Government of the Republic of Trinidad and Tobago

Ministry of Health

TRINIDAD PUBLIC HEALTH LABORATORY

SAMPLE MANAGEMENT MANUAL

16-18 JAMAICA BOULEVARD
FEDERATION PARK, PORT OF SPAIN
TRINIDAD AND TOBAGO

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TABLE OF CONTENTS

1. INTRODUCTION 5
1.1 Preface 5
1.2 Director's Message 5
1.3 Mission 5
1.4 Vision 5
1.5 Role of TPHL 5
1.6 Scope and Purpose 6
1.7 Role of the Client 6
2 GENERAL INFORMATION 7
2.1 Laboratory Contact Information 7
2.2 TTlims Contact Information 7
2.3 Laboratory Director Contact Information 7
2.4 Hours of Operation 7
2.5 Modes of Operation 8
2.6 Urgent Laboratory Investigation 8
2.7 Referred Services 9
2.8 Service Interruption 9
2.9 Client Confidentiality 9
2.10 Patient Consent 10
2.11 Feedback and Complaints 10
3 SUBMISSION OF SAMPLES TO TPHL 11
3.1 TPHL Laboratory Investigation Request Form 11
3.2 Completing the Laboratory Investigation Form 11
3.3 Registration of Samples on TTlims 12
3.3.1 Entering Patient, Case and Sample Information on TTlims 12
3.3.2 Completing the TPHL Laboratory Investigation Request Form 12
3.3.3 Completing the TPHL Sample Referral Log 12
3.3.4 Preparation for Submission 13
3.4 Verbal Requests 13
3.5 Sample Collection Guidelines 13
3.6 Sample Labelling 14
3.7 Sample Packaging 15
3.8 Sample Transportation 16
3.9 Sample Storage 17
3.10 Sample Receipt and Registration 17
3.11 Sample Retention 18
3.12 Rejection/Clarification 19

3.13 Handling of Test Results 19
4 SAMPLE COLLECTION FROM DIFFERENT BODY SITES 21
4.1 General Sample Collection Guidelines 21
4.2 Blood Samples 21
4.2.1 Venipuncture Procedure 21
4.2.2 Whole Blood/ Plasma/ Serum 22
4.2.3 Separation and Collection of Serum from Blood 23
4.2.4 Handling and Transport 23
4.3 Central Nervous System (CNS) Samples 23
4.3.1 Lumbar Puncture Procedure 24
4.3.2 Handling and Transport 24
4.4 Eye Swab 24
4.4.1 Procedure 24
4.4.2 Handling and Transport 24
4.5 Gastrointestinal (GI) Tract Samples 25
4.5.1 Stool Samples 25
4.5.2 Rectal Swabs 25
4.5.3 Handling and Transport 25
4.5.4 Gastric Aspirates- Gastric Lavage 25
4.5.5 Handling and Transport 26
4.6 Respiratory Tract Sample - Lower Respiratory Tract 26
4.6.1 Sputum Samples- Expectorate 26
4.6.2 Sputum Samples - Induced 26
4.6.3 Bronchoscopy Samples 26
4.6.4 Lung Aspiration 27
4.6.5 Lung Biopsy 27
4.6.6 Handling and Transport 27
4.7 Respiratory Tract Sample - Upper Respiratory Tract 27
4.7.1 Timing and collection of the sample 28
4.7.2 Handling and Transport 28
4.7.3 Throat Swab 28
4.7.4 Nasal Swab 28
4.7.5 Nasopharyngeal suction 28
4.7.6 Nasopharyngeal swabs for viruses 29
4.7.7 Oropharyngeal swabs 29
4.8 Sterile Body Fluids - Excluding CSF, Urine, and Blood 29
4.8.1 Handling and Transport 29
4.9 Urine 29
4.9.1 Handling and Transport 30

5 FOOD AND WATER MICROBIOLOGICAL ANALYSIS....31
5.1 Completing the Request for Food/ Water Microbiological Analysis Form....31
5.2 Food Microbiological Analysis....31
5.2.1 Sample Collection....32
5.2.2 Sample Labels....32
5.2.3 Sample Storage....32
5.3 Water Microbiological Analysis....32
5.3.1 Sample Collection....32
5.3.2 Sample Labels....32
5.3.3 Sample Storage....33
6 LABORATORY TESTING SERVICES....34
6.1 Referral Laboratory Testing Services....35
6.2 Specialized Test Panels....35
6.3 Additional Services Offered....37

1. INTRODUCTION

1.1 Preface

The Trinidad Public Health Laboratory (TPHL) provides reference and diagnostic laboratory services in Bacteriology (Clinical Microbiology), Food and Water Microbiology, Virology, HIV and Tuberculosis (TB) Testing.

It is our goal at TPHL to provide accurate and timely results in support of the health programs aimed to reduce morbidity and mortality.

The following sample management manual is designed as a guide for physicians, nurses, and other allied health care personnel in charge of ordering, selecting, and collecting samples for TPHL. For additional information, please feel free to contact us (See Page 9). Our staff will be happy to assist you.

1.2 Director's Message

TPHL is the reference laboratory for Trinidad and Tobago. This Laboratory assists in promoting the health of the nation through the prevention and control of communicable diseases. We also play a pivotal role in the evaluation and monitoring of public health emergencies, which includes reducing the risk of food-borne, water-borne and environmental diseases. The following manual provides information on the list of laboratory tests available at TPHL and the sample requirements as well as proper patient preparation and sample collection using evidence-based techniques. It is recommended that clients examine this manual carefully to ensure that the maximum benefit is derived from our services. We hope this document clarifies our role, and we look forward to serving you.

1.3 Mission

TPHL is in the business of providing diagnostic and supportive services and the surveillance of Communicable Diseases in a prompt and efficient manner in order to improve the health status of the people of Trinidad and Tobago.

1.4 Vision

To be the national public health laboratory service in an effort to increase the spectrum, coverage, and overall efficiency of laboratory testing nationally, while implementing international best practice

1.5 Role of TPHL

As an important arm of the Ministry's Public Health Service, TPHL along with the Epidemiology Division is solely responsible for the following functions:

1. Providing diagnostic laboratory support for both the Community Health Services and Hospitals in such specialized disciplines as Virology, and for infectious diseases, for example, Tuberculosis and Acquired Immunodeficiency Syndrome (AIDS). Such support is invariably extended to the private health sector.

2. Conducting national surveillance and other relevant epidemiologic activities exclusively in the area of communicable diseases. These functions are undertaken by the Epidemiology Division.

3. Providing diagnostic laboratory services as an essential adjunct to national surveillance activities, particularly in the area of epidemic investigation.

4. Conducting laboratory-based surveillance activities to enable, inter alia, the early detection of newly introduced disease-causing organisms into the population.

5. Providing laboratory backup support for the Public Health Inspectorate in the monitoring of food and water quality in Trinidad and Tobago. This area of responsibility includes the Retail food establishment and non-commercial food samples such as School Feeding Programme and Public Institutions.

6. Providing laboratory and epidemiologic support through the conduct of seroprevalence studies in the areas of Vaccine-Preventable and Sexually Transmitted Diseases.

7. Conducting relevant and appropriate research for elucidating health problems in the area of communicable diseases.

1.6 Scope and Purpose

This manual provides guidance for external clients on sample management activities including sample collection, labelling, registration, packaging, storage, and transport. The manual will also guide internal users in sample receipt and registration, retention, rejection, and result reporting.

Users of this manual should be mindful of amendments and revisions to the laboratory's protocol in keeping with the appropriate standard. In the case of discrepancies between the manual and laboratory protocols, the laboratory protocol will always be the leading document.

The Director and Quality team, in conjunction with all Medical Laboratory Technicians and Laboratory Assistants are responsible for ensuring the implementation and maintenance of this manual.

1.7 Role of the Client

External clients requesting tests to be performed at TPHL are responsible for implementing and following proper primary sample collection procedures as outlined by this manual.

2 GENERAL INFORMATION

2.1 Laboratory Contact Information

Trinidad Public Health Laboratory
16-18 Jamaica Boulevard, Federation Park, Port-of-Spain
Telephone: (868) 622-2877, (868) 622-5311
Fax: (868) 662-0951
E-mail: tphl@health.gov.tt
DTS E-mail: dtspt@health.gov.tt

2.2 TTlims Contact Information

TTlims Help Desk
E-mail: ttlims@health.gov.tt

2.3 Laboratory Director Contact Information

Laboratory Director
Ms. Zobida Khan-Mohammed
Telephone: (868) 717-0107

2.4 Hours of Operation

Routine hours:

- Monday - Thursday: 8:00 am to 4:15 pm.
- Fridays: 8:00 am to 4:00 pm.
- Weekends and public holidays: Closed.

The declared public holidays in Trinidad and Tobago are as follows:

MONTH	DAY	HOLIDAY
January	01	New Year's Day
March	30	Shouter Baptist Liberation Day
May	30	Indian Arrival Day
June	19	Corpus Christi
August	01 31	Emancipation Day Independence Day
September	24	Republic Day
December	25 26	Christmas Day Boxing Day
Dates to be announced	Dates to be announced	Good Friday Easter Monday Labour Day Eid-ul-Fitr Diwali

2.5 Modes of Operation

TPHL operates under two (2) general modes:

1. **Routine**: As per guidelines within.
2. **Outbreak**: When there are cases above normal endemic levels.

Once an outbreak mode has been established at the laboratory, those samples will take priority for analysis. As such, all routine work may have to be suspended depending on the severity of the outbreak.

Viral Outbreaks - Including Influenza/ Dengue/ Zika/ Chikungunya

1. Once it is recognized that there is an outbreak of one of these viruses, there is no need for the submission of samples for every diagnosed case. However, all cases of doubtful diagnosis should be submitted.
2. Samples of **ALL** clinically diagnosed Severe Dengue Hemorrhagic Fever (DHF) and Dengue Shock Syndrome (DSS) should be submitted.
3. **ALL** suspected cases of yellow fever, rubella, measles, Acute Flaccid Paralysis (AFP) must be submitted.
4. Samples from **ALL** pregnant women who have been exposed to congenital rubella virus must be submitted.
5. For “new” or “exotic” viruses, please contact TPHL for guidance.

Food Poisoning Outbreaks

1. **ALL** diarrheal samples associated with the outbreak should be submitted as soon as possible.
2. Suspected food and water from sources of diarrhea should be submitted as soon as possible.

2.6 Urgent Laboratory Investigation

To aid the Laboratory in identifying specimens that are deemed clinically or epidemiologically urgent, users are requested to follow the protocol below.

Please note: It is **not** sufficient to simply write urgent on the request form.

1. Contact the Laboratory Director/Senior Technician prior to sending the sample.
   Email: tphl@health.gov.tt
   Phone: (868) 717-0107

2. Provide the name and contact number (mobile if possible) of the person to contact regarding the result. It is ESSENTIAL that these contact details are accurate, and a designated person is available to discuss the request as further information may be required before the sample is processed as urgent.

3. Ensure urgent samples are clearly identified particularly when they are included with routine delivery items.

   NOTE: Urgent samples should be packaged in a separate container/envelope and clearly marked as URGENT on the external packaging and request form.

4. It is ESSENTIAL that contact details are provided for results to be telephoned when required.

2.7 Referred Services

For the purposes of additional or confirmatory investigations, samples may be sent to our referral laboratory:

- **Caribbean Public Health Agency (CARPHA)**
  16-18 Jamaica Boulevard,
  Federation Park,
  Port-of-Spain, Trinidad and Tobago

2.8 Service Interruption

In the case of a service interruption, clients will be notified via a Service Interruption Communication Form (LABM-QMS-SER-D-003) (See Appendix 1).

2.9 Client Confidentiality

It is the policy of the Laboratory to protect the confidential information of those involved in its activities including both physical and electronic information. To this end, all employees are required to sign the Ethical Conduct Agreement (LABM-QMS-DOC-E-007) (See Appendix 2) upon employment and the LIMS Security and Service Access Agreement (LABM-QMS-PER-E-003) upon registration of a TTlims user account (See Appendix 3).

Test results are only released to the client. Release to someone other than the client requires the express permission of the client, except for disclosure in accordance with the laws of Trinidad and Tobago and/ or by an Order of Court.

In support of the mission of TPHL in providing the highest quality testing and results, sensitive patient information must be made available to clinical, administrative, and medical staff members, and at times to members of organisations that are clients of TPHL, to enable the performance of their respective job functions and responsibilities.

Access to patient information may include but is not limited to electronic, video, audio, and printed media formats including copies made for the purpose of recording, documenting, referencing, or archiving patient information. As such:

- It is expected that legitimate users of patient and organisational information will understand the highly confidential nature of the information and that the information must not be released, disclosed, or discussed with anyone either inside or outside of the health system who does not have a legitimate need to access the information.
- Access for personal, inquisitive, or any non-official reasons is strictly not permitted.
- All printed copies of patient reports and documents should be appropriately stored and secured after use.
- It is the responsibility of anyone who has legitimate access to this information to secure the means of gaining that access. The user should recognize the possible legal, ethical, and professional ramifications pursuant to the violation of this policy.

2.10 Patient Consent

The Management of TPHL recommends proper documentation of patient consent for all clients of laboratory services charged with the responsibility for primary sample collection, particularly for those tests requiring patient consent and disclosure of clinical and family history information.

2.11 Feedback and Complaints

Feedback from our clients – both positive and negative – allows us to continually refine and improve the service we provide. These may be submitted in the following manner:

1. **WRITTEN** - Please complete the Customer Satisfaction Survey for Laboratory Testing Services (LABM-QMS-QUI-D-005) as attached in Appendix 4 and submit to the Quality Manager via physical copy or email. At least one survey will be conducted annually through the Quality Team.

2. **ORALLY** - Please contact the Quality Manager.
   Phone: (868) 622-5311, 622-2877 Ext. 6007

Complaints Policy

The Laboratory documents all issues from clients, patients, or other related parties and investigates the same as formal complaints. Records of all complaints including appropriate investigations and corrective actions taken by the Laboratory are reviewed and maintained. Clients may access the Customer Complaint Form (LABM-QMS-SER-D-002) and submit to the Quality Manager (See Appendix 5).

TPHL maintains records for all complaints and follow-up actions as guided by the Standard Operating Procedure Client Complaints (LABM-QMS-SER-C-003).

3 SUBMISSION OF SAMPLES TO TPHL

3.1 TPHL Laboratory Investigation Request Form

All samples being submitted to TPHL for analysis must be accompanied by a completed laboratory requisition form specific to the type of testing required. To avoid delays in testing or rejection of samples, please use only authorized TPHL requisition forms.

- *Clinical Samples*: TPHL Laboratory Investigation Form (LABM-QMS-QUI-D-027) (See Appendix 6)
- *Food and Water Samples*: TPHL Request for Food/Water Microbiological Analysis Request (LABM-MICR-FW-D-001) (See Appendix 7)

In addition, all clients trained in using TPHL's Laboratory Information Management System, TTlims, are required to complete all data entry requirements for the registration of samples prior to submission for testing.

3.2 Completing the Laboratory Investigation Form

The following mandatory information is needed on TPHL Laboratory Investigation Form for all patient requisitions:

Table 1 Essential Information for Laboratory Investigation Request Forms

SECTION	ESSENTIAL INFORMATION
1. Patient Information	Please write the patient's name clearly and legibly (preferably in block letters). Correct spelling of patient's name and provision of other relevant bio-data (date of birth/ age, address, sex, etc.) is essential to ensure that the sample collected and received by the laboratory comes from the correct patient. Include the patient's hospital registration number where available. For HIV investigations, the patient's name must be replaced with a code in order to maintain patient confidentiality. The **code format** should be created using: ● Initial of the patient's last name ● Initial of the patient's first name ● Patient's National Identification Card Number (Driver's Permit number, Passport number, PIN of Birth Certificate (children) are acceptable alternatives ● Patient's Sex
2. Referring Physician/Institution	Name of the requesting doctor and institution, including address, telephone number/ fax number **MUST** be included in the requesting form.
3. Date and Time of Sample Collection	The exact date and time of sample collection should be indicated to enable monitoring of sample integrity.
4. Sample Type	Specify the type of sample being submitted for analysis (e.g. blood, CSF, nasopharyngeal swab, throat swab, sputum, isolate, etc.) and the anatomic site of origin where relevant.
5. Clinical History	Please include the clinical diagnosis, suspected disease/organism, date of onset of illness, travel history, name, date, and duration of treatment given (e.g. antimicrobial treatment), patient's immune status (e.g. any underlying diseases, cancer chemotherapy, immunosuppressive treatment, etc.).

6. Test Request	Please write clearly the name of the test being requested in the space marked – "Examination Requested". A clear indication should be made as to whether the tests requested are urgent or routine.

3.3 Registration of Samples on TTlims

3.3.1 Entering Patient, Case and Sample Information on TTlims

All samples should be registered by the client on TTlims prior to submission for testing at the Laboratory. The following information is required:

Table 2 Essential Information for Registration on TTlims

SECTION	ESSENTIAL INFORMATION
1. Patient Information	Please include all following information when creating a new profile for a patient on TTlims: • Client Patient ID (CPID) – a unique registration number for the patient or the name of the facility where the patient presented can be used. • Patient's first name • Patient's last name • Date of Birth • Gender • Address • Contact Information (telephone number, email address etc.)
2. Clinical Case	Please include all case information including the physician/doctor assigned to the patient; the patient's symptoms and onset date of the symptoms; additional comments specific to the patient's case or condition for medical, diagnostic and surveillance purposes. This can include key characteristics not listed under demographic information (e.g. occupation), preoperative surgery requests, travel history, prior laboratory test results and so forth.
3. Sample Test Request	Please include the primary contact of the sample, the date and time of sample collection, the sample type, and the specific test being requested for the sample.

3.3.2 Completing the TPHL Laboratory Investigation Request Form

On the TPHL Investigation Request Form, complete the examination request section. Under the TPHL No. column, fill in the Sample ID that was generated on TTlims when the sample was registered to a patient on the system.

3.3.3 Completing the TPHL Sample Referral Log

The client is responsible for assigning duties to physicians, nurses, other allied health care personnel and/or administrative staff who will be responsible for completing the Sample Referral Log (See Appendix 12). The client is required to complete the following information under the Institution section:

- Client Patient ID
- Sample ID

- Patient's First Name and Last Name
- Sample Type
- Test Requested

The client is also required to include the date the samples were submitted on the log and the sheet number for each log.

The Courier or Transportation Personnel is required to complete the following steps under the Institution/Courier section:

- Courier's Initials
- Date of Sample Transportation

3.3.4 Preparation for Submission

Place the Sample Referral Log sheet(s) into a folder or envelope to be transported along with the samples. The Laboratory Investigation Request Form should be attached with the sample being submitted for testing. Samples are to be grouped together with a maximum of ten (10) samples per batch. Once batched, secure the samples and label sheet number that the batch of samples corresponds to on the Sample Referral Log with an appropriate paper or tape label.

3.4 Verbal Requests

Additional tests requested verbally via the telephone may be accommodated if sample type and volume are adequate and the request is received from the clinician within 48 hours.

3.5 Sample Collection Guidelines

Sample collection is a critical initial step in laboratory diagnosis. Meaningful laboratory test results require careful attention to the sample source, methods of collection, timing, storage, transport and handling of the samples. Additionally, a completed Laboratory Investigation form with relevant history, if appropriate, is essential for optimal and efficient laboratory workup of the collected samples.

Please note that the sample collection process is dependent on the test required and the accuracy and timeliness of test results begin with a successful sample collection. Refer to ***"sample collection from different body sites*** "for actual sample collection procedures

1. Have the patient say his/her name in order to confirm their identity.

2. Determine the type of tests to be ordered and the accompanying instructions for sample collection (e.g. fasting, non-fasting, pre or post medication, pre or post-dialysis, etc.).

3. Identify the correct containers/tube types to be used with the correct additives (if required). Use only sterile containers that are within their expiration dates

4. Please check containers for any defects before use.

5. Employ aseptic techniques during sample collection to prevent the introduction of microorganisms into the patient's anatomical space, and to prevent the sample from being contaminated.

6. Collect an adequate amount of the sample to enable the test(s) to be carried out, especially when multiple tests are ordered. In cases where the amount of sample is insufficient please state which tests should be done in order of priority.

7. Please check the containers again after sample collection for any leakage and tighten the lids of containers properly to prevent leakage of samples during handling and transportation. A leaked sample container can pose infection hazards to the transportation and laboratory staff, besides risking the sample to be insufficient.

8. Please ensure that the outer surfaces of the containers are not contaminated by the patients' samples.

9. Ampoules designed to keep swabs moist should be broken at the time of collection when the swabs are inserted into the transport tube.

10. Most samples collected with a swab and transported dry are unacceptable. Throat swabs submitted for the isolation of group A *Streptococcus* are an exception.

11. Please place the sample container in a tri-wall biohazard plastic bag. Place the Request Form in the pocket on the side of the bag and not in the sample compartment.

12. All samples should be regarded as potentially infectious and the standard universal precaution guidelines should be adhered to by all healthcare workers during sample collection and handling.

13. Dispose of infectious waste appropriately (red autoclave bags and sharps containers).

3.6 Sample Labelling

All information must be clearly and legibly recorded on the sample container at the point of care, immediately before or after sampling. The following information is essential on each sample container:

- Patient's full name (Surname, Given Name) **OR** Patient's code in the case of HIV investigation
- Date & Time of sample collection
- Sample Type (where applicable)
- Patient's Date of Birth (DOB) and Age
- Patient's Gender

Table 3 Sample Labelling Guidelines for Sample Containers

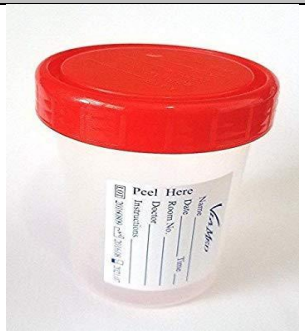
Blood tubes	Screw-cap sample cup	Bacteriological transport swab	Viral transport media
			

Table 4 Sample Labelling Guidelines

DO	DON'T
Use appropriate lab pens with non-bleed ink	Pre-label sample containers for more than one patient
Use legible handwriting	Ask another person to label a sample for you.
Label sample container without obstructing the view of sample container contents	Block the view of sample container contents with label
Place label evenly	Apply addressograph labels on sample bottles
Use clear tape to protect label or choose a label suited for storage conditions where necessary	Submit un-labelled samples

Note: Laboratory staff will be acting in accordance with international best practice protocols by refusing to accept any request for testing when either the request form or the sample is inadequately labelled.

3.7 Sample Packaging

All clinical samples collected for transportation should be packed in compliance with the triple packaging system (primary, secondary and tertiary), as detailed below.

Primary Container

Clinical/biological samples should be collected in a sealed primary container, for example, a sealed Vacutainer™ or a screw-cap sample cup.

See **Appendix 8: PRIMARY CONTAINERS FOR DIFFERENT SAMPLE TYPES** for selecting the appropriate sample containers.

Secondary Container

The sealed primary container should be placed inside a sealed leak proof secondary package such as a sealed plastic bag or another watertight container which would be sufficient to contain all of the content if the primary container breaks. Please adhere to the following:

- One sample per bag
- Place the request form in the side pouch
- Do not staple sample bags
- Remove needles from all sample collection devices before transporting. Samples received with intact needles will be rejected

Tertiary Container

A sturdy secured outer container (e.g. cooler/ box) is necessary, to house the secondary container.

Samples to be transported within the same building

- Please follow instructions for Primary and Secondary containers.

Samples to be transported to other areas not within the same building

- Please follow instructions for Primary, Secondary, and Tertiary containers

Note: The triple packaging system as outlined above is a basic description of the packaging and transportation requirements for clinical samples in Trinidad and Tobago. For regional and international shipping of samples, additional requirements are needed, and as such assistance from an IATA/ WHO certified shipper is necessary.

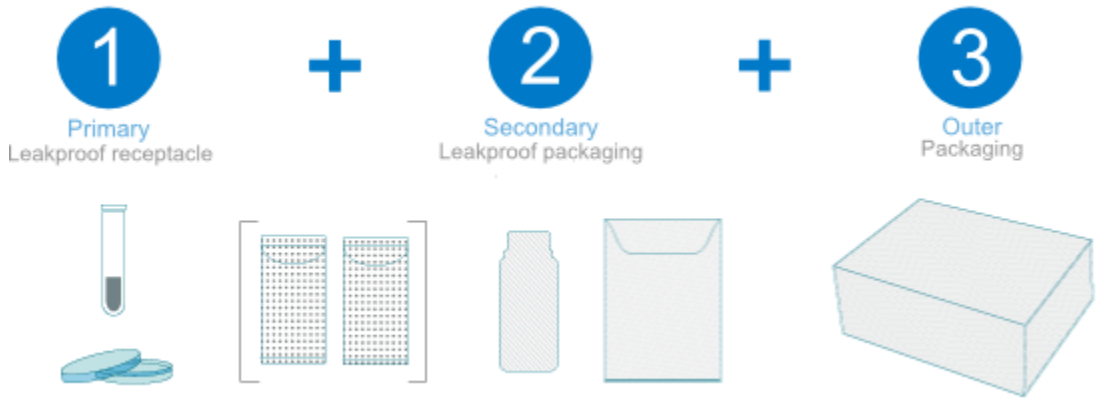


Figure 1 Triple Packaging System

3.8 Sample Transportation

All samples submitted to TPHL should be transported via the clients' couriers. TPHL can facilitate sample transport services under extenuating circumstances, however, it is incumbent upon the referring institution to transport its samples to the laboratory.

Samples that are not outbreak-related should not be sent to the laboratory after normal working hours unless prior arrangements have been made with TPHL Director/ Supervisors

3.9 Sample Storage

All samples collected for submission to the laboratory should be transported at the recommended temperature and storage conditions. This is usually 2-8^{o}C (refrigeration temperature) for most samples (with some exceptions) and can be achieved using ice, frozen ice-packs or gel-packs in Styrofoam or plastic coolers.

Refer to **Section 4**: **SAMPLE COLLECTION FROM DIFFERENT BODY SITES** for specific handling and transport requirements.

Bacterial isolates for confirmation and further identification should be refrigerated if not immediately transported to the laboratory with the exception of those that require anaerobic transport.

1. For anaerobic samples, use anaerobic transport systems. Anaerobic transport systems are used to ensure the viability of anaerobic organisms in transit to the laboratory in the absence of oxygen. This is accomplished using gas packs or candle jars.
2. Aerobic transport systems are listed in the table below. Although sterile swabs can be used for the collection and transport of samples, the test request should be considered prior to sample collection. Certain types of swabs should be used for the collection and transport of certain cultures.

Table 5 Aerobic Transport Systems

TRANSPORT SYSTEM	COMMENTS
Swab Transport System	Sterile, disposable culture collection and transport system consisting of the plastic tube containing two rayon-tipped swabs and transport medium to prevent drying of bacteria and maintain pH.
Dacron swabs	Useful in the collection of viral and group A streptococcus samples.
Nasopharyngeal-urethrogenital swabs	Flexible wire shafts and small tips provide easier sample collection, especially for the collection of nasopharyngeal samples, B. pertussis, and for urethral samples of N. gonorrhoea.
Sterile screw-cap cups	Useful for collection of urine, sputum, stool, Broncho-alveolar lavage, and biopsy sample. If the biopsy sample is small, add a small amount of sterile non-bacteriostatic 0.85%
Sterile petri dish	Useful for hair or skin-scraping samples. Tape petri dish securely prior to transport.
Sterile tubes (screw-cap glass or plastic tubes, sterile Vacutainer tubes without additives)	Useful for collection of sterile fluids, CSF, blood serum, Broncho-alveolar lavage, drainage, or brush sample

3.10 Sample Receipt and Registration

Upon receipt, all samples are logged, registered in a timely fashion and stored under appropriate conditions until testing can begin. On the receipt of samples, laboratory staff at TPHL must:

1. Complete all sections in the Sample Receipt Log (LABM-MICR-HV-D-001) (See Appendix 9) with the aid of the courier/ messenger.

    - Record the date and time of sample receipt
    - Count the number of samples and forms received (in presence of the courier/ messenger)
    - Record the name of the health institution referring the samples
    - Have the courier/ messenger sign the log
    - Document the temperature at which the samples were received (cool to touch, room temperature, hot etc.)
    - Laboratory staff receiving samples should sign the log
    - Examine the sample visually and note any concerns in the comments

2. Carefully review and evaluate the sample request for appropriateness of orders.

3. Determine the appropriateness of the container, including the following:
    a. Holding medium or preservative
    b. Intact sample containers void of leaks or cracks

4. Register samples according to the documenting process used at TPHL, where the sample is assigned a unique lab number and labelled along with its matching request form.

5. Any further registration processes, such as preparation of the sample is completed before the sample can be stored under desirable conditions ensuring the stability of sample properties to enable repetition of the examination after reporting of the result or for additional examination.

3.11 Sample Retention

Table 6 Sample Retention Guidelines

DEPARTMENT	SAMPLES	STORAGE (Retention)
HIV/ VIROLOGY	Serum/CSF samples	6 months at -20ºC
	Positive HIV Serum	Indefinitely at -70ºC
	Viral Transport Medium	7 days at 2-8ºC
	Immunofluorescent Stained Slides	3 months at -20ºC
TUBERCULOSIS	CSF /Body fluids	48 hours at 2-8ºC
	Myco-bacteriology Stained Slides	3 months at 18-25ºC
BACTERIOLOGY	CSF / Body fluids	48 hours at 2-8ºC
	Microbiology Stained Slides	7 days at 18-25ºC
FOOD & WATER	Food	21 days at -20ºC
	Water	24 hours at 2-8ºC

Note: Serum samples for ELISA assay can be processed immediately or refrigerated up to three (3) days. If an analysis is not completed within this period the sample can be frozen at -20°C for up to 6 months.

3.12 Rejection/Clarification

In cases where insufficient or incomplete information is provided regarding the sample or there are concerns regarding the sample, the client will be contacted to clarify the issue. If the client is able to supply the missing information or rectify the issue, the sample will be accepted. Failing this, the sample will be rejected.

The following criteria will be used to determine if a sample is rejected:

Table 7 Rejection Criteria

REJECTION CRITERIA	FURTHER ACTION
1. No sample received	Submitting client will be notified and a new sample will be requested.
2. Unlabelled sample	Submitting client will be notified that the sample will be discarded.
3. Leaking sample	Submitting client will be notified that the sample will be discarded and a rejection notice will be emailed to client contact.
4. Grossly hemolysed sample	Submitting client will be notified that the sample will be discarded and a rejection notice will be emailed to client contact.
5. Insufficient sample volume	Sample will be rejected. Submitting client will be notified and a new sample will be requested.
6. Inappropriate container or sample type for the test requested.	Submitting client will be notified and a new sample will be requested.
7. Mismatched sample and form	Submitting client will be notified. Sample will not be tested.
8. Investigation request forms without the following information: - Requesting physician/institution - Clinical information - Date of onset of symptoms - Date of sample collection - Test request	The submitting client will receive a notification requesting the required information prior to testing. Specimens will be appropriately stored awaiting the requested information.
9. Delayed transport	Submitting client will be notified. Sample will be rejected.
10. Sample transported at the incorrect temperature	Submitting client will be notified. Sample will be rejected.
11. Requested test not offered	Submitting clients will be notified. Sample will not be tested.

3.13 Handling of Test Results

1. All test reports are treated with strict confidentiality as per the TPHL Patient Information, Security, and Confidentiality LABM-QMS-QUI-C-003.

2. Laboratory management is responsible for ensuring that all reports are timely dispatched to the appropriate institution and physicians.

3. The turnaround time (TAT) i.e. the time the sample is received in the lab up until the report is dispatched to the client, is monitored by the laboratory.

4. Result reports are retained electronically in TTlims.

5. The laboratory will notify physicians verbally, via telephone when test results for samples fall within established “alert” or “critical” intervals.

6. Verbal reports may also be communicated for urgent test requests.

7. For all verbal reports, if the requesting physician is unavailable, the next designated person will be informed.

4 SAMPLE COLLECTION FROM DIFFERENT BODY SITES

4.1 General Sample Collection Guidelines

1. Follow all universal safety precautions. Treat all samples as potentially hazardous.
2. Collect samples before administering antimicrobial agents when possible.
3. Collect with as little contamination from indigenous microorganisms as possible to ensure that the sample will be representative of the infected site/state.
4. Utilise appropriate collection devices. Use sterile equipment and aseptic technique when collecting samples to prevent the introduction of microorganisms during invasive procedures.
5. Clearly label the sample container with all required information.
6. Collect an adequate amount of the sample. Inadequate sampling of the sample may lead to false negative results.
7. Identify the sample source and/or type correctly to ensure that the proper culture media and method can be selected during processing in the laboratory.
8. Avoid delays in transport to the laboratory
9. Comply with the recommended sample storage conditions (frozen vs chilled vs room temperature).
10. If a sample is to be collected through intact skin, cleanse the skin first. E.g. use 70% alcohol or iodine solution (1 to 2% tincture of iodine or 10% solution of povidone-iodine) and allow it to air dry to prevent burning and reduce contamination of the site.
11. Use only appropriate containers for sample collection. See **Appendix 8: PRIMARY CONTAINERS FOR DIFFERENT SAMPLE TYPES**.

4.2 Blood Samples

Blood and separated serum are the most common samples taken to investigate the aetiology of communicable diseases. Venous blood can be used for the isolation and identification of pathogens using sub-culture and inoculation techniques. Blood is also separated into serum for the detection of genetic material (e.g. using the polymerase chain reaction), specific antibodies, antigens, or toxins (e.g. by ELISA). For the processing of most samples for diagnosis of viral pathogens, serum is preferable to un-separated blood except where otherwise directed. When specific antibodies are being assayed, it is often useful to collect paired sera, i.e. an acute sample taken at the onset of illness and a convalescent sample collected one to four weeks later.

Blood can be collected by venipuncture of peripheral veins or arteries. Collection from intravascular catheters is not recommended as they are intrinsically contaminated. If a line must be used, indicate the type of line or port through which the blood was obtained.

4.2.1 Venipuncture Procedure

Follow recommended guidelines for drawing blood such as World Health Organization (WHO) Guidelines for Drawing Blood: Best Practices in Phlebotomy.

1. Don appropriate PPE.
2. Using the patient's test requisition, assemble the proper tubes and equipment that will collect enough of the sample to complete all of the testing ordered.
3. Have the patient say their name to confirm their name on the paperwork.
4. Explain the procedure to the patient prior to collection of all samples, and adhere to all safety precautions.
5. Locate the venipuncture site prior to skin disinfection.
6. Apply a tourniquet and disinfect the venipuncture site. Use 70% isopropyl/ ethyl alcohol or other appropriate disinfectant for optimal results. Scrub the site with an alcohol swab, using a single stroke.
7. Disinfect the stoppers of blood culture bottles if being collected.
8. DO NOT palpate the vein after disinfecting the skin, prior to inserting the needle.
9. Draw blood using a sterile safety syringe and needle, or safety butterfly, designed to attach to a vacutainer holder and dispense the appropriate amount of blood into the bottles.
10. Remove tourniquet
11. After inoculation of blood bottles, remove the needle from vein and apply direct pressure with gauze or cotton ball at the insertion site.
12. Dispose of collection materials in a sharps container.
13. Transport samples to the Laboratory.

Note:

- Sample for Blood cultures should be done separately. However, if blood samples are also needed, then blood cultures are done first to avoid contamination by additives from other blood tubes
- Do not refrigerate blood cultures.
- Avoid delays in transport, which may compromise the sample and recovery of organisms.

4.2.2 Whole Blood/ Plasma/ Serum

For whole blood draw sufficient blood into the appropriate tube. Invert the tube gently, 6 to 8 times immediately after collection. Please do not vigorously shake the tube for it will cause hemolysis. Send the sample to the laboratory as soon as possible.

For plasma samples, draw sufficient blood into the appropriate tube. Invert the tube gently, 6 to 8 times immediately after collection. Send the sample to the laboratory as soon as possible. If required, separate the plasma from the clot within 20-30 minutes, by centrifuging.

For serum samples, draw sufficient blood into the appropriate tube. Allow blood to clot at room temperature. Send the sample to the laboratory immediately. If required, separate the serum from the clot within 20-30 minutes, by centrifuging.

Note*:*

- For serological diagnosis of viral or bacterial infections, collect both acute and convalescent sera. Acute serum should be collected within 7 days of onset of symptoms; convalescent serum 2 to 4 weeks later.

4.2.3 Separation and Collection of Serum from Blood

Table 8 Procedure for Separation and Collection of Serum from Blood

STEP	ACTION
1.	• Following the venipuncture procedure as detailed above, draw 5ml of venous blood and transfer to a screw cap tube without anticoagulant. • Alternatively, blood may be collected directly into a proprietary collection and transport tube (e.g., Vacutainer).
2.	• Allow the blood sample to clot for 30 minutes at room temperature • The sample should be centrifuged at the laboratory at low speed (3000rpm for 10 minutes) to remove residual blood cells. • Ensure that the centrifuge is in good condition and that the tubes are properly closed and balanced to avoid breakage and spilling.
3.	• Separate the serum aseptically from the clot using a sterile Pasteur pipette and bulb or soft, disposable transfer pipette. • Transfer to a screw cap vial with external thread. Secure the cap tightly.
4.	• If a centrifuge is not available and there will be a delay before samples can be transported to a laboratory, serum may still be separated carefully from the retracted clot using a disposable transfer pipette. • Allow 4-6 hours to elapse after taking the blood sample to ensure adequate clot retraction. • Using the transfer pipette, remove the clear yellow serum whilst taking care to keep the tip as far as possible from the clot, and avoid agitating the blood tube during the removal process. (This may be easier if a separation gel collection tube has been used). • Transfer to a screw cap vial with screw thread. Secure the cap tightly.
5.	• Label the vial with the same patient details that appear on the blood sample tube.

4.2.4 Handling and Transport

1. If serum will be required for testing, separation from blood should take place as soon as possible, preferably within 2 - 3 hours at room temperature.
2. If the sample cannot reach the laboratory for processing within 24 hours, serum should be separated from blood prior to transportation.
3. If separation on site is not possible, or is inadvisable for safety reasons, the blood sample should be stored at 2-8^{o}C.
4. Unseparated blood samples should be protected from excessive vibrations while transporting.
5. Unseparated blood samples should not be frozen.
6. Serum may be stored at 2-8^{o}C for up to 4 days. If serological testing is to be delayed for a longer period, serum samples may be frozen (-20^{o}C).
7. At TPHL, clotted whole blood (5ml) in red top tubes or serum (3ml) samples for HIV/ Serology assays are the preferred choice.

4.3 Central Nervous System (CNS) Samples

Cerebrospinal Fluid (CSF) is used in the diagnosis of viral, bacterial, parasitic, and fungal meningitis. The sample must be taken by a physician or a person experienced in the procedure.

Suggested volumes are 1, 2, and 5ml for testing, Encephalitis, Meningitis, and Mycobacterial cultures respectively.

4.3.1 Lumbar Puncture Procedure

1. Clean the puncture site with antiseptic solution and alcohol before needle insertion to prevent the introduction of infection.
2. Insert a needle with stylet at the L3 –L4, L4-L5, or L5-S1 interspace.
3. When the subarachnoid space is reached, remove the stylet and spinal fluid will appear in the needle hub.
4. Slowly drain the CSF into the sterile leak-proof tubes.

Note: Always send the most turbid tube to the microbiology laboratory.

4.3.2 Handling and Transport

1. In general, CSF samples should be delivered to the laboratory and processed within 24 hours.
2. CSF samples for bacteriology are transported at room temperature, generally with transport media. Depending upon the test required, samples may or may not require refrigeration (many of the relevant pathogens do not survive well at low temperatures).
3. CSF samples for virology do not need transport medium. They may be transported at 2-8^{o}C for up to 48 hours or frozen (-20^{o}C) for longer periods.

4.4 Eye Swab

Conjunctival and corneal swabs and smears are the usual samples collected to diagnose acute bacterial or viral (kerato) conjunctivitis. Label all samples as conjunctival or corneal and indicate whether the sample was taken from the left or right eye. Strict aseptic technique is essential when collecting and processing these samples.

4.4.1 Procedure

1. Explain the procedure and the purpose of the investigation to the patient to obtain informed consent, gain cooperation, and allay any fears and anxieties.
2. Sit or lay the patient with head well-supported and with the chair at an appropriate height to ensure safety for the patient and the nurse.
3. Perform hand hygiene to reduce the risk of cross infection.
4. Ask the patient to look up and gently pull down the lower lid exposing the conjunctiva.
5. Gently sweep the swab along the lower fornix, from the inner to the outer canthus, taking care not to touch the eyelids.
6. Place the swab immediately into the appropriate medium/ container (Bacterial/ Viral Transport media), then ask the patient to close the eye for a few seconds. This will ensure safe technique of swab taking and avoid damage to the cornea.
7. Repeat the procedure to the other eye if necessary to comply with the investigatory request, wash hands in between to minimise the risk of contamination to the other eye. A separate swab is required for each eye.

4.4.2 Handling and Transport

1. Samples for detection of bacterial pathogens are transported at 2-8^{o}C in an appropriate bacterial transport medium and reach the laboratory within 24 hours.

2. Samples for viral detection are transported at 2-8^{o}C in the viral transport medium. Swabs in the viral transport medium may also be frozen (-20^{o}C).

4.5 Gastrointestinal (GI) Tract Samples

The GI tract includes the oesophagus, stomach, small intestines, large intestines, and anus. Patients can obtain a stool sample by one of the following methods.

4.5.1 Stool Samples

Procedure:

1. Pass stool directly into a sterile, wide-mouth, leak-proof container with a tight fitting lid. OR
2. Pass stool into a clean bedpan, and transfer stool into a sterile leak-proof container with a tight-fitting lid. Do not use toilet paper to collect stool. Toilet paper may be impregnated with barium salts, which are inhibitory for some faecal pathogens.

4.5.2 Rectal Swabs

Procedure:

1. Pass the tip of a sterile swab approximately 1” beyond the anal sphincter. Carefully rotate the swab to sample the anal crypts, and withdraw the swab.
2. Send the sample in Bacterial/ Viral Transport media depending on the test required.

4.5.3 Handling and Transport

1. Stool samples for bacteriology should be transported at 2-8^{o}C. Bacterial yields may fall significantly if samples are not processed within 1-2 days of collection. *Shigella* is particularly sensitive to elevated temperatures.
2. Rectal swabs collected in bacterial transported media/ Cary Blair should be transported at 2-8^{o}C and processed within 1-2 days of collection.
3. Stool samples for virology should be transported at 2-8^{o}C within 1-2 days of collection. If a delay is expected, freeze (-20^{o}C).

4.5.4 Gastric Aspirates- Gastric Lavage

This type of sample is submitted primarily for the detection of Mycobacterium tuberculosis in patients (most frequently children) who are unable to produce quality sputum. This procedure should be performed after the patient wakes in the morning so that the sputum swallowed during sleep is still in the stomach. The patient should fast prior to the following procedure.

Procedure:

1. Pass a well-lubricated tube orally or nasally through to the stomach of the patient, and perform the lavage.
2. Before removing the tube, release the suction and clamp to prevent mucosal trauma and/ or aspiration.

4.5.5 Handling and Transport

1. Samples for Tuberculosis testing should be transported at 2-8oC within 2-4 days.

4.6 Respiratory Tract Sample - Lower Respiratory Tract

4.6.1 Sputum Samples- Expectorate

Procedure:

1. The patient is expected to produce a sputum sample first thing in the morning. This must be done before eating or drinking anything.
2. For out-patients collecting samples at home, cleanse the mouth and nose carefully before going to bed at night. Leave the plastic sputum container and the zip-lock bag at your bedside.
3. The following morning as soon as you sit up, before eating or drinking, take 2 deep breaths, and then perform a DEEP PRODUCTIVE COUGH to produce lower respiratory secretions.
4. Collect **5 to 10ml** of SPUTUM from your chest and throat, NOT SALIVA FROM YOUR MOUTH into the plastic sterile container provided.
5. Ensure that the lid is closed tightly, put the plastic container into the zip-lock section of the bag, label it with name, date, and time, and set it upright.
6. Refrigerate (2-8^{o}C) the container until it is able to be transported to the relevant health facility.
7. For patients at the health facility, samples should be collected under direct supervision of a physician or nurse.
8. Have the patient rinse or gargle with water to remove superficial flora, followed by steps 3-6 above.

4.6.2 Sputum Samples - Induced

Procedure:

1. Have the patient rinse the mouth with water after brushing the teeth, gums, and tongue.
2. Using a nebulizer, have the patient inhale approximately 25 ml of a 3-10% sterile saline solution.
3. Collect induced samples in a sterile leak proof container.

4.6.3 Bronchoscopy Samples

These include Broncho-alveolar lavage, bronchial washing, bronchial brushings, and trans-bronchial biopsy samples. However, bronchial wash and Broncho-alveolar lavage samples are generally obtained before brushing or biopsy sample to avoid excess blood in the recovered fluid, because blood may alter the concentration of cellular and non-cellular components.

Procedure:

1. Pass the bronchoscope trans-nasally or trans-orally in non-intubated patients or via the endotracheal tube in intubated patients.
2. Wedge the tip of the bronchoscope in a segment (for bronchial wash) or sub-segmental (for Broncho-alveolar lavage) bronchus to obtain sample
3. Inject sterile non-bacteriostatic 0.85% NaCl (generally 5 to 20 ml aliquots) from a syringe through a biopsy channel of the bronchoscope.
4. Gently suction the 0.85% NaCl into a sterile container before administering the next aliquot. (In general, 50 to 75% of the 0.85% NaCl instilled is recovered in the large effluent). Keep aliquots separate during collection.

5. Combine aliquots from the same site for microbiology cultures and smears, but aliquots from separate sites (for example right upper lobe and right lower lobe) should be combined only after consultation with the physician of record.

4.6.4 Lung Aspiration

Procedure:

Use a compound tomography scan to obtain lung aspirates by inserting a needle through the chest wall into a pulmonary infiltrate. Aspirate material from the lesion. If the lesion is large or if there are multiple lesions, collect multiple samples from representative sites.

4.6.5 Lung Biopsy

Procedure:

Obtain a **1 to 3 cm** square piece of tissue if possible. If the lesion is large or if there are multiple lesions, collect multiple samples from representative sites. Submit in a sterile container(s) **without** formalin.

4.6.6 Handling and Transport

1. Samples accepted at TPHL for Tuberculosis investigations (TB-PCR) are Sputum, Bronchial Alveolar Lavage, Tissue, Gastric Aspirates and other body fluids such as Cerebrospinal Fluid (CSF), Synovial Fluid, Pleural Fluid, Ascetic Fluid etc.
2. Transport samples at 2-8^{o}C within 2-4 days.
3. Samples collected for initial diagnosis should be obtained before the initiation of anti-tuberculosis therapy.

4.7 Respiratory Tract Sample - Upper Respiratory Tract

These samples are collected from patients with influenza-like illnesses (oral temperature of 100°F or 37.8°C) having a cough and/or sore throat, especially those with severe symptoms, recent overseas travel or those having received an influenza vaccine. They are used for the diagnosis of Seasonal Influenza, Swine Flu (H1N1), and COVID-19.

Recommended transport media are:

1. **Nasopharyngeal swab (1st choice)**: Use Dacron swab with an aluminium or plastic shaft. Place Nasopharyngeal swab into a sterile screw-capped tube of viral transport media (VTM). Volume of VTM should be approximately 2 ml.

2. **Oropharyngeal swab (2nd choice)**: Use Dacron swab with an aluminium or plastic shaft. Place oropharyngeal swab into a sterile screw-capped tube of viral transport media (VTM). Volume of VTM should be approximately 2 ml.

3. **Nasopharyngeal wash/aspirate**: Collect 1-2 ml volume into sterile vial (preferred for children < 2 yrs. of age)

4.7.1 Timing and collection of the sample

1. Cpllect respiratory samples within 3 days of onset of symptoms. If possible, collect serial samples from the patient over several days.
2. For serologic testing: the acute sample should be collected within 5-7 days of illness and a second sample should be collected 2-4 weeks later.
3. Refrigerate tubes after inoculation at 2- 8°C. Freezing is not advisable as it may destroy the cells present.
4. VTM should be stored at room temperature PRIOR to inoculation, unless otherwise indicated.

4.7.2 Handling and Transport

1. Swabs for virology must be collected in Viral Transport Media and refrigerated ***(do not freeze)*** and transported to the laboratory within 2-4 days.
2. Swabs for bacteriology should be collected in bacterial transport media and refrigerated ***(do not freeze)*** and transported to the laboratory within 2-4 days.
3. Nasopharyngeal swabs are submitted for the detection of *Neisseria meningitidis* and to diagnose *Bordetella pertussis* should be placed in Bacteriological transport media and sent to the laboratory within 24 hours – **Do not refrigerate or transport on ice.**

4.7.3 Throat Swab

Submitted primarily for the detection of group A streptococci but can also be used to detect *Neisseria gonorrhea*, *Haemophilus influenzae* [for epiglottis], and *A. haemolyticum* [rear]). Do not obtain throat samples if epiglottis is inflamed, as sampling may cause serious respiratory obstruction.

Procedure:

1. Depress tongue gently with a tongue depressor.
2. Extend sterile swab between the tonsillar pillars and behind the uvular. (Avoid touching the cheeks, tongue, uvular, or lips.)
3. Sweep the swab back and forth across the posterior pharynx, tonsillar areas, and any inflamed or ulcerated areas to obtain a sample.

4.7.4 Nasal Swab

Submitted primarily for the detection of staphylococcal carriers.

Procedure:

1. Insert a sterile swab into the nose until resistance is met at the level of the turbines (approximately 1” into the nose).
2. Rotate the swab against the nasal mucosa.
3. Repeat the process on the outer side.

4.7.5 Nasopharyngeal suction

Submitted for the detection of carriers of *Streptococcus pyogenes*, *Neisseria meningitidis*, *Corynebacterium diphtheria and* Bordetella *pertussis.*

Procedure:

1. Suction material from the nasopharynx, and collect it in a sterile container.

4.7.6 Nasopharyngeal swabs for viruses

Procedure:

1. Insert flexible wire or plastic shaft swab through the nares parallel to the palate (not upwards) until resistance is encountered or the distance is equivalent to that from the ear to the nostril of the patient indicating contact with the nasopharynx.
2. Gently, rub and roll the swab. Leave the swab in place for several seconds to absorb secretions before removing.
3. Ask the patient to take a deep breath and hold breath while swab is being taken to avoid coughing or gagging. Keep the swab near the septum and floor of the nose.
4. Break off shafts of swabs at a short enough length to allow the tightening of the VTM screw cap. Screw caps on tightly.

4.7.7 Oropharyngeal swabs

Procedure:

1. Insert swab into the posterior pharynx and tonsillar areas. Rub swab over both tonsillar pillars and posterior oropharynx and avoid touching the tongue, teeth, and gums.
2. Break off shafts of swabs at a short enough length to allow the tightening of the VTM screw cap. Screw caps on tightly.

4.8 Sterile Body Fluids - Excluding CSF, Urine, and Blood

Procedure:

1. Clean the needle puncture site with alcohol, or disinfect it with an iodine solution (1- 2% tincture of iodine or a 10% solution of Povidone-iodine [1% free iodine]) to prevent the introduction of infection. If tincture of iodine is used, remove with 70% ethanol after the procedure to avoid burn.
2. The physician will aseptically perform percutaneous aspiration to obtain pleural, pericardial, peritoneal, or synovial fluids.
3. Expel any air bubbles from the syringe, and immediately inject the sample into an aerobic transport system or send the sample in the syringe. Transport additional fluid or pus in a sterile screw-cap container.

4.8.1 Handling and Transport

Transport at 2 – 8^{o}C within 2-4 days.

4.9 Urine

General Guidelines for collecting urine:

1. Never collect urine from a bedpan or urinal.

2. Thoroughly clean the urethral opening (and vaginal vestibule in females) prior to collection procedures to ensure that the sample obtained is not contaminated with colonising microorganisms in the area.
3. Soap rather than disinfectants is recommended for cleaning the urethral area. If disinfectants are introduced into the urine during collection; they may inhibit the growth of some microorganisms.

4.9.1 Handling and Transport

1. Transport to the laboratory within 24 hours of collection. If this is not possible, do not freeze but keep the sample refrigerated at 2-8^{o}C.
2. Keeping the sample refrigerated will decrease the risk of overgrowth of contaminating organisms
3. Ensure that transport containers are leak-proof and tightly sealed.

5 FOOD AND WATER MICROBIOLOGICAL ANALYSIS

5.1 Completing the Request for Food/ Water Microbiological Analysis Form

For all food and water samples the following information is needed on the Request for Food/ Water Microbiological Analysis Form:

1. Source of sample: This indicates the exact location of the collected sample including the owner of the establishment (optional), name of establishment and its address.

2. Description of sample: Specifies the sample collected.

3. Date and Time of collection: To monitor quality.

4. Type of testing (Routine, Outbreak, or Other): Helps prioritize the order of analysis.

5. Name and signature of Public Health Inspector collecting samples: For traceability.

6. Name of CMOH/ Corporation: For reporting purposes.

7. Telephone contact number: For feedback when necessary.

5.2 Food Microbiological Analysis

Food samples for microbiological analysis are only accepted from Public Health Inspectors attached to the County Medical Officer of Health (CMOH) Offices, Borough and City Corporations located throughout Trinidad and Tobago.

Samples which comprise routine surveillance include freshly prepared cooked foods (not pre-packaged) for retail sale and food prepared for distribution as part of the National School Feeding Program. Non routine surveillance will include outbreak investigations and special projects. Some examples of appropriate samples for routine surveillance include:

1. Perishable foods, especially those that are most frequently vended on the streets, food courts, and restaurants e.g. doubles, roti, chicken and chips, rice dishes, oysters, etc.
2. Milk-based drinks such as punches, suck-a-bag, and homemade popsicles.
3. Pennacool and other such frozen snacks.

Some examples of inappropriate samples for routine surveillance include:

1. Raw dough
2. Pieces of cut fruits e.g. watermelon and pineapple
3. Fried dried salted peanuts and chickpeas
4. Preserved fruits e.g. plums, cherries, and mangoes
5. Raw animal products such as uncooked or unprocessed meat
6. Commercially prepackaged products

Note:

1. If any of the above samples are implicated in a food-borne outbreak, they should be submitted to TPHL for analysis.
2. In food poisoning outbreaks, suspected food/water from the source of diarrhoea should be submitted to the laboratory for analysis.
3. ALL diarrheal samples should be submitted to the Laboratory as soon as possible.

5.2.1 Sample Collection

Food samples should weigh a minimum of 50 grams and must be collected in pre-sterilized sample bags. Guidelines for sample selection and collection forms part of the training Public Health Inspectors undergo.

5.2.2 Sample Labels

Immediately before or after each sample collection the sample bags must be appropriately labelled, reflecting the following information. Un-labelled or inappropriately labelled samples will be rejected.

- Name of the establishment
- Owner of food establishment (Optional)
- Address of the establishment
- Date and time of sample collection
- Type/ source of sample

5.2.3 Sample Storage

1. Samples should be kept chilled at (2-8^{o}C) and transported to the laboratory as soon as possible. If a prolonged delay is expected, freeze at -20^{o}C
2. Samples for routine testing are collected Monday – Friday during normal working hours.

Note: Foods such as oysters, milk, ice cream, and dairy products should be analyzed within 24-36 hours of collection. As such the laboratory MUST be informed prior to the collection of these samples, so as to accommodate them.

5.3 Water Microbiological Analysis

Water samples for microbiological analysis are only accepted from Public Health Inspectors attached to the County Medical Officer of Health (CMOH) Offices, Borough, and City Corporations located throughout Trinidad and Tobago. Samples that comprise routine surveillance are potable water taken from the Water and Sewerage Authority (WASA) distribution system.

5.3.1 Sample Collection

Water samples should be a minimum of 200ml in volume and collected in sample bottles provided by TPHL. Guidelines for sample selection and collection forms part of the training Public Health Inspectors undergo.

5.3.2 Sample Labels

Immediately before or after each sample collection the sample bottle must be appropriately labelled, reflecting the following information. Un-labelled/ inappropriately labelled samples will be rejected.

- Name of the establishment
- Owner of food establishment (Optional)
- Address of the establishment
- Date and time of sample collection

5.3.3 Sample Storage

1. Samples should be kept chilled at (2-8^{o}C) and transported to the laboratory within 24hours.
2. Samples for routine testing are accepted Monday- Wednesday during normal working hours.

Note:

1. Chemical analysis of samples is not performed at TPHL. Refer those samples to the Chemistry Food and Drugs Division.
2. Analysis of coastal or sea water samples are not performed at TPHL. Refer those samples to the Institute of Marine Affairs.

6 LABORATORY TESTING SERVICES

Matrix of Disease/Aetiology Specimen Type/s Diagnostic Method and Turnaround Times
** Turnaround time from receipt to results availability (TAT**)***

Table 9 List of Testing Services Performed by TPHL

Disease/ Aetiologic Agent	**Method**	**Sample Type**	**Sample Container**	***TAT Days**	**Comment**
HIV Antibody/Antigen	ELISA	Serum, Plasma	Red Top Tube	3-7	**Quality Monitoring** Confirmation may increase TAT
HIV Confirmation	ELISA	Serum, Plasma	Red Top Tube	3-14	
Covid-19	PCR	Nasopharyngeal swab (NPS)	Viral Transport Media (VTM)	1hr-48hrs	MIC-1hr ABI- 48hrs
Influenza Investigation	PCR	NPS	VTM	2-10	
Measles – IgM, IgG	PCR	Serum, NPS	Red Top Tube, VTM	3-7	
Mumps-IgM, IgG	PCR	Oral Swab, NPS	Red Top Tube, VTM	2-10	
Yellow Fever	PCR	Serum	Red Top Tube	7-14	
Rubella – IgM, IgG	ELISA	Serum, NPS	Red Top Tube, VTM	7-14	
Herpes encephalitis	PCR	CSF, Serum	Red Top Tube	2-7	
Polio	PCR	Stool, CSF	Screw-cap sterile sample cup with no additive Red Top Tube	7-14	
Rotavirus	ELISA	Stool	Screw-cap sterile container with no additive	7-14	
Norovirus	PCR	Stool	Screw-cap sterile cup with no additive	7-14	
Tuberculosis (Pulmonary & Extra-pulmonary)	Identification (PCR) - Drug Sensitivity Testing (PCR) **Culture**	Sputum, Broncho-alveolar lavage (BAL), Cerebrospinal Fluid (CSF), Synovial Fluid, Pleural Fluid, Ascetic Fluid Tissue Biopsy	Screw-cap sterile cup with no additive	2-7 **3-8 Weeks**	Positives referred for confirmation at CARPHA may increase TAT
Cholera Confirmation	Culture and Serotyping	Isolate, Stool,	TCBS agar plate Sterile screw cap sample cup with no additive	5-7	

Disease/ Aetiologic Agent	Method	Sample Type	Sample Container	*TAT Days	Comment
		Food	Food		
Salmonella Confirmation	Culture and Serotyping	Isolate, Stool, Rectal Swab, Food	XLD agar plate, Sterile screw cap sample cup with no additive, Bacteriological Transport medium, Food	5-7	
Shigella Confirmation	Culture and Serotyping	Isolate, Stool, Rectal Swab, Food	XLD agar plate, Sterile screw cap sample cup with no additive, Bacteriological Transport Medium, Food	5-7	
Neisseria Meningitidis	Culture and Serotyping	Isolate	Chocolate agar plate Nasopharyngeal Swab(NPS)	5-7	

Note: Please refer to section on sample collection “Handling and transport” for limiting factors that will affect the performance of the examinations

6.1 Referral Laboratory Testing Services

The Caribbean Public Health Agency (CARPHA) provides testing support to TPHL for a number of diagnostic services. See Appendix 10 for a complete list of services offered by CARPHA.

6.2 Specialized Test Panels

Specialized Test Panels are performed by the referral laboratory, CARPHA. Please note that TPHL must be contacted before submitting samples to be tested by this method.

Table 10 List of Specialized Test Panels Performed by CARPHA

MENINGITIS ENCEPHALITIS PANEL Sample: 0.2 mL of CSF	**RESPIRATORY PANEL** Sample: 0.3 mL of nasopharyngeal swab stored in transport medium	**GASTROINTESTINAL PANEL** Sample: 0.2 mL stool in Cary Blair transport medium
BACTERIA		
• Escherichia coli K1 • Haemophilus influenzae • Listeria monocytogenes • Neisseria meningitidis • Streptococcus agalactiae • Streptococcus pneumoniae	• Bordetella pertussis • Bordetella parapertussis • Chlamydophila pneumoniae • Mycoplasma pneumoniae	• Campylobacter (jejuni, coli, and upsaliensis) • Clostridium difficile (toxin A/B) • Plesiomonas shigelloides Salmonella • Yersinia enterocolitica • Vibrio (parahaemolyticus, vulnificus, and cholerae) **DIARRHEAGENIC** • E. coli / Shigella • Enteroaggregative E. coli (EAEC) • Enteropathogenic E. coli (EPEC) • Enterotoxigenic E. coli (ETEC) lt/st • Shiga-like toxin-producing E.coli (STEC) stx1/stx2 • E. coli O157 • Shigella/Enteroinvasive E. coli (EIEC) •
VIRUSES		
• Cytomegalovirus (CMV) • Enterovirus (EV) • Herpes simplex virus 1 (HSV-1) • Herpes simplex virus 2 (HSV-2) • Human herpesvirus 6 (HHV-6) • Human parechovirus (HPeV) • Varicella zoster virus (VZV)	• Adenovirus • Coronavirus 229E • Coronavirus HKU1 • Coronavirus OC43 • Coronavirus NL63 • Human Metapneumovirus • Human Rhinovirus/Enterovirus • Influenza A • Middle East Respiratory Syncial CoronaVirus (Mers-CoV) • Influenza A/H1 • Influenza A/H1-2009 • Influenza A/H3 • Influenza B • Parainfluenza (1 – 4) • RSV	• Adenovirus F40/41 • Astrovirus • Norovirus GI/GII • Rotavirus A • Sapovirus (I, II, IV, and V)
YEASTS		
• Cryptococcus neoformans/gattii		
PARASITES		
		• Cryptosporidium • Cyclospora cayetanensis • Entamoeba histolytica • Giardia lamblia

6.3 Additional Services Offered

TPHL also offers additional services as part of its commitment to supporting laboratory and diagnostic testing services and surveillance.

SERVICE	DESCRIPTION
1. Training	Tuberculosis, Bacteriology, Food and Water Microbiology
2. Outbreak Control	Bacteriology, Food and Water Microbiology
3. Research	Tuberculosis, Bacteriology, Food and Water Microbiology, HIV/Virology
4. Special Projects	Food and Water Microbiology, HIV/Virology
5. Proficiency Panels	HIV/Virology
6. Surveys	Tuberculosis, Bacteriology, Food and Water Microbiology, HIV/Virology
7. National Supply of Controls	HIV
8. Epidemiological Surveillance	● Measles – IgM, IgG ● Mumps-IgM, IgG ● Acute Flaccid Paralysis ● Rubella – IgM, IgG ● Yellow fever ● Covid-19

TRINIDAD PUBLIC HEALTH LABORATORY

SERVICE INTERRUPTION COMMUNICATION FORM

To: _____ From: _____ (Department Name)

Date: _____ Contact person: _____

The shaded box below applies to the information to be communicated.

☐ Please be informed that the following tests/services that are normally offered at our Laboratory are currently not available due to the reasons indicated below. You will be notified as soon as provision of these services resumes.

☐ Please be informed that the following tests/services that had been interrupted as indicated in earlier communications, have now resumed. Please proceed with collection and referring of samples to the Laboratory.

Test/Service	Reason

For further information, please contact the Laboratory (indicated above) at Tel. Nos: 622-2877, 622-5311.

We regret the inconvenience caused by this interruption.

Prepared By: _____ Date: _____

Designation _____

TRINIDAD PUBLIC HEALTH LABORATORY

ETHICAL CONDUCT

a) I have no involvement in any practices that would diminish confidence in the laboratory's competence, impartiality, judgement or operational integrity;

b) I am free from any undue commercial, financial, or other pressures and influences that may adversely affect the quality of my work (Ministry of Health Employee Handbook, page 44) refer to back;

c) Where potential conflicts in competing interest may exist, I shall openly and appropriately declare;

d) I have read the appropriate procedures to ensure that I shall treat human samples, tissues or remains according to relevant requirements (Sample Management Manual; Waste disposal)

e) I shall treat all information related to clients in a confidential manner by ensuring that said information does not leave the lab without strict permission of the Director (Ministry of Health Employee Handbook, page 35), refer to back.

Comments:

Employee:_____

Employee

Signature:_____

Date:_____

Director:_____

Director's Signature:_____

Date:_____

TRINIDAD PUBLIC HEALTH LABORATORY

Confidentiality

Employees should not dissolve information related to any worker's HIV status, nor should workers be obligated to divulge their own HIV status or that of others. Persons with responsibility for personnel file should not disclose information pertaining to the HIV Status of any worker. (Ministry of Health Employee Handbook, page 35), refer to back.

Code of conduct

134. An officer's conduct shall be such at all times as not to bring the service into disrepute.

135. (1) An officer shall, with integrity, promptly and effectively discharge the duties of the office to which he is appointed and any other related duties that the Permanent Secretary or Head of Department requires of that officer.
(2) In the discharge of those duties, an officer shall be courteous and polite both to members of staff and to the public.
(3) An officer shall not willfully refuse, or willfully omit, to perform those duties.

136. (1) An officer shall not be absent from duty without leave or reasonable excuse.
(2) An officer, when leaving the country, shall inform the Permanent Secretary or Head of Department in writing or, in cases of emergency, a superior officer who shall report forthwith, in writing, to the Permanent Secretary or Head of Department.

137. (1) An officer shall not, directly or indirectly, be involved in any financial or other interests or undertaking which could compromise, or reasonably be said to compromise that officer's job performance or office.
(2) Where an actual or potential compromise arises, the officer shall inform the Permanent Secretary or Head of Department.
(3) The Permanent Secretary of Head of Department shall determine the nature and degree of compromise, decide upon an appropriate course to resolve it which may include assigning the officer to other duties, and advise the officer accordingly.
(4) An officer who is aggrieved by a decision made under sub-regulation (3) may appeal to the Chief Personnel Officer who shall review that decision.
(5) Where the officer is aggrieved by the outcome of the review of the Chief Personnel Officer, the matter may be pursued on his behalf by the appropriate recognized association as a grievance to be dealt with under Part III of the Act.

138. (1) An officer shall not make any unauthorized disclosure or make copies, for purposes unrelated to the performance of his duties, of official documents, papers or information of which that officer may have become aware in the course of the performance duty.
(2) Unauthorized disclosure does not include the reporting by an officer of complaints to the Chief Personnel Officer, Auditor General or the Public Service Commission with regard to the conduct of the Public Service, where such complaints have been reported to senior officers without redress.

139. (1) An officer shall not respond to questions of public policy, in a manner that could be reasonably be construed as criticism and which may call into question his ability to impartially implement, administer or advise on Government policy.
(2) Sub-regulation (1) shall not apply to an officer acting in his capacity as a representative of a recognized association.

Government of the Republic of Trinidad and Tobago
Ministry of Health

TRINIDAD PUBLIC HEALTH LABORATORY
#16-18 Jamaica Boulevard,
Federation Park, Port of Spain

LIMS SECURITY AND SERVICE ACCESS AGREEMENT FORM

Please PRINT legibly and ensure that the name is spelled correctly. Only one individual per form please.
Email: Tphl@health.gov.tt

Person providing questions			
Full Name printed:		Work Phone #:	
Working Title:		Email Address:	
Facility Name:		CMOH\RHA	

TTlims Laboratory Information Management System (LIMS) User's Agreement

General Agreement

- As a user of the TT LIMS System, I recognize the importance of securing personal health information.
  I agree to utilize the information included in the TTLIMS System for the purposes of providing health care services or as authorized by the TPHL and in accordance with the Ministry of Health confidentiality policy.
- I recognize that the use of this data for unauthorized or unlawful purposes is strictly prohibited, and is subject to prosecution by the Government of Trinidad and Tobago or its agents.

Work Station Security

- I agree to keep secure all data available to me in the TTLIMS System. I will not allow unauthorized users to access this information
- I will keep all password associated with the system private.
- I have secured my workstation with a screen-saver and login password to assure security should I leave my machine for an extended period of time.

All accounts will be granted access to TTlims data through the Senaite LIMS application. The use of TTlims data must be done on a 'need to know' basis for the purposes of: supporting the identification and registration of persons seeking or receiving health care services; supporting the accurate and timely management of client identification data within the health care systems.

Signature:_____ Date:_____

Customer satisfaction is key to Quality Improvement

Thank You

Trinidad Public Health Laboratory
16-18 Jamaica Boulevard
Federation Park
Port-of Spain
622-5311/2877

Customer Satisfaction Survey for Laboratory Testing Services

As part of the Laboratory's Quality Improvement effort, the Trinidad Public Health Laboratory is conducting a customer satisfaction survey. This survey will enable us to provide timely and accurate results to you the customer. Please take a few minutes to complete this survey. Your opinion is very valuable to us and will be treated with utmost confidentiality.

LABM-QMS-QUI-D-005 Version 1.1 Effective Date: 15th May 2012

Institution Name: Date:

Tick the appropriate box

Services Performed: ☐ Sample Reception ☐ Virology Testing

☐ Food Testing ☐ Water Testing ☐ HIV Testing

☐ Bacteriology Testing ☐ TB Testing

Please rate the following statements by placing an X on one of the four available choices.

	Strongly Disagree	Disagree	Agree	Strongly Agree
1. Laboratory staff was professional, polite and helpful				
2. Staff was available to deal with questions and queries				
3. Staff responded to your questions appropriately				
4. Test results were reported within the timeframe agreed upon				
5. The results were reported in a clear and interpretable manner				
6. Customers problems or concerns were resolved appropriately				
7. There is timely communication of the interruption of laboratory's services				
8. Processing of urgent requests are timely				
9. The guidelines for the collection, transport and storage of samples are clearly outlined				

Please rate the following statements by placing an X on one of the available choices.

How would you rate our service? 1- 10 (10 is the highest rating)

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

1 2 3 4 5 6 7 8 9 10

What do you like best about our service?

How could we improve our service?

Is there a member of staff you would like to commend?

Name:

Reason:

Additional comments:

LABM-QMS-QUI-D-005 Version 1.1 Effective Date: 15th May 2012

TRINIDAD PUBLIC HEALTH LABORATORY

CUSTOMER COMPLAINT FORM

Instructions:

- Answer each question clearly and complete. Type of print in ink.
- Detailed answers are required where indicated.
- Ensure all forms are signed and dated appropriately.

COMPLAINANT DETAILS			
Name of Person Lodging Complaint			
Address			
Daytime Contact No.			
Email			
Date (dd/mm/yyyy)			
COMPLAINT DETAILS			
Date of Incident (if relevant) (dd/mm/yyyy)		Time	
Location of Incident			
Who/What is the Subject of Your Complaint:			
Summary of Complaint/Issue:			
WITNESS DETAILS (please leave blank if not relevant)			
Name			
Address			
Daytime Contact No.			
COMPLAINT OUTCOME			
As a result of making this complaint, what outcome would you like? Please provide details:			
Complaint Signature		**Date (dd/mm/yyyy)**	
NAME OF EMPLOYEE RECEIVING COMPLAINT			
Employee Name			
INVESTIGATION DETAILS			
Name of person investigating incident			
Title			
Date of Investigation (dd/mm/yyyy)			
Details:			

ACTIONS ARISING FROM INVESTIGATION			
Date to be Completed (dd/mm/yyyy)			
Immediate Actions:			
Corrective Actions:			
Further Recommendations (if applicable):			
INVESTIGATION OFFICER			
Signature:		Date: (DD/MM/YYYY)	
Complainant Advised: ☐ No ☐ Yes		Date: (DD/MM/YYYY)	

TRINIDAD PUBLIC HEALTH LABORATORY

16 –18, Jamaica Boulevard, Federation Park, Port-of-Spain
Telephone Nos. 622-5311 or 622-2877 Facsimile No. 622-0951

LABORATORY INVESTIGATION FORM

(PLEASE COMPLETE IN BLOCK LETTERS)

Patient's Name: Surname Given Names	Referring Physician/Institution:
Home Address:	Address/Location:
Telephone Contact: Home Work	Telephone Contact:
Clinic Registration Number:	IMMUNIZATION
Outcome: ☐ Hospitalised ☐ Died	

Date of Birth (DD/MM/YY)	Age	Sex		Ward/Clinic
		M	F	

	Yes	No	Date (dd/mm/yy)		Yes	No	Date (dd/mm/yy)
Polio				Yellow Fever			
MMR				D.P.T.			
HBV				Other			

RISK FACTORS

☐	Immuno-compromised	☐	Diabetic	☐	Homosexual
☐	Pregnant	☐	Socially Displaced	☐	Heterosexual
☐	HIV Positive	☐	IV/Drug Abuse	☐	Bisexual
☐	Other:				

	STATUS OR PATIENT [For Tuberculosis Patients (ONLY)]
☐	New *(Diagnosed as new or first time)*
☐	Relapsed *(On Chemotheraphy)*
☐	Follow-up Examination *(Whose relapse may be due either to re-infection or treatment failure)*
☐	Patient Under Investigation *(A diagnosis has not yet been made)*

Syndromic Classification	
☐ Acute Flaccid Paralysis (AFP)	☐ Fever & Rash
☐ Gastroenteritis	☐ Fever & Respiratory or Acute Respiratory Infection
☐ Fever`& Hemorrhagic	
☐ Fever (undifferentiated)	☐ Fever & Neurologic

SIGNS AND SYMPTOMS: ***PLEASE INDICATE IF PRESENT***

☐ Anorexia	☐ Fatigue & Weakness	☐ Night sweat	☐ Fever ☐ Chills
☐ Altered Mental State	☐ Failure to Thrive	☐ Paralysis	Max Temp:
☐ Cardiac Symptoms	☐ Haemoptysis	☐ Renal Symptoms	☐ Pain Location:
☐ Conjunctivitis	☐ Hepatomegaly	☐ Respiratory, Lower	☐ Cough Duration:
☐ Convulsions	☐ Jaundice	☐ Respiratory, Upper	☐ Diarrhoea
☐ Dehydration	☐ Kernig's sign	☐ Shortness of Breath	☐ Acute ☐ Chronic
☐ Rash Nature & Location:	☐ Loss of Appetite	☐ Vomiting	
	☐ Neck Stiffness	☐ Weakness of Limbs	
	☐ Lymphadenopathy Location:	☐ Weight loss	

Case/Sample Status				
☐ Single case	☐ Outbreak	☐ Survey	☐ Unknown	☐ Post Mortem

Date of Onset of Illness	
Date of Onset of Rash	

ADDITIONAL NOTES:
i.e., travel history

Sample	TPHL No.	Date Collected	Time Collected	Date Received	Time Received	Condition Received	Examination Requested

G.P.,Tr./To.—AK 824—5,000— /20

Trinidad Public Health Laboratory
16-18 Jamaica Boulevard,
Federation Park
Port of Spain
Tel: 622-2877 / 622-5311 Fax: 622-0951

REQUEST FOR FOOD/ WATER MICROBIOLOGICAL ANALYSIS

Please use separate forms for Food and Water Samples

No	TPHL Number *(official use)*	Source of Sample	Description	Time Taken
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

☐ Routine ☐ Outbreak Related ☐ Other: _____

Public Health Inspector *(Block Letters)*: _____

County: _____

Signature: _____ Date: _____ Contact Number: _____

Date and Time received at the Laboratory ***(For Laboratory Use Only)***

Date: _____ Time: _____ Received by: _____

Remarks: _____

_____

APPENDIX 8: PRIMARY CONTAINERS FOR DIFFERENT SAMPLE TYPES

SOURCE AND TYPE OF SAMPLE	PRIMARY CONTAINER
Blood	Blood transport system or sterile tube with SPS.
Central Nervous System • CSF	• Sterile screw cap tube
Gastrointestinal System • Stool • Rectal swab • Gastric lavage or washings	• Sterile screw-capcup • Swab transport system/ tube with Carey Blair medium • Sterile screw-cap cup or sputum trap
Lower Respiratory Tract • Lung biopsy • Sputum • Tracheal aspirate • Broncho alveolar lavage fluid • Bronchial washings • Lung aspirate	• Sterile screw-cap cup (with nonbacteriostatic 0.85% NaCl if sample is small) • Sterile screw-cap cup • Sterile screw-cap cup or tube; sputum trap • Sterile screw-cap cup or tube; sputum trap • Sterile screw-cap cup or tube; sputum trap • Anaerobic transport system; sterile screw-cap cup or tube
Upper Respiratory Tract • Throat swab • Nasal swab • Nasopharyngeal swab • Nasopharyngeal suction	• Swab transport; virus transport system • Swab transport; virus transport system • Swab transport; virus transport system • Sterile screw-cap cup; viral transport system
Sterile Body Fluids	Sterile screw-cap container; capped syringe without needle; anaerobic transport system
Urine • Clean catch	• Sterile screw-cap cup or tube; B-D Vacutainer; urine collection tube
Bacterial Isolates	• Appropriate media
Water	• Sterile collection bottles provided by TPHL
Food	• Sterile sample bags

TRINIDAD PUBLIC HEALTH LABORATORY

SAMPLE RECEIPT LOG

MONTH/YEAR_____

DATE	TIME REC'D	INSTITUTION	NO. OF SAMPLES REC'D	NO. OF FORMS REC'D	DEPT.	LAB NO.	LAB COURIER/ DRIVER	REC'D BY	TEMPER ATURE	COMMENTS

REVIEWED BY: _____ DATE: _____

APPENDIX 10: LABORATORY SERVICES OFFERED BY CARIBBEAN PUBLIC HEALTH AGENCY (CARPHA)

Disease/Aetiologic Agent	Method	Specimen	TAT (Days)	Comment
Bordetella pertussis	PCR	Nasopharyngeal or throat swab (collected 0 – 3 weeks from onset of cough)	7	Performed at CARPHA
Chikungunya	PCR*	Acute Serum (collected 1-5 days from onset of symptoms)	7	Performed at CARPHA
	IgM ELISA	Convalescent serum (collected 6 - 21 days from onset of symptoms)	14	Performed at CARPHA
Cholera	Serotyping and Identification	- Isolate in maintenance media - Stool in Cary Blair media	7	Performed at CARPHA
Dengue Fever	PCR*	Acute serum (collected 1 - 4 days from onset of symptoms)	7	Performed at CARPHA
	IgM ELISA	Convalescent serum (collected 5 - 15 days from onset of symptoms)	14	Performed at CARPHA
Influenza and other respiratory viruses - Parainfluenza 1 - 3, Metapneumovirus, Adenovirus, Rhinovirus, Middle East Respiratory Syndrome Coronavirus (MERS-CoV), COVID-19*** Respiratory Syncytial Virus, Enterovirus-D68	PCR**	Nasopharyngeal and Oropharyngeal swabs (NPS, OPS) or other respiratory samples (please see User Manual)	7	

*Samples submitted for Chikungunya, Dengue or Zika that will be tested by PCR are run on a Trioplex panel so there will be results for all three agents

** Samples submitted for respiratory syndromes are analysed using an algorithm in which they are first tested for Influenza

*** Turnaround time is 24 to 48hours

Disease/ Aetiologic Agent	Method	Specimen	TAT (Days)	Comment
Leptospirosis	PCR	Whole Blood with anticoagulant (collected > 5 days from onset of symptoms)	7	Performed at CARPHA for countries without testing capability
Malaria	PCR	Blood	7	Performed at CARPHA for countries without testing capability Contact CARPHA for discussion before submitting

Mayaro virus	PCR	Serum (collected <7 days from onset of symptoms)	7	Performed at CARPHA for countries without testing capability Contact CARPHA for discussion before submitting
Measles virus	ELISA IgM	Serum - Acute sample (collected <7 days after onset of rash)	4	Performed under EPI programme Please check with the EPI manager in-country to ensure appropriate recording of samples prior to submission to CARPHA
	ELISA IgG	Serum - Convalescent sample (collected 10 to 21 days after collection of acute samples)		
	PCR	- NPS (collected <7 days after onset of rash) - Urine (collected <15 days after onset of rash) NOTE: Urine must be paired with NPS		
Meningitis infection (due to Neisseria meningitidis)	Antimicrobial Resistance (AMR) testing;	Isolate in BHI with glycerol or on Chocolate agar	7-14	- Performed at CARPHA for countries without testing capability - Isolates to be submitted to CARPHA for further characterization.
Meningitis/Sepsis (due to Streptococcus pneumoniae or Haemophilus influenzae)	Serotyping (Meningococcus only)			
Mumps virus	PCR Virus Isolation	Oral swab (collected 5 days from onset of symptoms)	7 14	Please check with the EPI manager in-country to ensure appropriate recording of samples prior to submission to CARPHA
Norovirus	PCR	Stool	7	Performed at CARPHA for countries without testing capability

Disease/ Aetiologic Agent	Method	Specimen	TAT (Days)	Comment
Plague - Yersinia pestis	- Culture - Antimicrobial Resistance (AMR) testing;	- Blood - Biopsy material from bubo	14	CARPHA: to be contacted for discussion if necessary Sent to CARPHA's Reference Laboratory

Polio Virus	PCR Virus Isolation	Stool (No preservative) CSF	7 14-21	Performed under EPI programme Please check with the EPI manager in-country to ensure appropriate recording of samples prior to submission to CARPHA
Non-polio enteroviruses (NPEV)	PCR	Serum, stool, NPS, Eye swabs, oral fluids (Collect specimens <7days days from onset of symptoms)	7	Performed at CARPHA for countries without testing capability
Rabies (in humans)				Contact CARPHA for discussion before submitting (Sent to CARPHA's Reference Laboratory)
Rotavirus	Ag ELISA	Stool	7	- Performed for countries without testing capability in outbreak situations. - Please contact CARPHA for discussion
Rubella virus	ELISA IgM	Serum - Acute sample (collected <7 days after onset of rash)	4	Performed under EPI programme Please check with the EPI manager in-country to ensure appropriate recording of samples prior to submission to CARPHA
	ELISA IgG	Serum - Convalescent sample (collected 10 to 21 days after collection of acute sample)		
	PCR (Being implemented)	- NPS (collected <7 days after onset of rash) - Urine (collected <15 days after onset of rash) NOTE: Urine must be paired with NPS		

Disease/ Aetiologic Agent	Method	Specimen	TAT (Days)	Comment
Salmonellosis	Serotyping	Isolate in Maintenance media	7 - 14	- Performed at CARPHA for countries without testing capability - Isolates to be submitted for further characterization

Shigellosis	Serotyping	Isolate in Maintenance media	14	- Performed at CARPHA for countries without testing capability - Isolates to be submitted for further characterization
Toxoplasmosis	ELISA IgG ELISA IgM	Serum, (collected 7 days after onset of symptoms)	14	- Performed at CARPHA for countries without testing capability
Tuberculosis (Pulmonary & Extra-pulmonary)	- Identification (PCR) - Drug Sensitivity Testing (PCR)	Sputum, Extrapulmonary samples	4	- Performed at CARPHA for countries without testing capability - Selected specimens sent to CARPHA's Reference Laboratory
Typhoid and paratyphoid fever	- Identification - Serotyping	Isolate in maintenance media	7	Performed at CARPHA for countries without testing capability
West Nile Virus	PCR	CSF/Serum, (collected 7 days after onset of symptoms)	7	Performed at CARPHA for countries without testing capability Contact CARPHA for discussion before submitting
Yellow fever	PCR	Single serum	7	Performed at CARPHA for countries without testing capability Contact CARPHA for discussion before submitting
Zika	PCR* IgM ELISA	- Serum - CSF, Urine, Amniotic fluid NOTE: All of these must be paired with serum sample	7 14	Performed at CARPHA for countries without testing capability. Zika IgM not done during Dengue outbreaks.

APPENDIX 11: SYNDROMES AND COMMUNICABLE DISEASES UNDER SURVEILLANCE

OUTBREAKS/ CLUSTERS	Unusual or unexpected events **IMMEDIATE NOTIFICATION**

SYNDROMES (AGGREGRATE DATA): **WEEKLY DATA COLLECTION**
Acute flaccid paralysis Fever and hemorrhagic symptoms Fever and neurological symptoms Fever and respiratory symptoms (ARI)<5 yrs. Fever and respiratory symptoms (ARI) >5 yrs. Fever and rash Gastroenteritis < 5 yrs. Gastroenteritis > 5 yrs. Severe acute respiratory infection (SARI) Undifferentiated fever < 5 yrs. Undifferentiated fever > 5 yrs.

DISEASES: FOUR-WEEK DATA COLLECTION	
1. *AIDS* 2. *Campylobacter* 3. Chicken Pox (Varicella) 4. Chlamydia 5. Cholera 6. Ciguatera Poisoning 7. Conjunctivitis* 8. Dengue Fever 9. Dengue Hemorrhagic Fever/Shock Syndrome 10. Diphtheria 11. *E. coli* (pathogenic 0157) 12. Genital Discharge* 13. Genital Ulcer* 14. Gonorrhoea 15. Herpes Zoster (Shingles)* 16. HIV 17. Influenza 18. Leprosy (Hansen's Disease) 19. Leptospirosis 20. Malaria (indigenous) 21. Malaria (imported) 22. Measles *23.* Meningitis/Pneumonia due to *Haemophilus influenza* *24.* Meningitis/Pneumonia due to *Streptococcus pneumonia*	26. Mumps 27. Norovirus 28. Pertussis 29. Plague 30. Poliomyelitis 31. Rabies (in humans) 32. Respiratory syncytial virus (RSV) 33. Rotavirus 34. Rubella (German Measles) 35. Rubella (Congenital Rubella Syndrome) 36. Salmonellosis 37. Scabies* 38. Shigellosis 39. Severe Acute Respiratory Syndrome (SARS) 40. Smallpox 41. Syphilis (NOT congenital) 42. Syphilis (congenital) 43. Tetanus neonatorum 44. Tetanus (excluding neonatal) 45. Tinea Capitis* 46. Tuberculosis (Pulmonary) 47. Tuberculosis (Extra-pulmonary) 48. Typhoid and Paratyphoid Fevers 49. Viral Encephalitis/Meningitis 50. Viral Hepatitis A 51. Viral Hepatitis B

DISEASES: FOUR-WEEK DATA COLLECTION	
25. Meningococcal Infection due to *Neisseria meningitides*	52. Yellow Fever (Urban or Sylvatic) 53. Covid-19

INSTITUTION:
TPHL SAMPLE REFERRAL LOG

Date: _____ Sheet # _____

	Institution					Institution/Courier		TPHL	
	Client Patient ID	TT LIMS #	Patient Name	Sample Type	Test Requested	Transported By (Initial)	Date Transported	Received By (Initial)	Comments
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									