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DATE : 03/01/2022

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DATE : 03/01/2022

DESTINATAIRES : ADMINISTRATION, LBM

MISE A JOUR LE :

PAR :

NATURE DES MODIFICATIONS :

28/12/2021

S. KEO

update

RENOUVELLEMENT LE :

PAR :

MAN-2017-002 - version 11 du 03/01/2022 / (03/01/2022)



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1. INTRODUCTION

The objective of this sampling manual is to provide to our patients, clinicians, nurses and healthcare workers, all the necessary information in order to perform a proper sample intended to be analysed in the Medical Biology Laboratory (LBM) of the Institut Pasteur du Cambodge (IPC).

This manual contains the information regarding proper patient preparation, timing of sample collection, selection of sample container type, sample transportation, and relevant patient clinical data that are critical for successful testing, timely reporting of laboratory results, and proper diagnosis.

This manual is complementary to the LBM catalogue, available upon request at the reception and on our website:

<http://www.pasteur-kh.org>

Quality Assurance system

- The LBM of IPC has set up a Quality Assurance system, which aim to meet your expectations and the required standard from the pre-analytical to the post-analytical phase.
- The reliability and accuracy of the test results are ensured by regular internal and external quality controls.
- The laboratory has obtained accreditation in accordance with the recognized international standard NF EN ISO 15189* in 2018 (* Accreditation scope: Clinical biology / Biochemistry – Hematology – Microbiology)



Accreditation N°8-4170
Scope available
on www.cofrac.fr

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2. PRATICAL INFORMATION

Institut Pasteur du Cambodge

5, Monivong Boulevard, BP 983, Phnom Penh

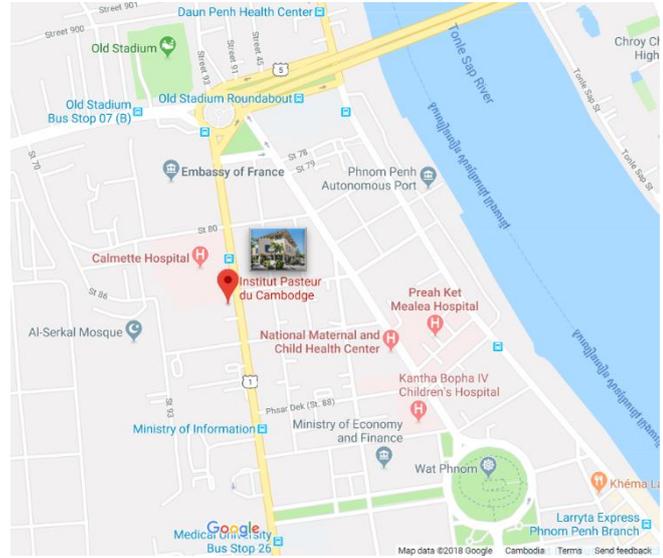
Phone : +855 23 426 013

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E-mail: accueil@pasteur-kh.org

Website: <http://www.pasteur-kh.org>

 <https://www.facebook.com/Institut.Pasteur.Cambodge>



Public reception

Monday to Friday: 7:00 AM to 5:00 PM

Saturday: 7:00 AM to 11:30 AM

And during some public holidays, from 7.00 a.m. to 11.30 a.m. (“Special Opening Hours”), notify by email.

Supervisory staff

Head of Laboratory	Dr Gauthier DELVALLEZ gdelvallez@pasteur-kh.org
Mycobacteriology (Deputy Head of unit)	Dr Sokleaph CHENG csokleaph@pasteur-kh.org
Microbiology	Dr Sothada HENG hsothada@pasteur-kh.org
Blood Biology	Dr Charya SITH scharya@pasteur-kh.org
Platform of Molecular Biology	Ms Seiha HENG hseiha@pasteur-kh.org
Responsible Medical Customer Service	Ms Kheng Phally NONG phally@pasteur-kh.org
Senior nurse	Ms Sokuntheary KEO ktheory@pasteur-kh.org

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3. EQUIPMENTS

LBM offers medical laboratory services on a per-request basis from individuals and organizations such as hospitals, non-profit organizations, other medical laboratories, health care facilities. Services include, but are not limited to, all the tests listed in the update catalogue of IPC, (ENR-R1-004, whose applicable version is always update on the website www.pasteur-kh.org) performed on samples to provide information for the diagnosis, prevention or treatment of a disease or medical condition.

LBM is composed of four activity areas and offer around 160 analysis:

- **Blood Biology:** Biochemistry, Hematology, Immuno-hematology, Immuno-Serology;
- **Microbiology:** Bacteriology, Parasitology, Mycology;
- **Mycobacteriology:** screening and therapeutic advice for tuberculosis and screening for atypical mycobacteria not belonging to the tuberculosis complex;
- **Molecular Biology:** screening and quantification of HIV, HBV and HCV viral load and resistance genotyping, screening for Sexually Transmitted Infections (STIs), Human Papillomavirus, and COVID-19.

➤ BLOOD BIOLOGY LABORATORY

Hematology: 2 Pentra 80XL (HORIBA) for CBC, Automate SYSMEX CA-50 for haemostasis, 2 Minicap SEBIA Flex Piercing for haemoglobin electrophoresis, BD FACSCanto for CD4-CD8 lymphocytes count

Biochemistry: 2 PENTRA C400 (HORIBA) and 2 Minicap SEBIA for protein electrophoresis and HbA1c

Immuno-serology: 2 COBAS Elecsys 411 (ROCHE) for serology, tumor markers, vitamins and endocrinology

➤ MICROBIOLOGY LABORATORY

Bacteriology, Parasitology and Mycology

MALDI-TOF mass spectrometry (Biotyper, Bruker Daltonics), DST reader ADAGIO (Bio-Rad), API Vitek (Biomérieux), Blood cultures BacT/Alert (Biomérieux)

➤ MYCOBACTERIOLOGY LABORATORY

Liquid culture BACTEC 960 and BACTEC 320 (Becton Dickinson), GeneXpert IV (Cepheid)

➤ PLATFORM OF MOLECULAR BIOLOGY

Cobas Taqman (ROCHE), Cobas Ampliprep (ROCHE), Cobas z480 (ROCHE). Cobas x480 (ROCHE), Thermal Cycler (Bio-Rad), GeneXpert GX-XVI (Cepheid), CFX96 (Bio-Rad) and MagnaPure compact (ROCHE)

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4. MEDICAL PRESCRIPTION

Prescription sheet must be filled in accordance with the following guidelines:

These details are mandatory (under penalty of refusal of analysis)

They must be written legibly and not crossed out

NB: oral prescriptions are not accepted

1) Patient information

- First name and Last name
- Gender
- Date of birth

2) Prescriber information

- Stamp of the doctor
- Signature of the prescriber
- Date of request

3) Modification of prescription

Modification of prescription by phone is not permitted.

A new written prescription must be sent to the laboratory.

These analyzes will be performed:

- On a tube kept in the laboratory if the prescription reaches the laboratory before 48 hours (sample retention period) and after verification of the nature and stability of the primary sample.
- On new sample if the prescription is made later.

4) Prescription sheet

Prescription sheets of LBM (FOR-R1-005) are available at the reception upon request.

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5. INFORMATION SHEET

Some analysis require specific information in addition to prescriptions:

Analysis	REQUIRED INFORMATION (The forms are available at the reception)
Blood grouping	FOR-R1-009
Malaria	FOR-R1-006
Bacteriology	FOR-DST-005
Blood culture	FOR_R1-014
Mycology	FOR-R1-008
Leptospirosis	FOR-R1-007
Dengue Fever	FOR-R1-017
Viral load (HIV, HBV, HCV)	FOR-R1-011
HIV-1 drug resistance	FOR-R1-012
HBV, HCV genotyping	FOR-R1-013
Genetic analyzes sent to CERBA	Clinical information form (CERBA) + Patient consent
COVID-19 PCR	Lab Request Form (Ministry of Health)
COVID-19 serology	FOR-R1-021

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6. SAMPLING REQUIREMENTS

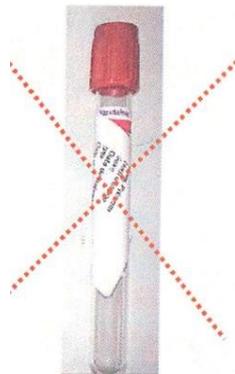
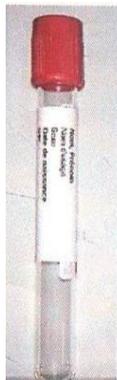
The fulfilment of the following requirements is mandatory to obtain a reliable analytical result and the guarantee of the patient-specimen link, essential for the quality of the results

Sampling

- Sampling must be performed with disposable equipment.
- The materials used and the waste generated by sampling must be separated into potentially contaminated waste and other waste similar to household garbage.
- Sharps material should be collected in adapted containers (e.g. needle collector).
- The tubes must be filled optimally.

Sample identification

- Identify all the samples with the name, the sex and the date of birth.
- A final check of the information labeled on the samples must be carried out by asking the patient to identify himself.
- Tubes for blood grouping must include: name, date of birth, date of collection.
- If the patient is under treatment, mention it on the prescription sheet: identify the nature (anticoagulant, antibiotics, antiretrovirals, etc.), and the dosage.
- Do not forget to sequentially number the vials if there are several (provoked hyperglycemia, sputum, etc.).
- The identification label of the patient must be affixed so that the information is perfectly readable by the instruments' barcode readers.



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Nature and order of the tubes

Due to the high sensitivity of modern testing, proper collection is important to the specimen integrity. Some tests require whole blood, plasma or serum for testing. The collection tubes contain different types of additives, which are specific for the individual test(s).

The draw order for specimen tubes is as follows:

- 1) Blood culture
- 2) Blue tube for coagulation (Sodium Citrate)
- 3) Red No Gel and Gold SST (Plain tube w/gel and clot activator additive)
- 4) Green and Dark Green (Heparin, with and without gel)
- 5) Pink - Blood Bank (EDTA)
- 6) Gray (Oxalate/Fluoride)

If blood is drawn by use of a syringe, transfer the specimen into the appropriate collection tube(s) by puncturing the rubber stopper with the syringe needle and allowing the blood to be drawn into the tube by the vacuum.

These guidelines must be followed in order to maintain the integrity of the specimen, providing optimal results.

With a Needle:	With a Wingset: With Blood Culture	With a Wingset: Without Blood Culture	Recommended Inversions
	Blood Culture Bottles (aerobic, anaerobic)	 Discard tube	N/A
			3-4
 	 	 	5-6
 	 	 	8-10
			8-10
			8-10
Others (ACD, VS, Aprotinine and Thrombine)	Others (ACD, VS, Aprotinine and Thrombine)	Others (ACD, VS, Aprotinine and Thrombine)	8-10

Available consumables

Requests for the supply of consumables should be sent to the reception of the LBM.

Requests are processed within 48 hours.

The material can be obtained from the nurses or by the driver.

For all consumables requests, a form available at the secretariat must be completed and signed by the applicant.

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7. THE SAMPLES

Instructions about samples collected by the patients themselves such as **urines** (FIT-R1-002), **stool** (FIT-R1-003), **sputum** (FIT-R1-005), and **semen** (FIT-R1-004) are available at the reception.



In case of non-compliance (prescription or samples) the prescriber or the patient will be warned.

A new prescription or a new sample will be requested.

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7.1 Patient status and information

7.1.1 Food status:

- Lipid tests (triglycerides, total cholesterol, HDL and LDL) must be taken from a fasted patient for 12 hours and at rest for 5 minutes.
- Fasting minimum requirement exams of 8 hours are: glucose (fasting blood glucose and OGTT), vitamin B12, folate (vitamin B9) and iron.
- For other laboratory tests, such as uric acid, vitamin D, urea / creatinine, fasting is not mandatory but recommended. Respect at least a delay of 2 hours after a meal.
- Postprandial blood glucose should be taken 2 hours after the meal so that the results can be interpreted.

7.1.2 Optimum sampling conditions for the hemostasis assessment:

- In the morning, resting for more than 5 minutes, while seated.
- A light meal without fat is allowed.
- Tobacco, physical exercise, caffeine are to be avoided.

7.1.3 For the determination of cortisol

The sampling must be performed at 8.00 am.

7.1.4 Sperm (Spermogram, Spermoculture),

The sampling must be done in the laboratory, only in the morning between 7:00 to 11:00 (spermogram are not performed on Saturday).

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7.2 Blood samples

HOME BLOOD COLLECTION CAN BE MADE BY A NURSE UPON REQUEST

- Observe the minimum volumes of filling of tubes and the number of tubes to be taken to avoid rejection.
- Mix the sample by inversion.
- Disinfect the outside of the tubes if they are soiled.

Biochemistry

1°) Tubes

- Use lithium heparin tube: 

2 tubes are necessary, if the prescription has more than 5 analyses.

- Blood lactate and glycemia levels are usually drawn without the use of a tourniquet, use an oxalate tube K / Na fluoride (inhibitor glycolysis): 

2°) Specific analyses conditions:

- For the following analyses: lactic acid, uric acid, glucose, prolactin, LDH, transaminases : a 8-hour fast must be respected
- For lipid analysis (triglycerides, cholesterol, HDL and LDL cholesterol): a 12-hour fast must be respected and the patient must be sitting at rest for 5 minutes.
- **For potassium: Samples must arrive within 3 hours after collection, hemolyzed samples are unacceptable.**
- **For glucose: analyses must be performed less than 8 hours after collection.**
- **For ionogram: analyses must be performed less than 6 hours after collection.**

Serology

- Use dry tube: 2 tubes are necessary, if the prescription has more than 5 analyses. 

Hematology

- Use heparinized tube: EDTA: 
- For samples reaching the laboratory more than one day after collection, if possible perform a blood smear, for cytology. The morphology of blood cells cannot be appreciated beyond 24 hours.

Haemostasis

1°) Tube

Sampling citrated tube: 

2°) Sampling recommendations:

- In the morning, remain stable for more than 5 minutes, in a sitting position.
- A light meal without fat is allowed.

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- Tobacco, physical exercise, caffeine should be avoided.

3°) Special sampling conditions:

- The tourniquet may not be tight and must be maintained less than 2 minutes (coagulation activation).
- Never collect after a heparinized tube.
- The puncture site should be away from any perfusion.
- Filling tube: > 90% recommended (80% acceptable).

HCV, HBV and HIV viral load, genotyping and resistance

- Use 2 EDTA tubes whole blood or 1 dry tube for plasma only (at least 3mL)



- Conservation conditions:
 - o EDTA tubes : 24 hours maximum at room temperature
 - o Dry tubes : 48 hours maximum between 4 and 8°C

Blood Group (Circular DGS / 3B / 552 of 17 May 1985)

- Blood group is performed according to two different techniques by two different technicians.
- The samples for blood grouping must be made in the laboratory of the Pasteur Institute of Cambodia, in order to guarantee the identity of the patient.

The exhaustive list of analyzes carried out in the laboratory with the corresponding tube required is available in the laboratory catalogue.

7.3 Urine samples

7.3.1 Urine sample for biochemistry

- Use suitable small bottles (available in the laboratory).
- Properly close the urine bottles.
- Disinfect the outside of the bottles if they are soiled.



7.3.2 24-hour urine (not collected at IPC)

- Identify the bottle with last name, first name, date of birth, date of collection
- On the first day, when you wake up, empty the entire bladder into the toilet and note the hour of the beginning.
- During the next 24 hours (day and night), collect ALL your urine in the bottle (preferably to keep cool) including one last time the next morning at the same time, previously noted. Bring the bottle to the laboratory within 2 hours after the end of the collection.

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7.4 Bacteriological samples

7.4.1 Urine sample for urine culture

Mid-Stream Urine (not at the beginning and not at the end) should be collected.

Ensure proper care to clean the genitals before collection.

Follow these steps to get the sample:

- The first few drops of the urine should be discarded in the toilet.
- Mid-stream urine sample should be collected in the sterile container provided.
- Latter part or the end of the urine should not be collected.
- Cap the container. Keep it in the refrigerator.



Do not urinate for at least one hour before the test and drink a glass of water 15-20 minutes before sample collection.

Upon request, IPC can provide BD Vacutainer preservative tube (Boric acid). The lyophilized urine maintenance formula can maintain the bacterial population in the urine specimen for a period of up to 48 hours at room temperature at levels comparable to those urine specimens without additive, held under refrigeration for the same period of time.

**For the research of mycobacteria (BK), mycoplasma or chlamydia, collect the first jet of urine in the morning.
For the research of BK, the sampling is done on 3 consecutive days (in 3 separate pots).**

7.4.2 Sputum

- Use sterile sputum bottles provided by the laboratory.
- Respect the instructions provided by the laboratory.
- A volume of 2 to 4 mL is recommended. A volume less than 0.5 mL is not exploitable with the exception of direct smear microscopy or in case of purulent sputum.
- Close the vials tightly.
- Disinfect the outside of the bottles if they are soiled.



These samples cannot be made in the laboratory; they must be done at home, in the open air, away from other people - and not in confined spaces such as toilets.

Three morning sputum samples collected within 3 days are recommended for diagnosis of Tuberculosis.

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7.4.3 Stool

This examination should be carried out, if possible, during diarrheal episodes.

It is desirable to do this exam with a diet without fiber the day before collection.

- Identify the bottle with name, first name, date of birth, date and time of sample.
- Collect the stool in the sterile vial provided by the laboratory.
- Close the bottles correctly.
- Disinfect the outside of the vials if they are soiled.
- Bring the vial to the laboratory within 2 hours of collection, if not the stored at 4 ° C.



The analysis can be performed within 12 hours of the end of the collection. For stool parasitology: Do not put the samples in the refrigerator.

7.4.4 Blood culture

For bacteria screening: use BACTALERT vials

Conventionally, 2 to 3 pairs of blood cultures (1 pair: 1 Aerobic vial + 1 Anaerobic vial) should be taken 30 minutes apart at the time of the feverish peak, before any antibiotic therapy (+++). Nevertheless, according to the latest recommendations, it is now accepted that 2 to 3 pairs of blood cultures can be collected in a single sample, if the vials are correctly filled (10 ml of blood per vial).



In case of suspicion of infectious endocarditis take 3 pairs of blood cultures obtained by 3 venous punctures spread over 24h and spaced at least 1 hour.

- Take by venipuncture after strict asepsis of the sampling site by using 70% alcohol plus iodine product. The venipuncture site is not fully clean until the disinfectant has fully evaporated.
- Inoculate vials for blood culture after disinfection of the cap with 70% alcohol or iodized product. Allow bottle tops to dry in order to fully disinfect.
- Take a sufficient quantity of blood (+++):
 - o 10 mL per vial in adults,
 - o In children, the recommended volume of blood to collect should be based on the weight of the patient (see Table 1), and an aerobic bottle should be used, unless an anaerobic infection is suspected.
- When a set of an aerobic and an anaerobic bottle is used:
 - o If using needle and syringe, inoculate the anaerobic bottle first.
 - o If using winged blood collection set, inoculate the aerobic bottle first.
- Immediate transportation to the laboratory at room temperature.

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Table 1. Blood volumes suggested for cultures from infants and children	
Weight of patient (kg)	Volume for culture per bottle (ml)
≤1	0.5 - 2
1.1-2	1.5 - 4.5
2.1-12.7	3 - 6
12.8-36.3	5 ^a
> 36.3	10 ^b

^aTwo pairs of blood culture are recommended.

^bThree pairs of blood culture are recommended.

7.4.5 Vaginal sample

- The sample consists of a collection of vaginal secretions. It is done on swabs and as much as possible at LBM.
- Ideally 3 swabs should be taken (2 swabs for the vaginal wall and 1 for the endocervix examination).
- In the event of a request for Chlamydia and mycoplasma, 2 rayon or Dacron swabs for the endocervix.
- Clinical information to be provided: date of last menstruation, current treatment, recent or old history.
- The samples must be transported to the laboratory at room temperature within <1 hour.

Upon request, IPC can provide swab with transport media for a better conservation of bacteria (Gono ++).

7.4.6 Urethral sample

The sample must be taken in the laboratory

- Sample to be carried out if possible in the morning, before any toilet or continence of at least 3 hours and before any antibiotic therapy
- In case of urethral discharge, collect and spread the serosities on 2 slides.
- Systematically:
 - 1) Take a sample using a fine cotton swab and inoculate immediately on the agar plates. For the detection of Chlamydiae and Mycoplasmas, cells should be obtained by scraping with a dacron swab.
 - 2) Take a second sample for direct examination (if there is no discharge)
- Transport to the laboratory must be carried out at room temperature within <1 hour.

Upon request, IPC can provide swab with transport media for a better conservation of bacteria (Gono ++).

7.4.7 Puncture / Body fluids (not collected at IPC)

The liquid must be taken in rigorous aseptic conditions, before any antibiotic treatment and transport to the labo as quick is possible, in:

- 1 sterile tube or vial for bacteriology or on syringes purged of their air (anaerobic).

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- 1 tube with anticoagulant for cytology.
- Transport to the laboratory must be carried out at room temperature within <2 hours.

7.4.8 Cerebrospinal fluid (not collected at IPC)

- Use dry tube.
- Transport to the laboratory at room temperature, immediately, without delay.

7.4.9 Miscellaneous Pus

- Superficial pus: must be carried out on 2 swabs.
- Deeper pus : must be carried out in sterile vials or tubes or syringes purged from their air, for anaerobes.
- Transport quickly (time <2 hours) at room temperature.
- Identify the swabs with the surname, first name, date, time and the sampling site.

7.4.10 Various biopsies (not collected at IPC)

- Place the biopsy in a sterile tube and possibly add (small samples) a few drops of sterile physiological water.
- Transport quickly (time <2 hours) at room temperature.

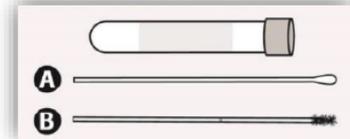
7.4.11 Dermatophyte Research: Nails, Hair, Dander

- Collect at the periphery of the lesions of the scales with a vaccinostyle or a curette.
- For the nails, cut with the nail claw all the part of the nail reached, scratch at the edge of the healthy zone with a vaccineostyle or curette.
- Use sterile containers.
- In case of oozing lesion, swab the pus and scrape the lesion.
- Identify the samples with the surname, first name and the sampling site.

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7.5 Nasopharyngeal swab for COVID-19 / Flu and RSV PCR

Use only synthetic fiber swabs with thin plastic or wire shafts that have been designed for sampling the nasopharyngeal mucosa. CDC recommends collecting only the nasopharyngeal specimen, although a throat swab is an acceptable specimen type. If both nasopharyngeal and throat swab specimens are collected, combine them in a single tube to maximize test sensitivity and limit use of testing resources. Use the woven swab (A) for the throat specimen and the flocked swab for the nasopharyngeal specimen (B).



Hygiene rules:

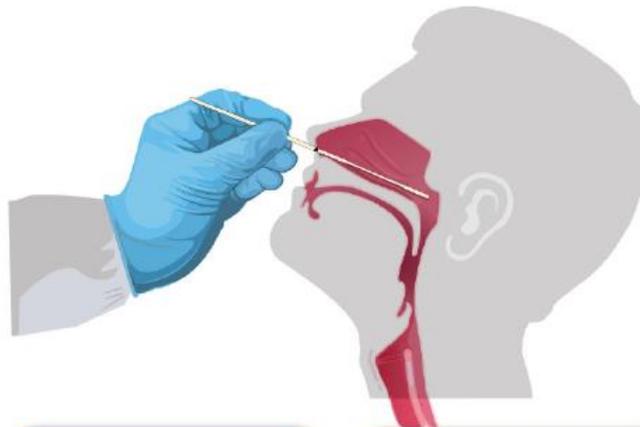
- Ensure that personal protective equipment (PPE) is worn properly.
- This includes gloves, a gown, eye protection and an N-95 or higher-level respirator.
- Gloves must be changed to a new pair for each patient, properly remove old pair and discard into a biohazard waster container.



Nasopharyngeal Collection

STEP 1

- » Tilt patient's head back 70 degrees.
- » Gently and slowly insert a flexible swab (**Swab B**) through the nostril parallel to the palate (**not upwards**) until the black score line.
- » The distance is equivalent to that from the ear to the nostril of the patient.



STEP 2

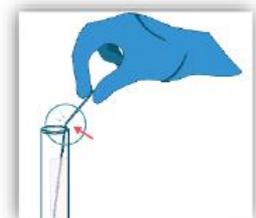
- » Gently rub and roll the swab.
- » Leave swab in place for several seconds to absorb secretions.

STEP 3

- » Slowly remove swab while rotating it.

STEP 4

- » Place the swab into the media tube.
- » Carefully break the swab at the black score line.
- » Screw the cap on tightly.



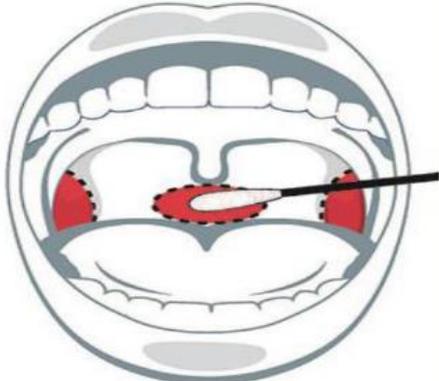
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Throat swab collection

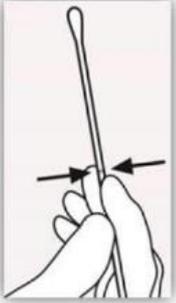
STEP 1

- » Hold the swab with the back score line above your hand.
- » Do not touch the padded tip.
- » Tongue depressor can be used to hold down the back of your tongue.



STEP 4

- » Carefully break the swab at the black score line.
- » Screw the cap on tightly.

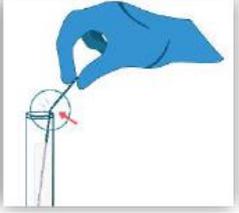


STEP 2

- » Insert the swab into the mouth.
- » Rub swab over both tonsillar pillars and posterior oropharynx and avoid touching the tongue, teeth, and gums.

STEP 3

- » Withdraw the swab carefully.
- » Do not let the swab touch any surface before placing it into the media tube.



Following specimen collection, transport and store the sample at 2°C to 30°C.

Transportation of collected specimens must comply with all applicable regulations for the transport of etiologic agents.

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7.6 Chlamydia/Gonorrhoea PCR

Several samples type are possible for the detection of Chlamydia and Gonorrhoea; if only molecular biology are requested (PCR test), without any bacteriological or mycological examination, following samples are recommended:

1) Men: first catch urine sample

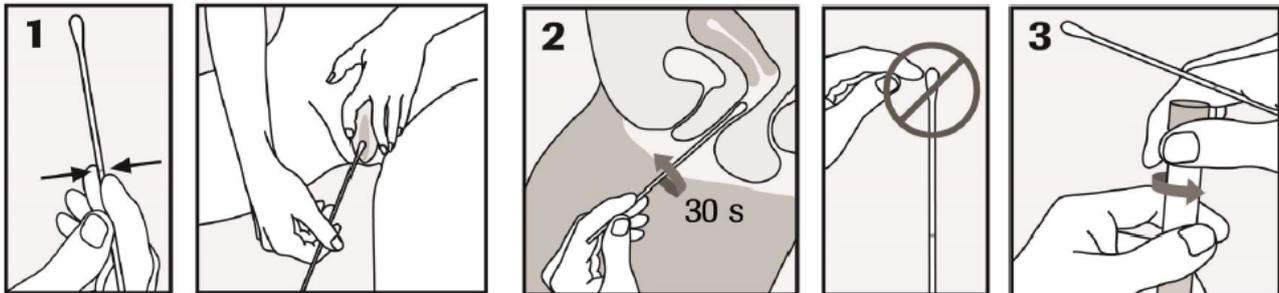
Special requirements: this test involves a “first pass” or “first catch” urine sample.

You must not have urinated within 1 to 2 hours prior to collecting your sample.

Catch the first 10 to 20ml of your urine flow. Do not exceed the recommended volume of urine to be collected as this may reduce the sensitivity of the test. The sample must be the “first part” of the urine stream.

- Wash your hands.
- Hold the container near your genital area.
- Commence urinating catching the first part of the urine (10-20ml).
- Once the 10-20ml is collected in the container, remove and continue to pass urine into the toilet.
- Secure the lid firmly.

2) Women: vaginal swab specimen-self-collection

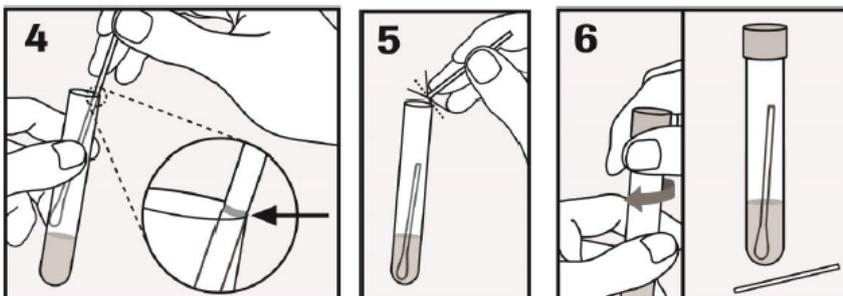


1. POSITION: In one hand, hold the woven swab (Swab A) with the scoreline above your hand and with the other hand separate the folds of skin around the vaginal opening (labia).

2. COLLECT: Insert the swab about 5 cm (2 inches) into the vaginal opening. Gently turn the swab for about 30 seconds while rubbing the swab against the wall of the vagina. Remove the swab carefully.

3. OPEN TUBE: While holding the swab in the same hand, remove the cap from the tube as shown above.

Do NOT touch the swab to any surface before placing into the collection tube.



4. ALIGN: Lower the swab into the tube until the visible scoreline on the shaft is lined up with the tube rim. The bud of the swab should not be submerged into the liquid prior to breaking the shaft.

5. BREAK: Carefully lean the swab against the tube rim to break the swab shaft at the scoreline.

6. CLOSE: Tightly close the cobas® PCR Media Tube. Return the sample to your healthcare provider as instructed. Discard the top portion of the swab.

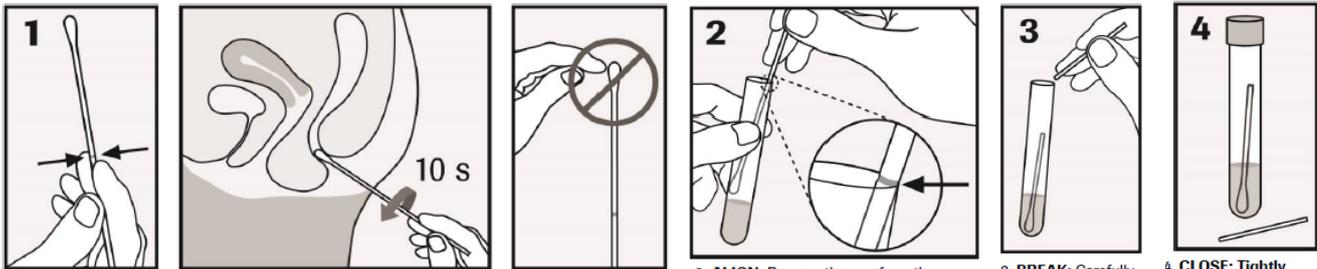
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In case of prescription of both PCR and microbiological culture, please follow the instruction of vaginal and urethral samples and just add one more swab for the PCR test!

The detection of Chlamydia/Gonorrhoea can be performed as well on throat and anal swabs depending on the sexual practices of the patient:

3) Rectal swab specimen collection:



1. COLLECT: To collect the specimen, hold the swab with the scoreline above your hand and insert the swab about 3 to 5 cm into the anal canal. Gently turn the swab for about 5-10 seconds while running the swab against the walls of the rectum. If the swab is grossly contaminated with feces, discard and repeat the collection.

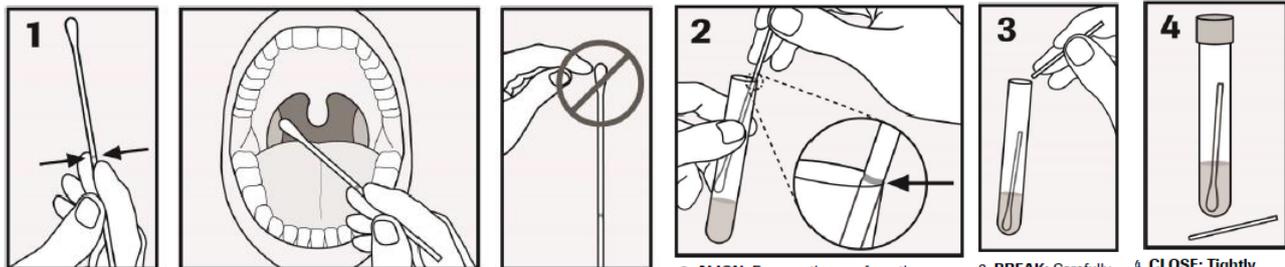
Withdraw the swab carefully. Do not let the swab touch any surface before placing it into the collection tube.

2. ALIGN: Remove the cap from the **cobas**[®] PCR Media Tube and lower the swab specimen into the tube until the visible scoreline on the swab is aligned with the tube rim. The tip of the swab should not be submerged into the liquid prior to breaking the shaft.

3. BREAK: Carefully leverage the swab against the tube rim to break the swab shaft at the scoreline.

4. CLOSE: Tightly re-cap the **cobas**[®] PCR Media Tube. The specimen is now ready for transport. Discard the top portion of the swab.

4) Throat swab specimen collection:



1. COLLECT: To collect the specimen, hold the swab with the scoreline above your hand and insert the swab into the mouth and collect the specimen from the bilateral posterior pharynx, both tonsils and the uvula.

Withdraw the swab carefully. Do not let the swab touch any surface before placing it into the collection tube.

2. ALIGN: Remove the cap from the **cobas**[®] PCR Media Tube and lower the swab specimen into the tube until the visible scoreline on the swab is aligned with the tube rim. The tip of the swab should not be submerged into the liquid prior to breaking the shaft.

3. BREAK: Carefully leverage the swab against the tube rim to break the swab shaft at the scoreline.

4. CLOSE: Tightly re-cap the **cobas**[®] PCR Media Tube. The specimen is now ready for transport. Discard the top portion of the swab.

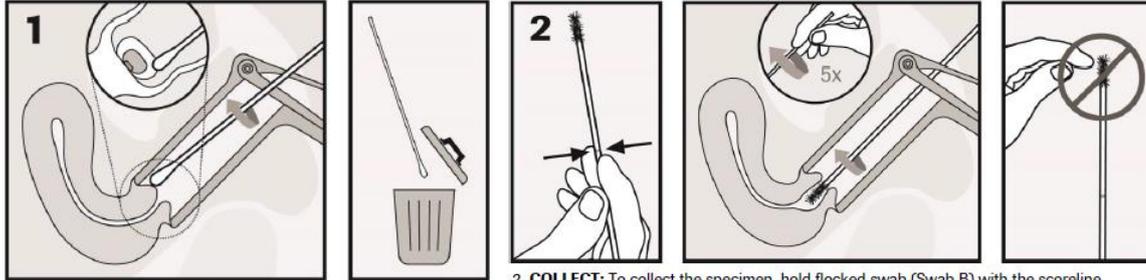
Following specimen collection, transport and store the sample at 2°C to 30°C.

Transportation of collected specimens must comply with all applicable regulations for the transport of etiologic agents.

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7.7 Human Papillomavirus (HPV) PCR

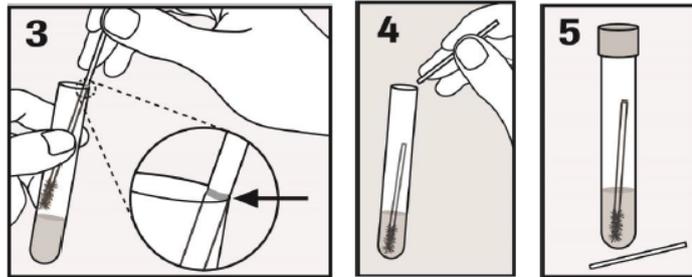
Obtain a sample from the cervix (endocervical swab specimen) with the **brush** or **flocked swab**



1. CLEAN: Using the woven swab (Swab A), remove excess mucus from the cervical os and surrounding mucosa. Discard the swab after cleaning.

NOTE: Cleaning excess mucus from the cervical os is required to ensure an adequate sample is obtained for processing.

2. COLLECT: To collect the specimen, hold flocked swab (Swab B) with the scoreline above your hand and insert into the endocervical canal. Gently rotate the swab 5 times in one direction in the endocervical canal. Do not over-rotate. Carefully withdraw the swab, avoiding any contact with the vaginal mucosa.



3. ALIGN: Remove the cap from the cobas® PCR Media Tube and lower the swab specimen into the tube until the visible scoreline on the swab shaft is aligned with the tube rim. The bud of the swab should not be submerged into the liquid prior to breaking the shaft.

4. BREAK: Carefully leverage the swab against the tube rim to break the swab shaft at the scoreline.

5. CLOSE: Tightly re-cap the cobas® PCR Media Tube. The specimen is now ready for transport. Discard the top portion of the swab.

As for Chlamydia/Gonorrhoea PCR, the research of HPV can be performed on anal swab. Please refer to the same procedure for sampling.

Following specimen collection, transport and store the sample at 2°C to 30°C.

Transportation of collected specimens must comply with all applicable regulations for the transport of etiologic agents.

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8. SAMPLE CONSERVATION AND TRANSPORT

Many pre-analytical factors can affect the integrity of biological samples. Accordingly, these must be sent to LBM under conditions allowing compliance of the cold chain, according to the transport procedure described below.

Samples should be stored at +4°C before transportation, except for:

- Swabs for gonococcus research.
- Blood culture containers
- CSF vials for meningitis research.

In order to obtain reliable results, the samples must reach the laboratory within the following time limits

Maximum period	Type of tests
Without delay	CSF / Potassium / search for blood parasites
2h00	Blood glucose, folate (vitB9)
4h00	Lactic Acid, haemostasis, bacterial sample
< 24h	Morphology of blood cells
24h00	All tests except urgent tests

If the samples arrived at IPC laboratory after these time limits, the analyses won't be performed, according to quality assurance rules.

8.1 Samples for biochemistry, serology, hematology, haemostasis

Except for the analyses mentioned above, samples of biochemistry, hematology, immuno-hematology and immuno-serology can be stored for 24 hours at 2-8 ° C before analysis.

For samples reaching the laboratory more than one day after collection, tubes have to be decanted if possible. For decanted tubes, specify the specimen type on the form: Plasma, serum.

8.2 Bacteriology samples

For a better interpretation of the bacteriological samples, transport the samples to the lab within 4 hours

8.2.1 Urines

Urine is normally sterile, but unlike blood, it is an excellent culture medium in which contaminating germs will grow very quickly if the sample remains at room temperature and is not analysed quickly.

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Therefore, the examination must be carried out within 1 hour after collection if it stored at room temperature or < 12h if the urine is stored at 2-8°C.

Upon request, IPC can provide BD Vacutainer preservative tube (Boric acid). The lyophilized urine maintenance formula can maintain the bacterial population in the urine specimen for a period of up to 48 hours at room temperature at levels comparable to those urine specimens without additive, held under refrigeration for the same period of time.

8.2.2 Sputum

For the diagnosis of tuberculosis, if the sputum cannot be transmitted to the laboratory on the day of collection, they must be kept at 2-8°C, they can be kept:

- 7 days at 2-8°C C for direct examination
- 48 hours at 2-8°C C for culture
- 3 days at room temperature and 7 days at 2-8°C for the Xpert MTB / RIF Ultra test.

8.2.3 Stool culture

Transportation delay < 2h otherwise keep the stool temperature 2-8°C.

8.2.4 Other sample

Sample must arrive at laboratory within 4 hours after collection, otherwise keep at temperature 2-8°C.

8.3 Transport sampling

The triple packaging is used to carry out biological infectious products (Instruction 602_IATA - International Air Transport Association):

- The primary containers are tubes, vials, bottles and swab holders (all waterproof). They must be labeled accordingly to the recommendations.
- The secondary containers are pouches with two compartments: one compartment for the primary container and the second compartment for the prescription.
- The last container is a rigid box, able to transport samples without damage.

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9. RESULTS

Availability of results:

Daily results are available from 16:00, except in case of emergency.

The turn-around time of analysis is specified in the LBM Catalogue.

By phone:

The results are never communicated by phone, except alert, in this case, when the analysis is in progress, the urgent or pathological results are communicated by the technicians, subject to the biological validation.

By e-mail:

For prescribers and patients, it is possible to receive analysis reports by e-mail. In this case, please specify at the reception, a code will be communicated to you to access the result server.

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