PC-1033

114th IAMM EQAS Microbiology: Bacteriology/ Serology

CMC MICRO EQAS
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JULY 2023

114th EQAS EVALUATION REPORT

MEMBER ID: M 1 4 8 9

Marks Obtained: 66/70 (94.3%)

JULY 2023 / BACTERIOLOGY SMEARS

Question: Carry out the appropriate staining procedure and document the relevant observation.
Provide the Impression or probable organism seen (AS ASKED)
Please refer the attached evaluation format/answer template for details on the criteria for evaluation.

PLEASE NOTE: The inaccuracies in the participant report resulting in deduction of marks has been underlined in the expected smear report.

Exercise Number	Question	Expected Report	Evaluation		
SM1	Please carry out a Gram stain on the given fixed smear prepared from a FLUID culture specimen obtained from a 70-year-old lady presenting with increasing fever and right knee joint pain and swelling for 1 week. She had a right knee replacement 18 months ago.	**Presence and grading of Host cells (1 mark):** Moderate pus cells	0	0.5	1
		Description of Organism/s (1mark): Many (0.5) Gram-negative bacilli (0.5) [short, long, slender bacilli]	1.5	2	2.5
		★ **Clinical impression (1 mark):** Septic arthritis		3	

SM2	**Please carry out a Gram stain on the given fixed smear prepared from a URINE specimen obtained from a 24-year-old lady of 32 weeks gestational age admitted in labour room with pain abdomen.**	**Presence and grading of Host cells (1 mark):** Many epithelial cells (1) [occasional pus cells] **Description of Organism/s (2marks):** ANY 4 ORGANISMS [0.5 MARK EACH] Many Gram-negative (short & long) bacilli, Gram-negative cocci/cocco-bacilli, Gram-positive spherical and oval cocci in groups, long and short chains, Gram-positive bacilli, [occasional oval budding yeast-like organisms]. ★ **Impression and recommendation (1 mark):** Improperly collected urine specimen. Repeat specimen requested.	**0**	**0.5**	**1**
			1.5	**2**	**2.5**
			3	**3.5**	**4**
SM3	**Please carry out a Gram stain on the given fixed smear prepared from an EXUDATE specimen obtained at 72-hours post operatively from the suture site of a 51-year-old lady who underwent total abdominal hysterectomy.**	**Presence and grading of Host cells (1 mark):** Many pus cells (1) **Description of Organism/s (2marks):** Many (0.5) spherical Gram-positive cocci arranged in groups, (1.5) [tetrads, pairs, chains] ★ **Clinical Impression (1 mark):** Staphylococcal infection causing Surgical site infection.	**0**	**0.5**	**1**
			1.5	**2**	**2.5**
			3	**3.5**	**4**

JULY 2023 / BACTERIOLOGY CULTURE:

Question: A freeze-dried (lyophilized) culture of an organism isolated from a clinical specimen is given. Carry out the appropriate techniques for each exercise and identify the pathogen. Carry out the antimicrobial susceptibility testing according to the panel given below.
Please refer the attached evaluation format for details on the criteria for evaluation.
A 'partially correct' or 'incorrect' component of the participant report which has resulted in a deduction of marks has been in indicated in the evaluation report below.

"REMOVED FROM EVALUATION" refers to a test that has not been evaluated for ALL participants. The explanation can be found in the EQAS ... and the EQAS explained documents.

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...d from a URINE specimen received from a 48-year-old gentleman with renal calculi.

...NAL INDENTIFICATION: *Proteus mirabilis*

Identification details	Reported	Not reported	Evaluation (7 marks)
Microscopy (Gram stain)	✓		0 0.5 (1)
Salient culture and biochemical findings enabling final identification (Minimum 3 key characteristics)	✓		1 2 3 (4)
Final identification : *Proteus mirabilis*	✓	Species incorrectly reported	0.5 (1) 1.5 2

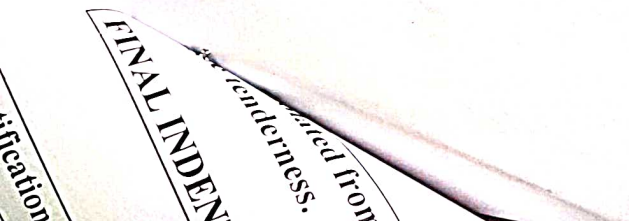
Susceptibility report Confirmed Manual, Vitek, BD, Etest, BMD	EXPECTED REPORT			PARTICIPANT REPORT		MARK	TYPE OF ERROR
	Zone size (mm)	MIC (µg/ml)	Interpretation CLSI	Correct	Incorrect	12 marks	Error
Cefotaxime 30µg	≥ 26	≤ 1.0	Susceptible	✓		-1 0 1 (2)	mE/ ME/ VME
Ceftazidime 30µg	≥ 21	≤ 4.0	Susceptible	✓		-1 0 1 (2)	mE/ ME/ VME
Amikacin 30µg	≥ 20	≤ 4.0	Susceptible		✓	-1 0 (1) 2	(mE)/ ME/ VME
Ciprofloxacin 5µg	≥ 26	≤ 0.25	Susceptible	✓		-1 0 1 (2)	mE/ ME/ VME
Meropenem 10µg	≥ 23	≤ 1.0	Susceptible	✓		-1 0 1 (2)	mE/ ME/ VME
Imipenem 10µg	≥ 23	≤ 1.0	Susceptible	✓		-1 0 1 (2)	mE/ ME/ VME

CU 2: Isolated from a suture site EXUDATE specimen of a 51-year-old lady who underwent total abdominal hysterectomy.

FINAL INDENTIFICATION: ***Staphylococcus aureus***

Identification details	Reported	Not reported	Evaluation (7 marks)
Microscopy (Gram stain + Motility)	✓		0 0.5 (1)
Salient culture and biochemical findings enabling final identification (Minimum 3 key characteristics)	✓		1 2 3 (4)
Final identification: *Staphylococcus aureus*	✓		0.5 1 1.5 (2)

Susceptibility Report Confirmed Manual, Vitek, BD, Etest, BMD	EXPECTED REPORT			PARTICIPANT REPORT		MARK	TYPE OF ERROR
	Zone size (mm)	MIC (µg/ml)	Interpretation CLSI	Correct	Incorrect	12 marks	Error
Cefoxitin 30µg	≥ 22	≤ 4.0	Susceptible	✓		-1 0 1 (2)	mE/ ME/ VME
Erythromycin 15µg	≥ 23	≤ 0.5	Susceptible	✓		-1 0 1 (2)	mE/ ME/ VME
Clindamycin 2µg	≥ 21	≤ 0.5	Susceptible	✓		-1 0 1 (2)	mE/ ME/ VME
Chloramphenicol 30µg	≥ 18	≤ 8.0	Susceptible	NOT DONE			
Tetracycline 30µg	≥ 19	≤ 4.0	Susceptible	✓		-1 0 1 (2)	mE/ ME/ VME
Linezolid 30µg	≥ 21	≤ 4.0	Susceptible	✓		-1 0 1 (2)	mE/ ME/ VME



Linezolid 30µg

...olated from a BLOOD culture of a 46-year-old diabetic lady presenting in OPD with fever with chills and costovertebral ...e tenderness.

FINAL INDENTIFICATION: *Escherichia coli*

Identification details	Reported	Not reported	Evaluation (7 marks)
Microscopy (Gram stain + Motility)	✓		0 0.5 (1)
Salient culture and biochemical findings enabling final identification (Minimum 3 key characteristics)	✓		1 2 3 (4)
Final identification: *Escherichia coli*	✓	Incorrect organism identified	(0) 0.5 1 1.5 2

Susceptibility report Confirmed Manual, Vitek, BD, Etest, BMD	EXPECTED REPORT			PARTICIPANT REPORT		MARK	TYPE OF ERROR
	Zone size (mm)	MIC (µg/ml)	Interpretation CLSI	Correct	Incorrect	14 marks	Error
Cefotaxime 30µg	≤ 22	≥ 4.0	Resistant	✓		-1 0 1 (2)	mE/ ME/ VME
Ceftazidime 30µg	≤ 17	≥ 16.0	Resistant	✓		-1 0 1 (2)	mE/ ME/ VME
Ciprofloxacin 5µg	≤ 21	≥ 1.0	Resistant	✓		-1 0 1 (2)	mE/ ME/ VME
Amikacin 30µg	≥ 20	≤ 4.0	Susceptible	✓		-1 0 1 (2)	mE/ ME/ VME
Ertapenem 10µg	≤ 18	≥ 2.0	Resistant			NOT DONE	
Meropenem 10µg	≤ 19	≥ 4.0	Resistant	✓		-1 0 1 (2)	mE/ ME/ VME
Ceftazidime/ Avibactam 30/20µg	≤ 20	≥ 16/4	Resistant			NOT DONE	

JULY 2023 / SEROLOGY

Test method employed for detection C-reactive protein (CRP) at your lab: Latex Agglutination

Peer group (n) = 248

Please refer the attached evaluation format/answer template for details on the criteria for evaluation.

	Parameter	Your Result	Your Value (mg/L)	Intended Result	Robust Mean	Robust SD	Range (mg/L)	Uncertainty of Assigned value	Z & Z' score	Max Marks	Your Score
SE1	CRP	Negative	Not reported	Negative	Not Applicable					2	2
SE2	CRP	Negative	Not reported	Negative						2	2
SE3	CRP	Positive	12	Positive	28.6615	17.1608	6 to 480	1.4629	-1.0	2	2

Note: CRP (Latex Agglutination) peer group results of SE1 & SE2 evaluation based on interpretation because the Robust Analysis result is cannot be calculated

Disclaimer:

This is a confidential document and subject to the rules of confidentiality as described by the ISO 17043:2010 standard.

MEMBER ID: M 1 4 8 9

SM1	SM2	SM3	CU1	CU2	CU3	SE1	SE2	SE3	Marks obtained	
3	4	4	17	17	15	2	2	2	66	94.3%
3	4	4	19	17	17	2	2	2	Maximum marks = 70	

Dr. Rani Diana Sahni
Scientific Co-ordinator

Dr. John A Jude Prakash
Quality Manager

Dr. V. Balaji
PT Co-ordinator

Report Dispatch Date: 15.10.23

********** End of Report **********

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Evaluation criteria and score interpretation for the 114th EQAS package

The 114th EQAS package carries a maximum of 76 marks.

Marks are awarded when the reporting form has been **completed** and returned in a **timely manner**.
(i.e. As per the date mentioned as the last date – which is 30 days after dispatch of the specimens)

The distribution of marks is as follows:

S.No	Exercise evaluated	No of PT Specimens	Marks per specimen	Total Marks
1	Specimens smears for staining & interpretation	3	SM1 – 3 MARKS SM2 – 4 MARKS SM3 – 4 MARKS	11
2	Culture - Identification and susceptibility testing	3	7 for identification + 2 marks for each anti-microbial tested	
			Culture 1	19
			Culture 2	19
			Culture 3	21
3	Sera for serology exercises	3	SE1 – 2 MARKS SE2 – 2 MARKS SE3 – 2 MARKS	6
	Total			**76**

Evaluation format for each exercise

A] BACTERIOLOGY SMEARS:
Aim: To improve the quality and uniformity of reporting diagnostic specimen smears across labs.

Presence of host cell: Pus cells-many/moderate/few/no (*and/or*) epithelial cells –many/ moderate/few/no **(1 mark).**
Presence of organism/s and gram stain finding, morphology (shape), arrangement and any other special characteristics observed and grading **(2marks)**
Probable organism / Impression *as asked in the question paper* **(1mark)**

B] BACTERIOLOGY CULTURE:
Aim: To achieve accurate identification of organism using microscopy, culture and biochemical characteristics. To continuously update information on susceptibility testing methodology, interpretation criteria and the important resistance mechanisms.

Microscopy: Gram stain / Hanging drop **(1 mark),**
Culture finding + key biochemical characteristics -minimum 3 characteristics* **(4 marks),** Final identification **(2 marks)**

***PLEASE NOTE:** The most important biochemical tests performed to identify the given organisms is required to be reported with a minimum of 3 important characteristics.
If automated identification has been performed, the culture findings and the automated reports need to be provided.
Susceptibility **(2 marks / drug)**

NOTE 1: Only **ONE FINAL** susceptibility report for each drug tested is to be reported as would be reported for a diagnostic specimen. If two reports with discrepant interpretations are reported, they are marked as an incorrect answer.

NOTE 2: VITEK/ E-test MIC are awarded the complete mark if the interpretation is consistent with the expected report.

NOTE 3: Automated susceptibility reports will be accepted and evaluated, if, the participating laboratory has included the report in their reporting form as their final susceptibility report.

Susceptibility interpretation errors:

Minor error (mE): Susceptible / resistant isolate reported as intermediate susceptible (1 mark deducted)

Major error (ME): Susceptible isolate reported as resistant (2 marks deducted)

Very major error (VME): Resistant isolate reported as susceptible (3 marks deducted)

C] SEROLOGY:

a. Qualitative (2 marks for each serum)

- Result have to be given as Positive or Negative only
- Correct interpretation: Full marks (2 marks)
- Wrong Interpretation: Zero mark (0 mark)

b. Semi Quantitative / Quantitative (2 marks for each serum)

As per **ISO: 13528:2015**, we assess participants results for different peer groups (Nephelometry, Turbidimetry, etc.,) by robust analysis and the marking format is based on Z & Z' score, as given below.

Z & Z' score system for Values

Z & Z' Score	Category	Marks for values
≤ 2	Correct	2 marks
>2 but < 3	Partially correct	1 mark
≥ 3	Incorrect	0 mark

Note: CRP (Latex Agglutination) peer group results of SE1 & SE2 evaluation based on interpretation because the Robust Analysis result is cannot be calculated

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Performance / Score interpretation

A] Acceptable mark for inclusion of a parameter in the evaluation:

The proficiency test (PT) parameter marks will be included in the final scoring if >70% of participants get acceptable scores for that parameter.

B] Acceptable individual parameter score:

The acceptable score for each individual parameter is ≥50%.

C] Acceptable overall participant performance:

The overall performance will be considered acceptable if the PT participant scores ≥50% of the total marks.
