A COMMON FACTOR FOR THE SAMPLE THAT AFFECTS THE EXAMINATION'S PERFORMANCE IN DISEASE SECTION

UNIT	TEST	SAMPLE	FACTOR	CONSEQUENCES
Tibi/Kusta	MTB Identification and Drug susceptibility testing (DST)	Sputum	● Unsatisfactory sample (saliva) ● Sample delivery - ≥ 48 hours after sample collection ● Storage temperature - ≥ 2-8°C	● Low bacterial Load ● normal flora overgrowth ● normal flora overgrowth
		Gastric lavage	● No sodium bicarbonate added ● Storage temperature - ≥ 2-8°C ● Sample delivery - ≥ 4 hours after sample collection	● acidic sample can inhibit bacterial growth ● acidic sample can inhibit bacterial growth ● acidic sample can inhibit bacterial growth
	Line Probe Assay (LPA)	Sputum	● AFB direct smear <1+ ● Sample delivery - ≥ 48 hours after sample collection ● Storage temperature - ≥ 2-8°C	● Low bacterial Load ● normal flora overgrowth ● normal flora overgrowth
	PCR TB/NTM	Sputum	● Sample delivery - ≥ 48 hours after sample collection ● Storage temperature - ≥ 2-8°C ● Bloody sample	● normal flora overgrowth ● normal flora overgrowth ● Result invalid -RBC as an inhibitor
	Interferon-gamma release assays (IGRA)	Whole blood	● Insufficient sample – volume <0.8 ml or >1.2 ml ● Sample hemolyzed ● Sample lipemic ● Improper sample shaking ● Improper sample incubation ● Improper sample centrifugation	● Result invalid
	GeneXpert	Sputum	● Unsatisfactory sample (saliva) ● Sample delivery - ≥ 48 hours after sample collection ● Storage temperature - ≥ 2-8°C ● Sample from patients who have received no antituberculosis therapy, or less than 3 days of therapy in the last 6 months. ● Bloody sample – RBC as an inhibitor	● Low bacterial Load ● normal flora overgrowth ● normal flora overgrowth ● Result interference (false result) ● Result invalid -RBC as an inhibitor
		Gastric lavage	● Storage temperature - ≥ 2-8°C ● Sample delivery - ≥ 4 hours after sample collection ● Sample from patients who have received no antituberculosis therapy, or less than 3 days of therapy in the last 6 months.	● acidic sample can inhibit bacterial grow ● acidic sample can inhibit bacterial grow ● Result interference (false result)

Note: Refer to Disease Section Test Handbook for sample collection and criteria

UNIT	TEST	SAMPLE	FACTOR	CONSEQUENCES
Biokimia	TSH/FT4 Test Cholinesterase Test Liver Function Test Renal Profile Lipid Profile Miscellaneous Tests: -Calcium -Phosphorus -Fasting Blood Glucose -Random Blood Glucose	Serum /Plasma	• Inappropriate sample collection techniques for example drawing blood too quickly or leaving the tourniquet on for too long • Improper order of draw • Use of incorrect collection tubes • Insufficient sample volume • The collection site is not properly disinfected or if the collection tubes are contaminated. • Inappropriate use of anticoagulants/ Improper mix of anticoagulant with sample or improper handling of blood • Delay in transportation of samples • Improper storage temperature of samples • Improper & delay of sample centrifugation/ separation • Not fasting prior to sample collection of Fasting Blood Glucose Test & Lipid Profile	• Hemolysis (breakdown of red blood cells) • Increase possibility of the carryover of additive contamination • Inaccurate result/Hemolysis • Inaccurate result • Contamination of the sample • Clotting • Degradation of sample /Inaccurate result • Degradation of sample /Inaccurate result • Degradation of sample /Inaccurate result • Inaccurate result
	Adenosine Deaminase Test	Pleural fluid	• Incorrect sample collection technique (Aseptic technique during thoracentesis is required). • Puncture Accidents- Accidental punctures during thoracentesis • Insufficient sample volume • Improper use of collection tube • Delay in transportation of samples • Improper storage temperature of samples • Improper & delay of sample centrifugation/ separation	• Contamination of sample • Can introduce blood into the sample • Inaccurate result • Inaccurate result • Degradation of sample /Inaccurate result • Degradation of sample /Inaccurate result • Degradation of sample /Inaccurate result
Bakteriologi	Culture test	Rectal swab/ Stool swab/ Throat swab/ Nasal swab/ Nasopharyngeal swab/ Pernasal swab	• Improper storage temperature of samples (no ice) • Delay in shipment (Sample delivery $\geq$ 6 hours after sample collection • Wrong transport media • Wrong swab	• Overgrowth of Normal flora • Low yield of pathogen & Overgrowth of Normal flora • No yield of pathogen • No yield of pathogen
	Leptospira MAT	Serum	• Improper & delay of sample centrifugation/ separation • Insufficient sample volume	• Inaccurate result/ unable to see reaction with Leptospira serovar • Unable to process sample
	Leptospira PCR	Blood in EDTA	• Sent serum sample • Insufficient sample volume	• Leptospira DNA Not Detected
	Syphilis Rechecking	Serum	• Improper & delay of sample centrifugation/ separation • Lysed serum • Insufficient sample volume	• Inaccurate result / unable to see agglutination

Note: Refer to Disease Section Test Handbook for sample collection and criteria

UNIT	TEST	SAMPLE	FACTOR	CONSEQUENCES
Virology	Chikungunya/ Dengue/ Flavivirus/Zika Virus PCR	Serum /Blood	• Inadequate Sampel volume • Sample not collected within specific days from onset of illness • Storage temperature:> 8^{o}C	• **Inadequate sample size will result in template DNA** present in the reaction leading to l**ow yield of PCR product** • Decline in viral load • Nucleic acids degradation
	Enterovirus PCR –HFMD/ Conjunctivitis Respiratory Virus PCR (Influenza A H1N1, H3N2, Influenza B, Adenovirus, RSV, SARS-CoV-2, MERS-CoV) Monkeypox Virus PCR	Mouth Ulcer Swab/ Vesicle Swab/ Rectal Swab/ Throat Swab/ Stool/ Pleural fluid / Eye swab (for Conjunctivitis) Nasopharyngeal Swab/ Nasal swab/ Throat Swab/ combined OPS/NPS Lesion fluid swab /Scab or crust Tonsillar swab/ Nasopharyngeal swab	• Sample taken using other than flocked or dacron swab in VTM (volume 2-2.5ml) or sterile container. • Sample not collected within specific days from onset of illness • Storage temperature:> 8^{o}C	• Flocked and Dacron swabs are non-inhibitory to PCR • Decline in viral load • Nucleic acids degradation
	Rotavirus	Fresh stool	• Sample not collected within specific days from onset of illness • Sent in unsuitable storage temperature	● Decline in viral load
	Hepatitis B surface antigen or antibody / Rubella /Measles IgM	Serum/Blood	• Sampel volume: <1ml • Lysed serum/Plasma • Unsuitable storage temperature:8^{o}C (<24hours) OR >-70^{o}C (>48 hours)	• Inadequate sample for testing • False positive results • Degradation of sample • Inaccurate result
Parasite	PCR Malaria	Blood in EDTA	• Sample insufficient • Send plasma or serum instead of EDTA	• Inadequate sample for testing • Inappropriate sample will lead to poor yield of DNA and lead to false negative result.
	Slide BFMP	Slides	• Inappropriate packaging of slides	• Potential of broken slides and unable to proceed with rechecking.

Note: Refer to Disease Section Test Handbook for sample collection and criteria