

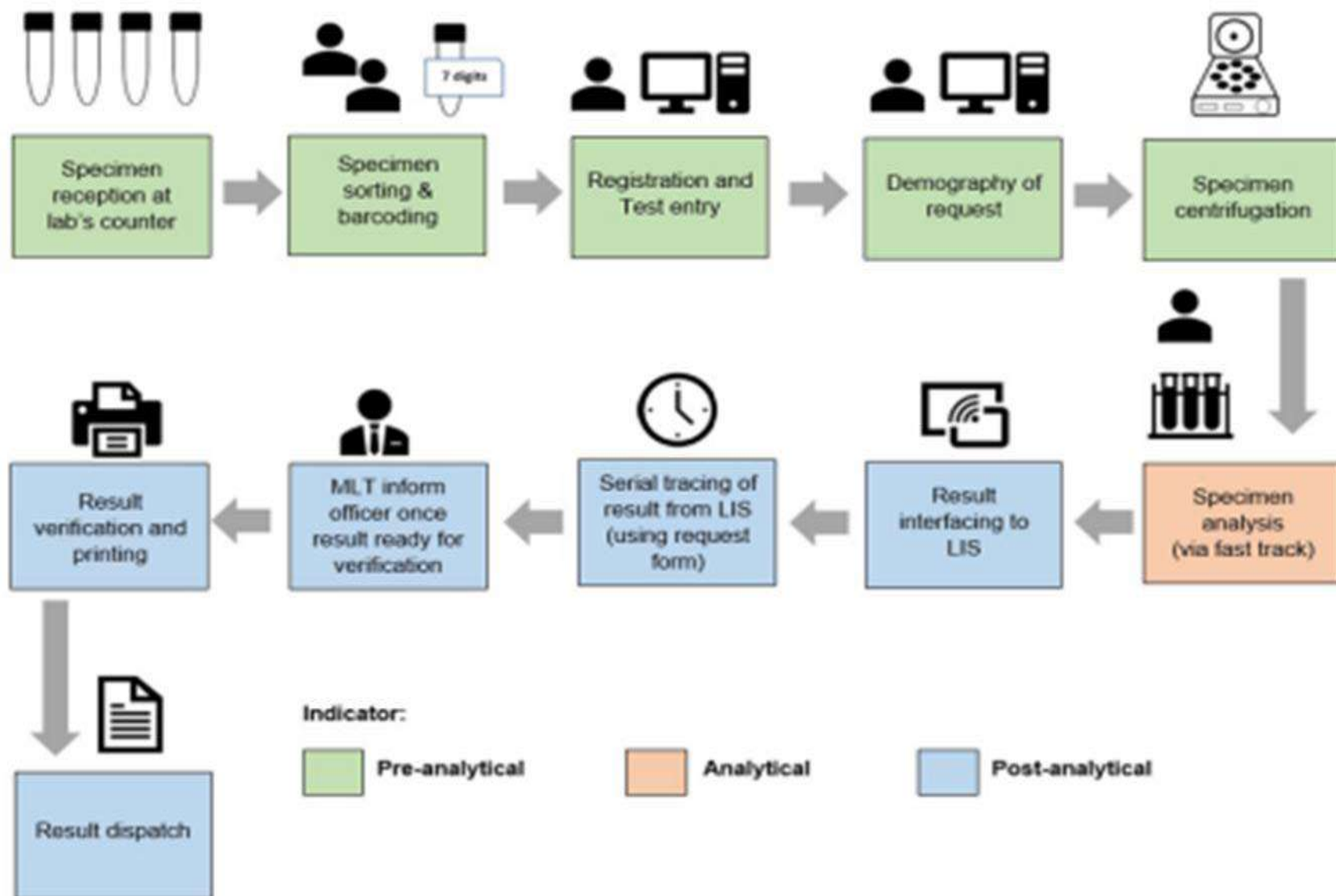
TURNAROUND TIME OF MICROBIOLOGY TEST & UPDATE ON NEW TEST

Microbiology & Parasitology Unit
Clinical Diagnostic laboratory (CDL)
Hospital Al- Sultan Abdullah (HASA)
UiTM

TURN AROUND TIME (TATs) OF TEST

- TAT?
- the time of the receipt of the specimen into the microbiology lab to the time when the report is available to the requester (electronically in most cases).
- TATs are specific to individual tests or specimen types.
- Work process?
- Pre/analytical/post analytical
- In house/ outsource





Why Microbiology turnaround times much longer than for other pathology services?

- The majority of microbiology tests are still based on the culture of bacteria which require incubation for days rather than hours.
- Further confirmatory testing, e.g. antimicrobial sensitivity testing, also relies on the growth of the bacteria for a further period of time.
- Outsource (eg: transportation/referral lab TAT)
- Transportation from sg buloh PPUITM: 11am/ 4pm to CDL HASA
- Frequency of the test being done



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CLINICAL DIAGNOSTIC LABORATORIES



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Clinical Laboratory Handbook

DEPARTMENT OF CLINICAL DIAGNOSTIC LABORATORIES
HOSPITAL UNIVERSITI TEKNOLOGI MARA



IN-HOUSE & OUTSOURCED TESTS IN MEDICAL MICROBIOLOGY & PARASITOLOGY

BACTERIOLOGY AND SEROLOGY						
NO	TEST	SPECIMEN TYPE	VOLUME REQUIRED	SPECIMEN CONTAINER	INSTRUCONS	DESTINATION
1.	AFB stain	Sputum & Other clinical specimens	3ml	Sterile	Collect 3 consecutive early mornings (fresh) sputum (NOT SALIVA). Send within 2-4 hours.	CDL
2.	TB Culture & Sensitivity	All specimens	3ml	Sterile	Complete PER PAT.301 form and send it along with the sample within 2-4 hours.	LABLINK
3.	Bacterial Antigen (Latex Antigen detection)	CSF	3ml	Sterile	Complete PER PAT.301 form and send it along with the sample within 2-4 hours.	LABLINK
4.	<i>Burkholderia pseudomallei</i> antibody (Meliodosis)	Blood	5ml	Gel tube	Complete PER PAT.301 form and send it along with the sample within 2-4 hours.	LABLINK

NO	TEST	SPECIMEN TYPE	VOLUME REQUIRED	SPECIMEN CONTAINER	INSTRUCTIONS	DESTINATION
9.	Culture and Sensitivity	Tracheal aspirates/ BAL/NPA	3ml	sterile	The sample should not be saliva. Send within 2-4 hours	CDL
10.	Culture and Sensitivity	Fluid -pleural -peritoneal -pericardial -synovial -ascites - Other sterile body fluid	5ml	Sterile	Send within 2-4 hours. Send immediately	CDL
11.	Culture and Sensitivity	Nasal / Per nasal/ Throat swab	Not applicable	Amies Transport Medium	Send within 2-4 hours.	CDL
12.	Culture and Sensitivity	CSF	1- 3ml	Sterile	Send immediately.	CDL
13.	Culture and Sensitivity	Ear discharge/ Ear swab	Not applicable	Sterile	Send within 2-4 hours.	CDL
14.	Culture and Sensitivity	Vitreous and aqueous fluid	1-3ml	Sterile	Send immediately.	CDL
15.	Culture and Sensitivity	Eye discharge	Not applicable	Sterile	Send within 2-4 hours.	CDL
16.	Culture and Sensitivity	Contact lens	Not applicable	Sterile	Send within 2-4 hours.	CDL
17.	Culture and Sensitivity	Corneal Scraping	Not applicable	Sterile	Send within 2-4 hours.	CDL
18.	Culture and Sensitivity	HVS/ Endocervical swab	Not applicable	Amies Transport Medium	Send within 2-4 hours.	CDL

VIROLOGY AND SEROLOGY						
NO	TEST	SPECIMEN TYPE	VOLUME REQUIRED	SPECIMEN CONTAINER	INSTRUCTIONS	DESTINATION
1.	Adenovirus Antigen (IF)	Sputum/tracheal aspirates/ NPA/BAL	Not applicable	Sterile	Complete PER PAT.301 form and send it along with the sample to CDL within 2-4 hours.	HOSP. SG. BULOH
2.	Cytomegalovirus IgM	Blood	5ml	Gel tube	Complete PER PAT.301 form and send it along with the sample to CDL within 2-4 hours.	LABLINK
3.	Cytomegalovirus IgG	Blood	5ml	Sterile	Complete PER PAT.301 form and send it along with the sample to CDL within 2-4 hours.	LABLINK
4.	Dengue IgM	Blood	5ml	Gel tube	Complete PER PAT.301 form and send it along with the sample to CDL within 2-4 hours.	LABLINK
5.	Dengue IgG	Blood	5ml	Gel tube	Complete PER PAT.301 form and send it along with the sample to CDL within 2-4 hours.	LABLINK
6.	Rapid Dengue Test (NS1, IgG, IgM)	Blood	5ml	Gel tube	Send immediately	CDL

	core total antibody (HBc total Ab)				PAT.301 form and send it along with the sample to CDL within 2-4 hours.	
15.	Hepatitis B e Antigen (HBeAg)	Blood	5ml	Gel tube	Complete PER PAT.301 form and send it along with the sample to CDL within 2-4 hours.	LABLINK
16.	Hepatitis B e Antibody (HBe Ab)	Blood	5ml	Gel tube	Complete PER PAT.301 form and send it along with the sample to CDL within 2-4 hours.	LABLINK
17.	Hepatitis C Antibody (Anti HCV)	Blood	5ml	Gel tube	Send sample within 2-4 hours.	CDL
18.	Herpes simplex Type 1 & 2 Antibody (IgM)	Blood	5ml	Gel tube	Complete PER PAT.301 form and send it along with the sample within 2-4 hours.	LABLINK
19.	Herpes simplex Type 1 & 2 Antibody (IgG)	Blood	5ml	Gel tube	Complete PER PAT.301 form and send it along with the sample within 2-4 hours.	LABLINK
20.	HIV 1 & 2 Antigen/ antibody COMBO	Blood	5ml	Gel tube	Send sample within 2-4 hours. The patient's consent is to be obtained and documented on the request form before blood collection.	CDL

NO	TEST	SPECIMEN TYPE	VOLUME REQUIRED	SPECIMEN CONTAINER	INSTRUCTIONS	DESTINATION
34.	SARS COV 2 Rapid Test kit Antigen (RTK Ag)	Nasopharyngeal swab	Not applicable	Dry swab	Transportation with triple packaging /ice pack. Sample must reach within 4 hours upon collection.	CDL
35.	Mycoplasma Antibody	Blood	5 ml	Gel tube	Complete PER PAT.301 form and send it along with the sample within 2-4 hours.	LABLINK
36.	Coxiella burnetti Antibody	Blood	5 ml	Gel tube	Complete PER PAT.301 form and send it along with the sample within 2-4 hours.	Gribbles
37.	Brucella Antibody	Blood	5 ml	Gel tube	Complete PER PAT.301 form and send it along with the sample within 2-4 hours.	Innoquest
38.	Bartonella antibody	Blood	5 ml	Gel tube	Complete PER PAT.301 form and send it along with sample within 2-4 hours.	IMR
39.	Salmonella Antibody	Blood	5 ml	Gel tube	Complete PER PAT.301 form and send it along with sample within 2-4 hours.	Innoquest

5.	HCV RNA	Blood	3-5ml	EDTA	Transported on ice	Geneflux
6.	HIV RNA (Qualitative)	Blood	3-5ml	EDTA	Transported on ice	Geneflux
7.	HIV viral load	Blood	3-5ml	EDTA	Transported on ice	Geneflux
8.	Gene Xpert – Xpert Xpres SARS-CoV-2	Nasopharyngeal swab/ Nasal swab/ Nasal wash/ Nasal aspirate	Not applicable	Viral Transport Medium (VTM)	Specimen should be in triple packaging and transported with ice pack to the laboratory.	CDL
9.	Respiratory Virus PCR	Nasopharyngeal swab/ Nasal swab/ NPA/Sputum	2 ml	VTM/ Sterile container	Send to lab immediately.	CDL
10.	MERSCOV PCR	Nasopharyngeal swab	2 ml	VTM	Transported on ice	Geneflux
11.	Meningitis Viral Pathogen Panel	CSF / Blood	2 ml	Sterile container / EDTA	Complete PER PAT.301 form and send it along with sample within 2-4 hours.	LABLINK
12.	Viral Culture	CSF	2 ml	Sterile container	Complete PPUM form and send along with sample within 2-4 hours.	UMMC

Appendix 9: Turn-around time (TAT) for in-house & outsource tests in Medical Microbiology & Parasitology.

A) TAT of in-house test

NO.	LIST OF TESTS	TAT
Bacteriology		
1.	Culture and Sensitivity- All samples	2-5 days
2.	FEME	48 hours
3.	Positive Blood Culture C&S - Preliminary results	1 hour
4.	Positive/Detected Acid Fast Bacilli (AFB) on Modified Kinyoun Stain	1 working day
Virology and serology		
5.	Serology Test: i) Anti- HIV ii) HBsAg iii) Anti HCV iv) Anti HBs v) <i>Treponema pallidum</i> Ab	3-7 days (Run 3x / week)
6.	Needle Stick Injury i) Anti-HIV ii) HBsAg iii) Anti HCV iv) Anti HBs	3 hours
7.	SARS CoV-2 RTK Ag	1 hour
Mycology		
8.	Culture & Sensitivity	14 days
Parasitology		
9.	BFMP	3 hours
10.	Microfilaria microscopy	1 working day
11.	<i>Trichomonas vaginalis</i> wet mount	1 working day
12.	Ova and cyst microscopy	1 working day

Immunology		
13.	ii) ANA iii) RF IgM iv) ENA v) Anti CCP	3-7 days (Run <u>once</u> a week)
Molecular Microbiology		
14.	SARS-CoV-2 rRT-PCR	2-3 days
15.	Gene Xpert for SARS-CoV-2 Detection	3 hours
16.	Gene Xpert MTB/RIF Ultra for MTB Detection	1 working day

TAT RAPID DENGUE COMBO (NS1/IgM/IgG)= 1hr

6.	Melioidosis IgM	IMR	7-10 working days
7.	Total IgE IgE to <i>Aspergillus</i>		
8.	<i>Bartonella</i> Ab total		
9.	HLA-B27		
10.	<i>Legionella</i> Antigen	LABLINK	7-10 working days
11.	Leptospira IgM		
12.	Rickettsial antibody		
13.	<i>Toxoplasma</i> IgG <i>Toxoplasma</i> IgM		
14.	<i>Mycoplasma</i> Ab Total	UMMC/LABLINK	2 months
15.	<i>Chlamydomphila pneumoniae</i> <i>C. trachomatis</i> / <i>C. psittaci</i> antibody		
16.	Antistreptolysin O antibody titre (ASOT)		
17.	TB Culture		
18.	TB PCR/ Line Probe Assay	UMMC/LABLINK	3 working days
19.	Anti-cardiolipin antibody		7-10 working days
20.	TPPA/TPHA	HSB/LABLINK	7-10 working days
VIROLOGY AND SEROLOGY			
21.	Adenovirus Antigen (IF)	Hospital Sungai Buloh	7-10 working days
22.	Cytomegalovirus IgM		
23.	Cytomegalovirus IgG		
24.	Dengue IgM & IgG		
25.	NS1 Antigen (Dengue)		
26.	Enterovirus Antigen (IF)		
27.	<i>Epstein Barr Virus</i> IgM		
28.	<i>Epstein Barr Virus</i> IgG		
29.	Hepatitis B e Antigen (HBeAg)		
30.	Hepatitis B e Antibody (HBeAb)		
31.	Hepatitis A Virus IgM		

OUTSOURCE TEST

- Pls call the microb lab./staff incharge-for further info on respective outsource tests.
- time
- specific requirement (eg: specimens/transportation/request form)

Urgent test result

- TAT :the time of receipt to the finished report being available to the user.
- Urgent test : test of which the result is likely to influent clinical decision and management of a patient before the result would be routinely reported.
- important component in acute/critical care setting mx eg: in emergency department /operating room/ICU.
- All urgent requests should be communicated to the laboratory

Urgent test/result

- Critical results as listed below will be informed via phone to the requestor by the laboratory staff and documented.
 - o A positive result of Gram stain from sterile clinical specimen-1 hr
 - o A positive blood film for malarial parasite (BFMP).
 - o Infectious screening (HbsAg, anti-HBs, anti-HCV and HIV combo) from **sharp/needle stick injury** (NSI) /urgent haemodialysis cases.
- 3hrs
 - A positive acid-fast bacilli (AFB) positive

- reports may also be issued for urgent/critical or partial/preliminary results e.g. positive gram stain for blood culture result will be available within the same day
- final positive culture result may take a further few days (bacterial identification & completion of the report)-up to 5 days.

- **All urgent requests** should be **communicated** to the laboratory
- urgent request after sending the specimen: will be processed as ordinary

SERVICE AFTER OFFICE HOURS AND DURING PUBLIC HOLIDAYS

- Specimens sent for bacteriology, mycology, virology etc and will be processed as usual on weekends and public holidays from 8.00 am to 5.00 pm.
- There is one (1) MLT working on stand-by basis to process urgent (e.g: NSI/BFMP/positive blood culture) specimen.

NEW TEST UPDATE

- MRSA GENE XPERT
- molecular/PCR

PURPOSE

- To detect & identify colonization with Methicillin Resistant Staphylococcus aureus (MRSA)
- a strategy for preventing health care-acquired infections (HAIs) by MRSA
- which increases the risk of staphylococcal infections at other sites of the body eg: postoperative wounds and dialysis access sites.
- Nasal/Axilla/Groin swabs are used to screen carriage of MRSA.

Method of MRSA screening test in CDL

former method:

Procedure

- Sample: Nasal/Axilla/Groin swabs separately
- Culture
- TAT: 24-48hrs

- Principle : molecular
- Sample : Nasal/Axilla/Groin swabs
- Sample collection: different from culture method ?
 - swab
 - transport media
 - technique
- TAT:24 hrs
- Operation time: 8am-5pm (daily)
- **Criteria for testing:**
 - screening for MRSA
 - sample: nasal/axilla/groin
 - specific ward: NICU, PICU, CCU, ICU, HDW, ONCO, Cardiothoracic



Do & Don'ts:

- Do not send dry swabs. The liquid in the tubes keeps the bacteria alive.
- If you spill the liquid before inserting a swab, use a new tube from a new pouch.
- If you spill the liquid after you have inserted a swab, you will need to start again.



•Thank you



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MMP 2024 REJECTION

NO	2024 REJECTION CRITERIA	JAN	FEB	MAR	APR	MAY	JUN
1	CLOTTED SAMPLE	0	0	1	0	0	0
2	HAEMOLYSED SAMPLE	1	0	0	0	3	0
3	IMPROPER TRANSPORTATION	0	0	0	0	0	0
4	IMPROPER SPECIMEN COLLECTION	3	5	2	1	0	2
4	MISSING LABEL	2	1	0	0	0	0
5	OUT OF SAMPLE STABILITY	0	0	0	0	0	0
6	SALIVARY SAMPLE	0	0	6	9	4	2
7	WRONG CONTAINER / TUBE COLLECTION	0	1	0	3	2	3
8	WRONG LABEL	0	1	3	2	0	1
	TOTAL REJECTION	6	8	11	15	9	8
	TOTAL NO OF SPECIMEN RECEIVED	3803	3185	3737	3507	4034	3710
	REJECTION RATE (%)	0.158	0.251	0.294	0.428	0.223	0.216

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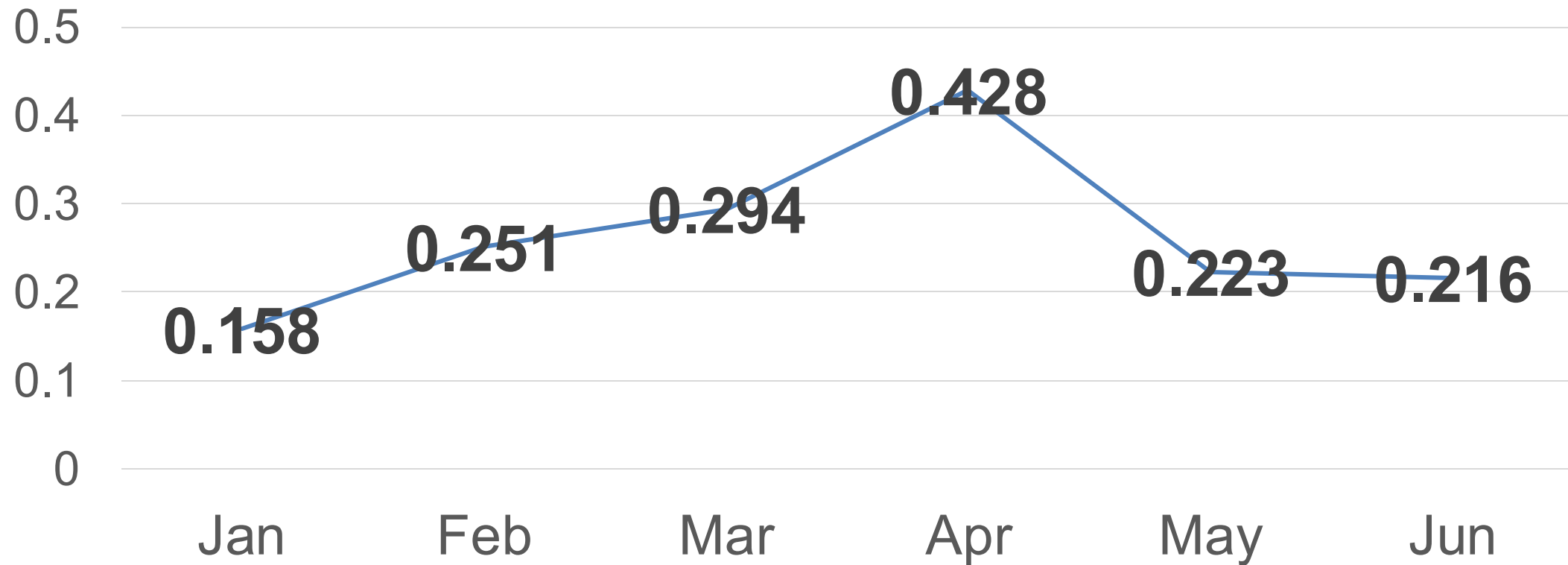
MMP 2024 REJECTION

REJECTION CRITERIA

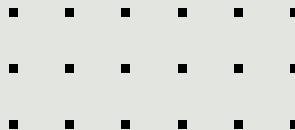


MMP 2024 REJECTION

REJECTION RATE %



THANK YOU



MMP QUIZ



QUESTION 1

Turnaround time is calculated from the time of ordering the test.

True or False?



QUESTION 2

URGENT test requires a communication in between the requester and the laboratory after sending the sample to the laboratory.

True or False?

