Ministry of Health

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Contents Table:

Acknowledgment

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Acronyms:

BA	Blood agar
CA	Chocolate agar
MAC	MaConkey
ATCC	American Type Culture Collection
H&S	Health and Safety
ID	Identification
IQC	Internal Quality Control
MDRO	Multidrug Resistant Organism
MRSA	Methicillin Resistant Staph. Aureus
SOP	Standard operating procedure
TAT	Turnaround time
WHO	World Health Organization

1. Purpose

This document provides instructions on how throat swabs are processed in microbiology laboratory starting from specimens receiving up to result reporting and communication. This procedure is not including screening of multidrug resistance organism form throat.

2. Scope

This document is applicable for all medical laboratories under MOH and other collaborative governmental and non-governmental health institutions.

3. Definitions:

3.1 Diphtheria is an acute infection of upper respiratory tract caused by toxogenic strains.

3.2 pharyngitis: commonly known as sore throat — is an inflammation of the pharynx, resulting in a sore throat. Thus, pharyngitis is a symptom, rather than a condition.

4. Procedure

4.1. Clinical background:

The commonest cause of bacterial pharyngitis is Lancefield group A, streptococcus pyogenes. It has serious consequences like Rheumatic fever and glomerulonephritis. Other streptococci, Lancefield group C/G have also been reported as a cause of pharyngitis, though less common.

Diphtheria is an acute infection of upper respiratory tract caused by toxogenic strains of Corynebacterium: C. diphtheria, C. ulcerans and C. tuberculosis. The incidence of Diphtheria infection has declined dramatically after introduction of C. diphtheriea vaccine.

Other causes of pharyngitis include H. influenza (especially children), Archanobacterium heamolyticum (recurrent tonsillitis), Fusobacterium necrophorum (Liemmer's disease), Fungal/yeast (immunocompromised patients/ patients on broad spectrum antibiotics), Neisseria gonorrhea (sexually active/ sexual abuse).

4.2. Pre – analytical stage:

4.2.1. Sample collection:

- With the patient's head tilted back and the throat well illuminated, depress the tongue so that the back of the throat can be seen.
- Rub the swab up and down the back of the throat and against any white patches in the tonsillar area. Avoid the tongue and the cheeks.
- Replace the swab in the transport tube.

- Seal tube tightly, put in a transport bag and label with patient sticker

4.2.2. Sample

- Throat swab, swab should be taken from tonsillar area and/or posterior pharynx (avoid tongue and uvula)
- Collect before antimicrobial therapy use where possible, patient should not have used antiseptic mouth wash for 8 hrs before collection.
- Collect swabs into appropriate transport medium (charcoal swab) and transport in sealed plastic bags.
- Specimens should be transported and processed immediately.
- If processing is delayed, refrigeration is preferable to storage at ambient temperature.

4.2.3. Material:

Reagents	**Consumables/Supplies**	**Equipment**
Gram stain reagents Culture media (Blood,Chocolate, MacConkey,Sabouraud, Muller Hinton,Muller Hinton with blood	Charcoal Swabs Transport bag Glass microscope slides Sterile plastic loops Universal containers	Microscope Incubators (Aerobic, CO2, Anaerobic jars) Antibiotic discs/strips Bacterial identification system

4.2.4. Safety precaution:

- Specimen collection, transport and storage: Use aseptic technique and an appropriate swab type
- Specimen processing: Containment Level 2.
- If infection with a Hazard Group 3 organism,e.g.,Bacillus anthracis,brucella , burkholderia pseudo Mallie or salmonella typhi and para typhi,all specimens must be processed in a microbiological safety cabinet under full Containment Level 3 conditions.
- Laboratory procedures that give rise to infectious aerosols must be conducted in a microbiological safety cabinet.

4.2.5. Quality control:

- Laboratories should ensure that all commercial and in-house tests, swabs and media used such as: agars, have been checked for quality insurance and validated and shown to be fit for purpose.
- Laboratories should participate in external quality assessment (EQA) schemes and undertake relevant internal quality control procedures.
- Follow the quality control procedure for culture media, stains, reagents, biochemical, identification & susceptibility systems.
- Record the quality control results in the appropriate QC sheet.

4.3. Analytical stage:

4.3.1. sample receiving

- Check proper labeling of specimens (Patient name, ID number, date of collection)
- presence of request of testing in Al Shifa system,
- proper packing of the sample (sealed collection tube, transport bag)
- Receive the swab into Laboratory Information System (LIS).
- Reject improperly labeled or packed sample and samples without corresponding request.

4.3.2. Gram stain

- When requested, Gram stain should be done and reported.
- Gram stain is not specific or sensitive and it may show only normal flora. Refer to gram stain Sop for procedure details.

4.3.3. Culture:

- Inoculate each agar plate (table 1) directly by rolling the swab at inoculums and then spreading it all over the plate.
- Ensure the complete surface of the swab is well “rolled” over the initial inoculum area of the plates.
- Inoculate the plate as follows in **Table 1:**

Clinical details	**Specimen**	**Standard media**	**Incubation**			**Culture read**	**Target organism(s)**
			Temp °C	Atmos	Time		
Pharyngitis	Throat Swab	Blood agar	35-37	5-10% CO_2	16-24hr	16-24hr	Beta haemolytic streptococcus (group A/C/G)
Additional plates may be added in the following clinical conditions							
Liemmer's diseases	Throat Swab	Neomycin / blood agar with 5µg metronidazole disc	35-37	anaerobic	5-7 days	> = 48hr	*Fusobacterium species*
Epiglittitis		Chocolate agar	35-37	5-10 % Co2	18-24 hrs	daily	H. infleunza
GUM clinic, gonorrhoea, N. meningitidis case or contact		GC media	35-37	5-10% CO2	40-48hr	≥40hr	N. gonorrhoeae N. meningitidis
MRSA screening		MRSA chromogenic agar	35-37	O2	40-48hr	Daily check	MRSA carriage

4.4. Post – analytical stage:

4.4.1. Interpretation / Results / Alerts:

- Assigned microbiologist/senior laboratory technologist would be responsible to verify the growth on agar plates after the initial incubation period and ask for sub-culturing and initial identification of organisms.
- Also, will be responsible to communicate significant and urgent preliminary finding to the requesting team when needed.
- Identify isolates using the identification systems available.
- Clinically significant isolates should be identified to species level (refer to table 1).
- Any organism considered to be a contaminant may not require identification to species level.

4.4.2. Reporting:

- Final swab culture reports should be entered in the Al Shifa LIS by the laboratory technician and authorized by the medical microbiologist.
- Significant isolates should be reported only
- Negative cultures at 48 hrs or longer, should be reported by laboratory technician as "No growth after 24 hrs."

4.4.3. Method Performance Specifications

- Negative culture does not rule out infection with Group A streptococcus especially in patients presenting with symptoms consistent with non-suppurative complications.
- Serologic tests, like ASO, may provide support for the diagnosis.
- Other bacterial causes may need special consideration when selecting culture media and duration of incubation (refer to table 1).

5. Responsibilities

5.1. Responsible (supervisor, incharge, ..etc) staff:

- To ensure the adherence to critical result communication procedure
- To facilitate the alternative channels once needed

5.2. Quality manager /officer

- To follow up the implementation of the procedure

- To monitor regularly communication of critical results and raise non-conformance with corrective action once needed.

5.3. All lab staff:

- To adhere to the procedure.
- To document record and release results as recommended
- To report test failures or incident

6. Document History and Version Control

Version	Description	Review Date
1	Initial Release	May 2026

7. References

Title of book/ journal/ articles/ Website	Author	Year of publication	Page
Public Health of England. for Microbiology Investigations, Investigation of throat related specimen .NHS ,Bacteriology	UK Standards	12.01.15	Issue no:7.1| B5
Standard Operating Procedures for MICROBIOLOGY	UAE, وزارة الصحة - اإلدارة		
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