

General Bacteriology 2 Round 2, 2017

Please find enclosed the results of the round. The specimens were sent to 77 laboratories, out of 17 countries. 47 out of these laboratories participated in the General Bacteriology 1 survey, which includes altogether four specimens, of which specimens 001 and 002 are common with General Bacteriology 2.

The specimens were as follows:

Specimen 001: *Streptococcus dysgalactiae* ssp. *equisimilis* (group G)
ATCC® 12394™

Specimen 002: *Pseudomonas aeruginosa* CL 90-7334

Results

The results of the round are presented in summary tables.

- Final report to the clinician. The grey areas show the laboratories' own results. Please check that the client code on the printouts is correct.
- Susceptibility testing results by disk diffusion method of specimen 001 are shown as a numerical summary. Laboratory specific 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 indicated results that are obtained and interpreted according to the same standard (e.g. EUCAST, CLSI, CA-SFM, BSAC etc.). Summary of reported MIC-results are presented in Annex 1.
- A laboratory specific scoring table will be included in the result reporting for each round (see also Annex 2).

For laboratories ordering print outs: The laboratory-specific numerical summaries, histograms and report letter of this round are also available on the Labquality homepage www.labquality.fi. Please choose Login to LabScala on the top right-hand corner and fill in your laboratory client code/personal user name and password. Next choose *View Reports*.

Comments

Specimen 001

Background information: Peritonsillar abscess developed after tonsillitis treated with erythromycin. Ongoing clindamycin treatment.

Finding: *Streptococcus dysgalactiae* ssp. *equisimilis*, Group G, as a significant pathogen.

Patient and specimen

Group G streptococci (*S. dysgalactiae* ssp. *equisimilis*) can cause tonsillitis and peritonsillar abscess.

Culture of the specimen

When tonsillitis is suspected, specimen should be cultured using agar suitable for streptococci, possibly even selective agar. When complicat-

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FINAL REPORT

Product no: 5081

UN3373

LQ760117021-022/US

Subcontracting: sample pre-testing

Items dispatched: 2017-05-09

Closing date: 2017-06-05

Expected results: 2017-06-07

Final report: 2017-08-04

The report includes

- the expected results
- comments on the results by the scheme expert
- laboratory specific tables

Request for correction

Typing errors on laboratory's result forms are on laboratory's responsibility. Labquality accepts responsibility only for the result processing.

Requests for correction must be notified in writing within one month of receiving the results.

Next round

The next General Bacteriology 2, EQA round (3, 2017) will be carried out in September 2017.

Authorized by

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ed and under treatment, specimen should be cultured on both blood agar and chocolate agar plates, and possibly (if the specimen is obtained from abscess by puncture) also anaerobically incubated plates.

Identification

Only one pathogen was isolated from the specimen. Colony morphology was typical for beta-hemolytic *Streptococcus*. MALDI TOF based methods, as well as biochemical test such as Vitek GP ID Card identified this beta-hemolytic bacteria as *Streptococcus dysgalactiae*. These methods poorly differentiate two subspecies *equisimilis* and *dysgalactiae*, latter however being only rarely isolated from human specimens. The presence of Lancefield group antigen G was detected by commercial Lancefield antigen grouping sera.

Table 1. Summary of results, specimen 001.

Finding	All participants	Reference group*
No. of returned results / No. of participants	75/77 (97 %)	46/47 (98 %)
<i>Streptococcus dysg. ssp. equisimilis</i>	21/75 (28 %)	14/46 (30 %)
<i>Streptococcus sp. , beta-hem., group G</i>	39/75 (52 %)	23/46 (50 %)
Significant pathogen	52/60 (87 %)	33/37 (89 %)
Possible pathogen	7/60 (12 %)	3/37 (8 %)
<i>Streptococcus dysg. ssp. dysgalactiae</i>	10/75 (13 %)	8/46 (17 %)
False identifications ¹	5/75 (7 %)	1/46 (2 %)

*Participants of the General Bacteriology 1 scheme

¹ *Streptococcus sp.*, beta-hemolytic, group C (1), Group A (1), *S. pyogenes* (1), *S. agalactiae* (2).

Comments on susceptibility test results

This group G streptococcus strain had no acquired resistance to any of the relevant drugs.

With a very few exceptions, laboratories correctly reported the strain as susceptible. In addition, albeit of misleading background information, majority (62/67) of the laboratories reported the strain also as MLS_B-negative. The few false erythromycin-R interpretations and (consecutive) false positive MLS_B interpretations are signs of quality problem in susceptibility testing in some of the laboratories. These laboratories should carefully review their procedure to correct it.

In fact, the original idea was to include an MLS_B-positive strain in this round. Due to some misunderstandings between the supplier of the specimens and us, this could not be realized.

Table 2. The MIC-results reported of *Str. dysgalactiae ssp. equisimilis* ATCC® 12394™, by two Finnish reference laboratories. Both laboratories implement the EUCAST standard.

Antimicrobial agent	Ref. laboratory 1		Ref. laboratory 2	
	MIC (mg/L)	SIR	MIC (mg/L)	SIR
Clindamycin	0,25	S	0,19	S
Erythromycin	0,125	S	0,094	S
Penicillin	0,032	S	0,016	S
Other results	Report			
Inducible MLS _B resistance	No		No	

Specimen 002

Background information: Keratitis. Corneal sample.

Findings: *Pseudomonas aeruginosa* as a significant pathogen.

Patient and specimen

P. aeruginosa can cause a difficult keratitis. It is not a part of normal microbiota of cornea or conjunctiva. Hence, it should be considered as a significant pathogen when isolated from specimens obtained from eye.

Culture of the specimen

Specimen should be cultured on both blood agar and chocolate agar plates.

Identification

Only one pathogen was growing well on both plates. Gram staining revealed straight and rather long and narrow gram negative rods. Oxidase reaction was positive. Isolate produced green pigment and had an odor typical for *P. aeruginosa*.

MALDI TOF based methods, as well as biochemical tests such as Vitek-2 GN ID Card can be used in identifying *P. aeruginosa*.

Table 3. Summary of results, specimen 002.

Finding	Numbers of reported results within group	
	All participants	Reference group*
No. of returned results / No. of participants	75/77 (97 %)	46/47 (98 %)
<i>Pseudomonas aeruginosa</i>	73/75 (97 %)	45/46 (98 %)
Significant pathogen	68/73 (93 %)	43/45 (96 %)
Possible pathogen	4/73 (5 %)	1/45 (2 %)
<i>Pseudomonas</i> sp.	1/75 (1 %)	1/46 (2 %)
False identifications ¹	1/75 (1 %)	0/46

*Participants of the General Bacteriology 1 scheme.

¹ *Cedecea davisae* (1)

Scoring

General rules

Scoring is implemented for each finding when $\geq 60\%$ of the laboratories participating in the General Bacteriology 1 scheme report a correct/expected result. These laboratories are considered as a reference group also for the laboratories participating in the General Bacteriology 2 scheme. **The scoring range/finding is 0-5 points.**

The scoring comprises the following elements:

- species identification, a maximum of 4 points is given
- the interpretation of the significance of the finding, a maximum of 1 point is given
- in case of insufficient species identification; an additional score (maximum 1 point) might be given to participants that would have referred the isolate for further identification

The following general rules are followed regarding the scoring of the species identification:

- 4p. (maximum score) is reached by reporting the expected correct result, or, by reporting a result that is considered sufficient regarding the expected finding
- 1-3p. is given to results that are partly correct/insufficient regarding the expected finding
- 0p. is given for an incorrect/false result or not reporting the results before closing date

Scoring, round 2, 2017

The maximum score is **10 p.**

The maximum score/specimen is as follows:

Specimen 001: 5 p.

Specimen 002: 5 p.

See Annex 2 for detailed scoring principles.

The experts of this round were Deputy Chief Physician Tapio Seiskari, M.D., Ph.D., Fimlab, Tampere, Clinical Microbiologist Antti Nissinen, Ph.D., Synlab and Chief Physician Antti Hakanen, M.D., Ph.D., TUCH Microbiology and Genetics.

End of report

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Annex 1. General Bacteriology, 2, 2017.

The MIC-results reported by the participating laboratories of specimen 001, *S. dysgalactiae* ssp. *equisimilis* ATCC® 12394™.

Antimicrobial agent	MIC-value (mg/L)	Inter-pretation	Reported results per followed standard			Results in all
			EUCAST	CLSI	CA-SFM	
Amikacin	<=8	R	1			1
Amoxicillin	0,016	S	1			4
	0,03	S			1	
	<=0,25	S	1	1		
Amoxicillin-clavulanate	<=4,2	S	1			1
Ampicillin	0,032	S		1		6
	<=0,06	S		1		
	<0,25	S	1			
	<=0,25	S	1			
	0,25	S	1			
	8	S	1			
Cefepime	<=0,5	S	1	1		2
Cefotaxime	0,03	S	1			15
	<0,12	S	1			
	<=0,12	S	2	1		
	0,12	S	5			
	<0,25	S		1		
	<=0,5	S	1	1		
	0,5	S	1			
	546	S	1			
Ceftriaxone	0,012	S	1			10
	<0,12	S	2			
	<=0,12	S	1	1		
	0,12	S	5			
Cefuroxime	<=0,25	S	1			1
Chloramphenicol	<=2	S	1	1		4
	2	S			1	
	8	S	1			
Clindamycin	0,06	S			1	26
	0,0625	S	1	1		
	0,094	S		2		
	0,125	S	2			
	<0,25	S	3			
	<=0,25	S	3	1		
	0,25	S	4			
	<=0,5	S	1			
	0,5	S	6			
	0,5	R	1			

Antimicrobial agent	MIC-value (mg/L)	Inter- pretation	Reported results per followed standard			Results in all
			EUCAST	CLSI	CA-SFM	
Doxycycline	0,94	S	1			1
Ertapenem	0,016	S		1		1
Erythromycin	0,047	S		2		28
	<=0,0625	S		1		
	<0,12	S	2			
	<=0,12	S	5	1		
	0,12	S	6			
	0,125	S	2	1		
	0,19	S	1			
	0,25	S	2			
	0,38	S	1			
	<=0,5	S	1			
	0,5	S			1	
	>=8	R	1			
	546	S	1			
Gentamicin	<=4	R	1			3
	<250	S	1			
	250	S			1	
Imipenem	0,047	S		1		1
Kanamycin	512	S	1			1
Levofloxacin	<0,25	S	1			24
	<=0,25	S	5	1		
	0,25	S	6			
	<0,5	S	1			
	<=0,5	S	2	2		
	0,5	S	4	1	1	
Linezolid	0,2	S	1			18
	<=0,5	S		1		
	1	S	2		1	
	1,5	S	1			
	<2	S	1			
	<=2	S	4			
	2	S	6			
	4	S	1			
Meropenem	0,016	S		1		3
	<=0,06	S		1		
	<=0,125	S	1	1		
Moxifloxacin	0,12	S	1			4
	<=0,25	S	1			
	0,25	S	1			
	0,5	S	1			

Antimicrobial agent	MIC-value (mg/L)	Inter- pretation	Reported results per followed standard			Results in all
			EUCAST	CLSI	CA-SFM	
Nitrofurantoin	<=32	S	1			2
	546	S	1			
Penicillin	0,006	S	1			34
	<=0,012	S	2			
	0,012	S	1			
	0,016	S	2	1		
	0,023	S	2			
	<=0,03	S		1		
	0,03	S	1			
	<=0,0312	S	1	1		
	<=0,03125	S	2			
	<0,06	S	2			
	<=0,06	S	6	1		
	0,06	S	6		1	
	<0,25	S	1			
	546	S	2			
Phosphomycin	<=32	R	1			2
	32	R	1			
Piperacillin-tazobactam	<0,5	S		1		1
Rifampicin	0,06	S	1			2
	546	S	1			
Streptomycin	<=1000	S	1			1
Teicoplanin	0,016	S	1			7
	0,12	S	1			
	<1	S	1			
	<=1	S	1			
	1	S			1	
	<=2	S	1			
	546	S	1			
Telithromycin	546	S	1			1
Tetracycline	0,125	S	1			23
	<0,25	S	1			
	<=0,25	S	5	1		
	0,25	S	5			
	<0,5	S	1			
	<=0,5	S	1	2		
	0,5	S	3		1	
	>=16	R	1			
	546	S	1			
Tigecycline	0,06	S	1			2
	0,064	S	1			

Antimicrobial agent	MIC-value (mg/L)	Inter- pretation	Reported results per followed standard			Results in all
			EUCAST	CLSI	CA-SFM	
Tobramycin	<=4	R	1			1
Trimethoprim-sulfamethoxazole	0,047	S	1			14
	1	S	1			
	<=1,19	S	1			
	<10	S	1			
	<=10	S	5			
	10	S	4			
	19	S	1			
Vancomycin	<0,12	S	2			30
	<=0,12	S	2			
	0,12	S	5			
	0,19	S	2			
	0,25	S	1	1		
	<0,5	S	2			
	<=0,5	S	2	1		
	0,5	S	5	1	1	
	0,75	S		1		
	<=1	S	1			
	1	S		1		
	<2	S	1			
	4	S	1			
	n		223	41	11	275

ANNEX 2. General Bacteriology 2, round 2, 2017. Scoring summary.

Spec.	Finding	Species identification	Interpretation of the finding			Referral	Scores in all
			Significant pathogen	Possible pathogen	Non-significant pathogen, norm. flora	Would be sent forward	
001	<i>Streptococcus dysgalactiae</i> ssp. <i>equisimilis</i>	4p.	1p.				5p.
	<i>Streptococcus</i> sp., beta-hemolytic, group G	4p.	1p.				5p.
	<i>Streptococcus dysgalactiae</i> ssp. <i>dysgalactiae</i>	3p.	1p.				4p.
	<i>Streptococcus</i> sp., beta-hemolytic, group C	2p.	1p.				3p.
	<i>Streptococcus</i> sp., beta-hemolytic, group A	2p.	1p.				3p.
	<i>Streptococcus</i> sp., beta-hemolytic, group B	2p.	1p.				3p.
002	<i>Pseudomonas aeruginosa</i>	4p.	1p.				5p.
	<i>Pseudomonas</i> sp.	2p.	1p.				3p.
	Other findings (<i>Cedecea davisae</i>)						0p.