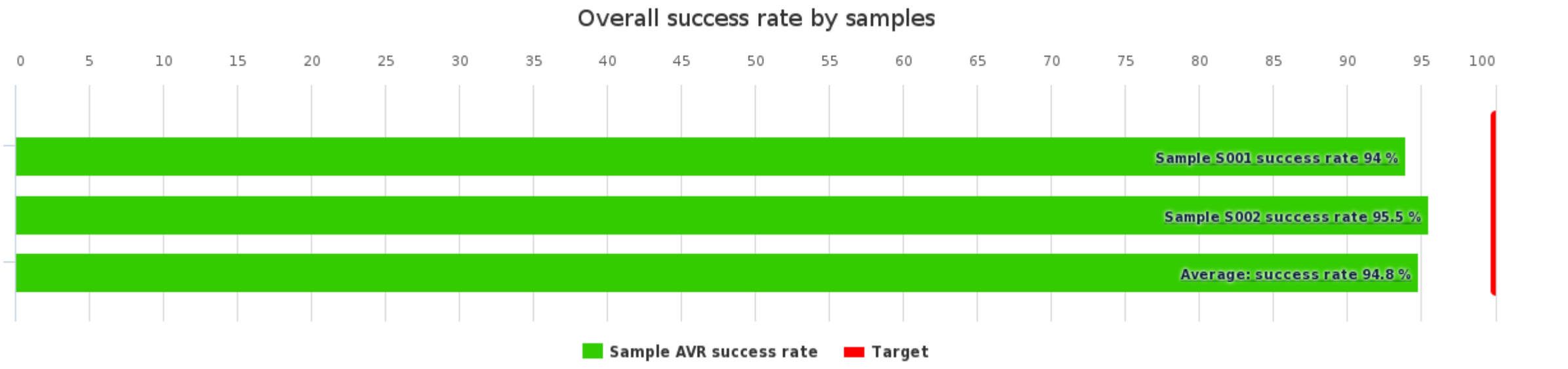
Cerebrospinal fluid, bacterial culture, February, 1-2023

GLOBAL REPORT

	No of participants	No of responded participants	Response percentage
Cerebrospinal fluid, bacterial culture, February, 1-2023	51	50	98 %

Summary



Summary	AVR success rate
Sample S001	94 %
Sample S002	95.5 %
Average:	94.8 %

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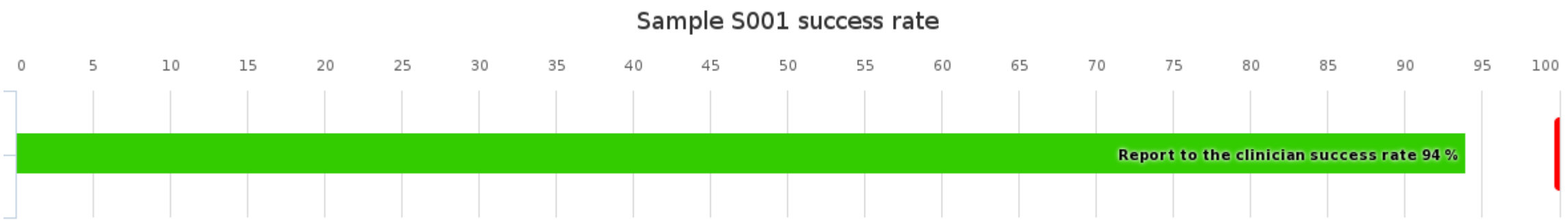
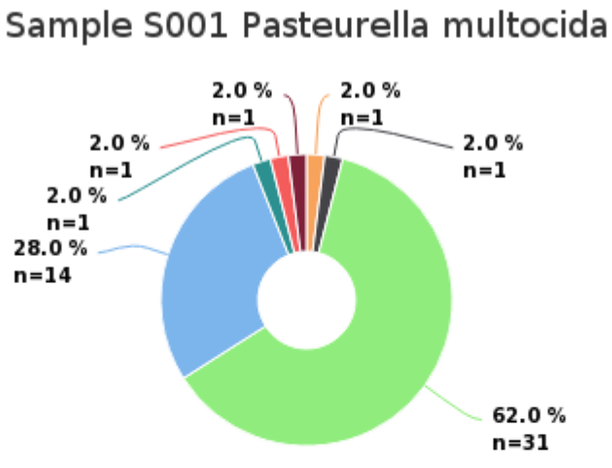
Sample S001 | Pasteurella multocida



Sample S001 results	Responded	AVR success rate	Count
	Report to the clinician	94 %	50
	Plate Culture	-	110
	Enrichment Culture	-	30
	Gram staining	-	39



REPORT TO THE CLINICIAN

Finding group	Finding	Finding count	Referred	Not referred	AVR success rate
Pasteurella multocida		**50**			**94 %**
	Gramnegative rod - screening	1	1		
	Grampositive diplococci - screening	1	1		
	Pasteurella multocida	31	9	22	
	Pasteurella multocida ssp. multocida	14	7	7	
	Pasteurella sp.	1	1		
	Moraxella catarrhalis	1		1	
	Streptococcus pneumoniae	1		1	
Total:		50			94 %

SCORING SUMMARY

Finding group	Finding	Finding score	Referred	Max score
Pasteurella multocida				**4**
	Gramnegative rod - screening	3	1	4
	Grampositive diplococci - screening	0		4
	Pasteurella multocida	4		4
	Pasteurella multocida ssp. multocida	4		4
	Pasteurella sp.	3	1	4
	Moraxella catarrhalis	0		4
	Streptococcus pneumoniae	0		4
Total:				4

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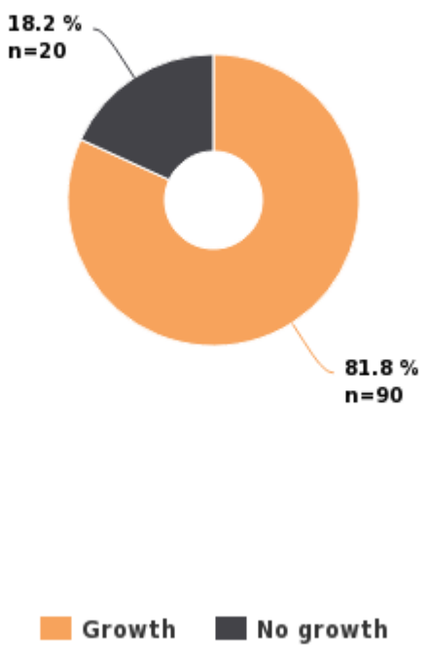
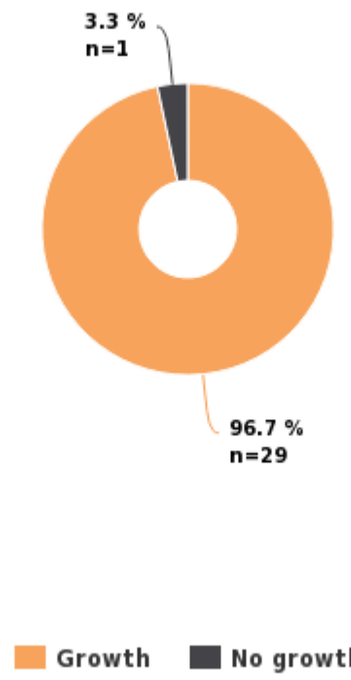
Cerebrospinal fluid, bacterial culture, February, 1-2023

Sample S001 Plate Culture, Pasteurella multocida



Sample S001 Enrichment Culture, Pasteurella multocida



Sample S001 Gram staining, Pasteurella multocida

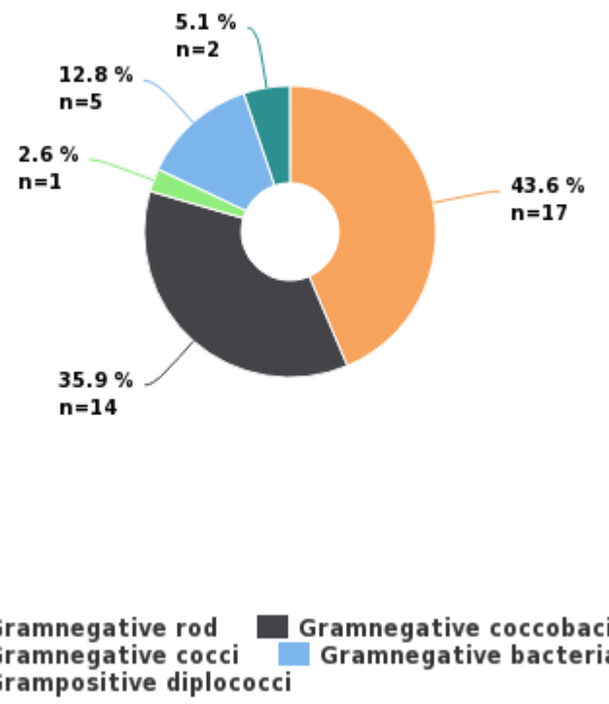


PLATE CULTURE

Finding group	Method	Growth	No growth	Total:
Pasteurella multocida				**110**
	Anaerobic agar	3	1	4
	Blood agar	42	-	42
	Candida agar	-	3	3
	Chocolate agar	40	1	41
	CN agar	-	3	3
	Fastidious Anaerobe (FA) agar	4	-	4
	MacConkey agar	-	6	6
	Mannitol Salt agar	-	1	1
	Other media	1	1	2
	Sabouraud agar	-	2	2
	Schaedler agar	-	2	2
	Total:	90	20	110

ENRICHMENT CULTURE

Finding group	Method	Growth	No growth	Total:
Pasteurella multocida				**30**
	BacT/Alert bioMerieux	4	-	4
	BD Bactec Becton Dickinson	1	-	1
	BD Bactec Peds Plus/F Becton Dickinson	3	-	3
	Brain Heart Infusion broth	7	-	7
	Cooked Meat broth	1	-	1
	Fastidious Anaerobe (FA) broth	2	-	2
	Meningomedium	1	-	1
	Other media	2	-	2
	Schaedler broth	4	1	5
	Tioglycolate broth	4	-	4
	Total:	29	1	30

GRAM STAINING

Finding group	Result	Result count
Pasteurella multocida		**39**
	Gramnegative rod	17
	Gramnegative coccobacilli	14
	Gramnegative cocci	1
	Gramnegative bacteria	5
	Grampositive diplococci	2
Total:		39

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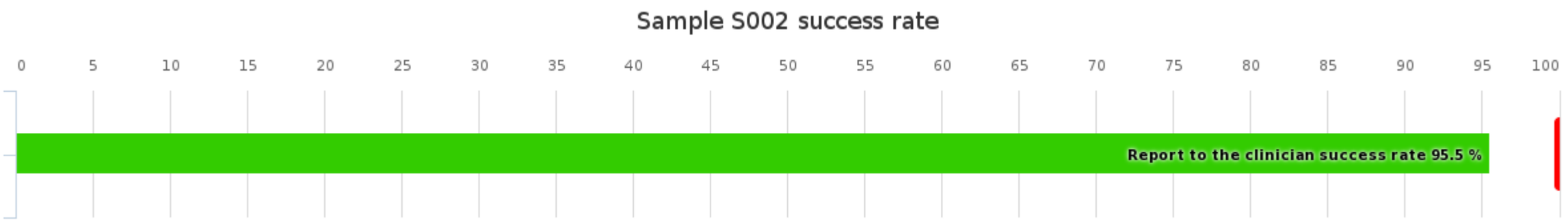
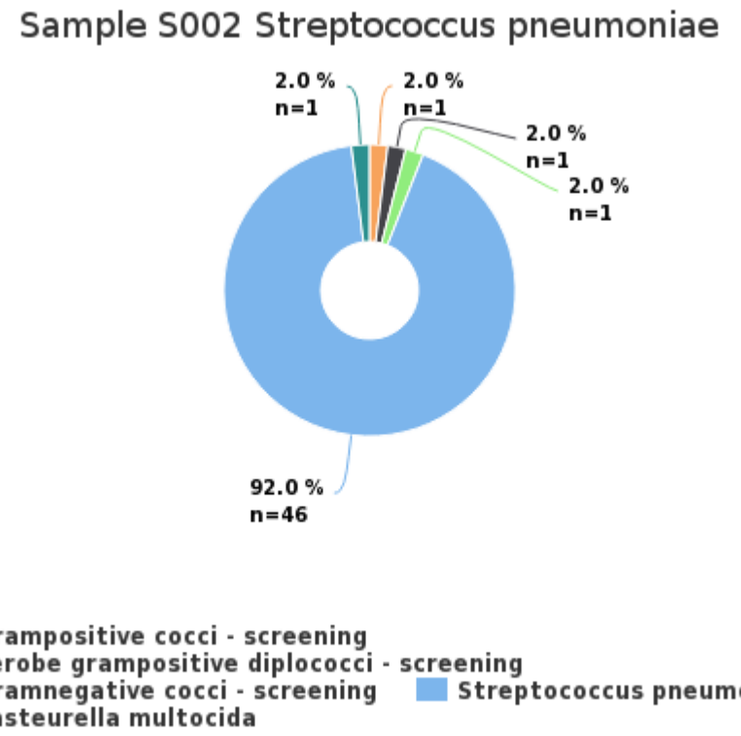
Sample S002 | Streptococcus pneumoniae



Sample S002 results	Responded	AVR success rate	Count
	Report to the clinician	95.5 %	50
	Plate Culture	-	114
	Enrichment Culture	-	32
	Gram staining	-	38



REPORT TO THE CLINICIAN

Finding group	Finding	Finding count	Referred	Not referred	AVR success rate
Streptococcus pneumoniae		**50**			**95.5 %**
	Grampositive cocci - screening	1	1		
	Aerobe grampositive diplococci - screening	1		1	
	Gramnegative cocci - screening	1	1		
	Streptococcus pneumoniae	46	30	16	
	Pasteurella multocida	1		1	
Total:		50			95.5 %

SCORING SUMMARY

Finding group	Finding	Finding score	Referred	Max score
Streptococcus pneumoniae				**4**
	Grampositive cocci - screening	3	1	4
	Aerobe grampositive diplococci - screening	3		4
	Gramnegative cocci - screening	0		4
	Streptococcus pneumoniae	4		4
	Pasteurella multocida	0		4
Total:				4

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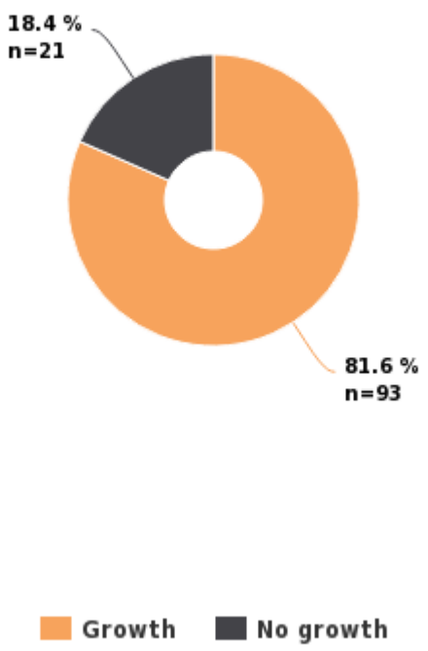
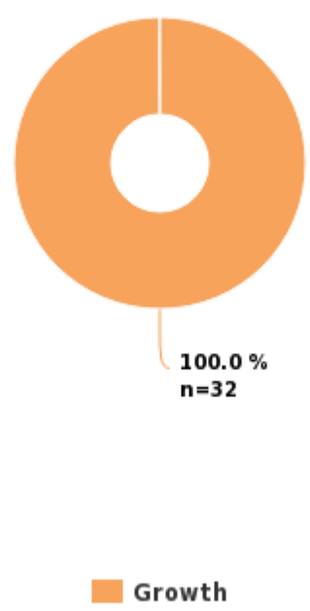
LABQUALITY

Cerebrospinal fluid, bacterial culture, February, 1-2023

Sample S002 Plate Culture, Streptococcus pneumoniae



Sample S002 Enrichment Culture, Streptococcus pneumoniae



Sample S002 Gram staining, Streptococcus pneumoniae

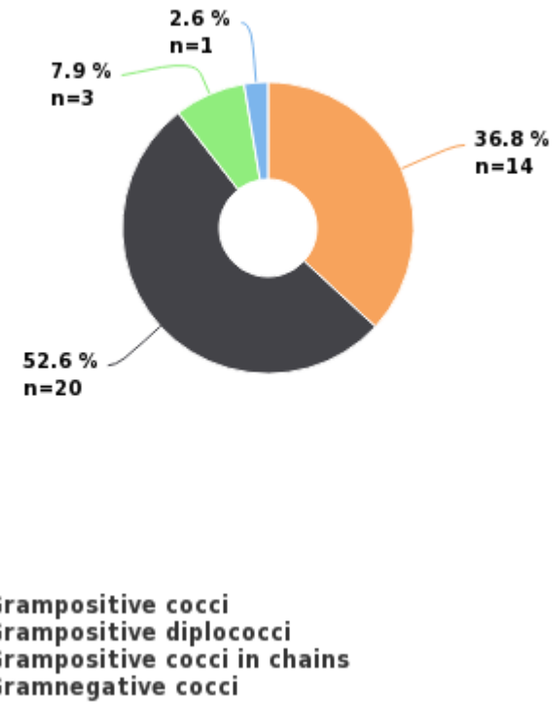


PLATE CULTURE

Finding group	Method	Growth	No growth	Total:
Streptococcus pneumoniae				**114**
	Anaerobic agar	2	1	3
	Anaerobic Blood agar	-	1	1
	Blood agar	42	-	42
	Candida agar	-	3	3
	Chocolate agar	38	4	42
	CN agar	3	-	3
	Fastidious Anaerobe (FA) agar	5	-	5
	MacConkey agar	-	7	7
	Mannitol Salt agar	-	1	1
	Other media	2	1	3
	Sabouraud agar	-	2	2
	Schaedler agar	1	1	2
	Total:	93	21	114

ENRICHMENT CULTURE

Finding group	Method	Growth
Streptococcus pneumoniae		
	BacT/Alert bioMerieux	5
	BD Bactec Peds Plus/F Becton Dickinson	3
	Brain Heart Infusion broth	7
	Cooked Meat broth	1
	Fastidious Anaerobe (FA) broth	2
	Meningomedium	1
	Other media	2
	Schaedler broth	6
	Tioglycolate broth	5
	Total:	32

GRAM STAINING

Finding group	Result	Result count
Streptococcus pneumoniae		**38**
	Grampositive cocci	14
	Grampositive diplococci	20
	Grampositive cocci in chains	3
	Gramnegative cocci	1
Total:		38

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Report Info

PARTICIPANTS

Altogether 51 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

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LABQUALITY

External Quality Assessment Scheme

Cerebrospinal fluid, bacterial culture Round 1, 2023

Specimens
The round included two lyophilized specimens. 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 content of the samples was as follows:

Sample S001 (LQ761223011)
Pasteurella multocida C011002

Sample S002 (LQ761223012)
Streptococcus pneumoniae KSKS1729 C040706

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, as it contains important information of the samples and results in each round.

Comments – Expert
Sample S001
Background info: A 14-year-old boy who lost consciousness during ice-hockey practice. He had earlier been bitten by a dog.

Pasteurella multocida, which is a common finding in bite injuries, was reported correctly by majority of the laboratories.

Sample S002
Background info: A rapid decline in the general condition of a 56-year-old patient with pneumonia.

Streptococcus pneumoniae is a common pathogen in pneumonia and most of the laboratories reported it correctly.

Exceptions in scoring
No exceptions.

End of report

2023-03-15

FINAL REPORT

Product no. 5150

Subcontracting: Sample pretesting

Samples sent	2023-02-07
Round closed	2023-03-03
Expected results	2023-03-07
Final report	2023-03-15

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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