Ministry of Health

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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 procedure provides instructions on how nasal swabs and sinus aspirates collected from a patient are processed in microbiology laboratory starting from specimens receiving up to result reporting and communication. This procedure is not including screening of multidrug resistance organisms.

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 Nasopharyngeal culture is a test that examines a sample of secretions from the uppermost part of the throat, behind the nose, to detect organisms that can cause disease. A nasopharyngeal culture is a test used to identify organisms that can be in nasal secretions causing disease.

3.2 Sinus aspirates: A procedure where the sinus cavity is punctured with a needle, and a sample of the sinus contents is obtained. A culture and sensitivity test is often done on the sample to identify the bacteria, virus, or fungus causing the infection and to determine which medicine will be most effective in treating it.

4. **Procedure**

4.1. Clinical background:

Nose swabs and sinus aspirates may be used to investigate carriage of Lancefield group A streptococcus and MSSA (Methicilin Sensitive Staph. Aureus) in certain patient groups such as those pending surgery. For oncology patients it may also be appropriate to screen for Candida species. Nose swabs are not a suitable sample type for the identification of sinusitis and should only be used for carriage detection. Sinuses aspirates are the suitable samples for the diagnosis of sinusitis.

4.2. Principle:

- Recovery and recognition of nasopharyngeal infections depends on:
  - Collection of appropriate sample (nasal swab versus aspirate)
  - The use of appropriate test and microbiological media to maximize recovery of causative microorganism.

- It is difficult to differentiate between contamination and significant growth, microscopy screening for the quality of sample is useful tool to decide in such situation.
- Ideally, samples should be collected prior antimicrobial exposure when feasible.

4.3. Pre – analytical stage:

4.3.1. Sample:

- Nose swab, antral washout, sinus aspirate, and sinus washout.
- Collect swabs into appropriate transport medium (charcoal swab or universal container) and transport in sealed plastic bags.
- Specimens should be transported and processed as soon as possible.
- Samples should be kept at room temperature and processed immediately.
- If processing is delayed beyond 2 hours, refrigeration 2-8 C is preferable to storage at ambient temperature.

4.3.2. Material:

Consumables	**Equipments**	**Reagents**
• Charcoal Swabs • transport bag • glass microscope slides • Sterile plastic loops • Universal containers	• Microscope • Incubators (Aerobic, CO2, Anaerobic, Anaerobic jars) • Automated identification and antimicrobial susceptibility testing machines	• Gram stain reagents • Culture media (Blood, Chocolate, MacConkey, Sabouraud, Muller Hinton, Muller Hinton with blood)

4.3.3. 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 paratyphi , 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

4.3.4. Quality control:

- Laboratories should ensure that all commercial and in-house tests, swabs and media used like 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 up the quality control procedure for culture media, biochemical, identification & susceptibility systems

4.4. Analytical stage:

4.4.1. Sample receipt

Check proper labelling of specimens (Patient name, ID number, Barcode, Lab Episode number, etc.).

- Receive the swab into Al Shifa system in Laboratory Information System (LIS).
- Reject improperly labelled sample, samples without corresponding request, leaking samples and inform the requesting team about this rejection.
- Keep the rejected sample refrigerated for 24 -48 hrs before discarding it if no response from the requesting team.

4.4.2. Microscopy:

- A Stat gram stain should be done immediately and results should be entered into Al Shifa system.
- A non-stat gram stain will be done as soon as possible and similarly the report should be entered into the hospital information system.
- Refer to wound swab SOP for the microscopic grading.

4.4.3. Culture and investigations:

- Inoculate each agar plate (as in table below) directly by rolling the swab at inoculum 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.
- For nasal aspirate, identify **all** isolated microorganisms up to species level.
- Generally, for nasal swab, identify up to **three** microorganisms.
- For incubation atmosphere, duration and reading, refer to table 1

Table 1

Clinical details	**Specimen**	**Standard media**	**Incubation**			**Culture read**	**Target organism(s)**
			Temp °C	Atmos	Time		
Recurrent infections	Swab	Blood agar	35-37	5-10% CO_2	16-24hr	16-24hr	*S. aureus* *Streptococci*
sinusitis	Nasal washout, sinus aspirate and sinus washout	Blood agar Chocolate agar	35-37	5-10% CO_2	40-48hr	daily	*β-haemolytic streptococci* *Enterobacteriaceae* *H. influenzae* *M.catarrhalis* *Pseudomonads* *S. aureus* *S. anginosis group* *S. pneumoniae*
Sinusitis	Nasal washout, sinus aspirate and sinus washout	Fastidious anaerobe agar with 5µg metronidazole disc	35-37	anaerobic	5-7 days	>= 48hr	*Fusobacterium* *species* *Peptostreptococcus* *species* *Propionibacterium* *species Prevotella species*

4.5. Post – analytical stage:

4.5.1. Interpretation / Results / Alerts:

- Assigned microbiologist 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.
- If microbiologist is not around senior laboratory technician would be responsible to verify the final growth results and communicate with concern ward staff.
- It's the responsibility of the microbiologist or senior lab technician to contact infection control and prevention team when any Multi Drug Resistance Organism (MDRO) is preliminary or finally identified.
- Identify isolates using the identification systems available.
- clinically significant isolates should be identified to species level.
- Any organism considered to be a contaminant may not require identification to species level.

4.5.2. Reporting:

- Final swab culture reports should be entered in the Al Shifa LIS by the laboratory technician and authorized by the medical microbiologist.
- Negative cultures at 48 hrs or longer should be reported by laboratory technician as "No growth after 48 hrs."
- For more than 3 organisms in nasal swab in one plate or all plates, report as mix growth (of gram-positive organisms, of gram-negative organism or of both gram negative and gram-positive organisms).
- Final report should be authorized without delay

5. Responsibilities

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

5.1.1 To ensure the adherence to critical result communication procedure

5.1.2 To facilitate the alternative channels once needed

5.2. Quality manager /officer

5.2.1 To follow up the implementation of the procedure

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

5.3. All lab staff:

5.3.1 To adhere to the procedure.

5.3.2 To document record and release results as recommended

5.3.3 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
UK Standards for Microbiology Investigations, Investigation of nasal samples. NHS , Bacteriology |	Public Health of England	date:12.01.15	B 5 | Issue no: 7.1| Issue | Page: 1 of 20
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