PATHLAB
SPECIMEN COLLECTION GUIDELINES

This manual (version 2021) issued under the authority of

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DATE REVIEWED	PAGE(S) CHANGED	SIGNED
July 2015	Manual Reviewed	TM
August 2016	Manual Reviewed	TM
March 2018	Manual reviewed	TM
May 2021	Manual reviewed	TM
July 2021	Manual re-reviewed	CB

www.pathlab.co.nz

BAY OF PLENTY (PLBOP)

Provides a 24-hour, 7-day medical diagnostic testing services to the Bay of Plenty community and Tauranga Hospital.
For patient test results and any enquiries please phone:
07 578 7073

WAIKATO (PLW)

Provides medical diagnostic testing services to the Waikato, Coromandel Thames Valley community.
For patient test results and any enquiries please phone:
07 858 0799

LAKES (Rotorua – PLR, Taupo - PLT)

Provides a 24-hour, 7-day medical diagnostic testing services to the Lakes (Rotorua and Taupo) community and hospitals.
For patient test results and any enquiries please phone:
07 349 7907

WHAKATANE (PLWh)

We provide a 24-hour, 7-day medical diagnostic testing services to the Eastern Bay of Plenty community and Whakatane Hospital.
For patient test results please phone:
07 306 0823

1 LABORATORY PROTOCOLS AND SERVICES

1.1 Objectives

Collection of specimens for laboratory analysis is necessary for the diagnosis and care of the patient. Sufficient quantity is required for tests to be performed as skilfully as possible and with minimal trauma to the patient. It is important to reassure the patient and put them at ease.

On the lab request form check the following details are correct and clear, also check for any special requirements:

- Name (surname and first name).
- Date of birth.
- Gender and NHI number.
- Address and phone number.
- Doctor's name (and MCNZ no, address and phone number if not a local doctor) and signature if possible.
- Clinical Details
- Correct destination for results.
- Fasting or non-fasting for appropriate tests.
- Specified drug levels require date and time of last of last dose.
- First or subsequent screen for Antenatal tests.
- Check for 24-hour urine test or tests requiring appointments or special procedures at the lab **e.g. GTT**, or samples special treatment.
- **Cross matches** - must be taken at least 2 days and no more than 7 days before the required date and each section of the form must be completed fully. (Please see NZ Blood Form).
- Inform patients of requirements for faecal collection, sputum collection or seminal fluid collection. Give the patient written handout instructions with appropriate container.
- If in doubt about any test requested refer to the lab.
- Indicate patient eligibility for publically funded testing. Record NZ Resident or citizen.

1.2 Test Results

Patient results are sent to the requesting doctor by e-mail, fax or printed report. URGENT REQUESTS – please mark form **URGENT** and destination of results.

1.3 Sendaway Charges

For unusual tests requiring analysis in another country, Pathlab will collect and arrange courier transport for the specimen but costs for the collection, packaging and courier will be the patient's responsibility.

Refer patient to nearest Pathlab.

1.4 Tests Not Covered by District Health Board Schedule

The following patients must be charged for tests:

- All overseas visitors.
- All patients for immigration medicals must use the specific e-immigration form.
- Self requests – refer to patient to nearest Pathlab to ensure correct completion of required paperwork.
- Some specialised testing is restricted due to clinical indications and best practice.
- All employment and pre-employment medicals.
- Paternity Testing - $1275.00 (only by appointment - refer to lab).
- NZ citizens requiring travelers or Visa tests, health related tests.

The patient is required to pay at time of specimen collection. Please refer to Pathlab website for price list.

- Insurance Medicals - These requests are to be charged to the insurance company on original Insurance Request form. Doctors request forms for Insurance will require full payment at time of collection.
- Tests requested by a Naturopath / Nutritionist, Appearance Medicine or Sports physiotherapist.
- Blood group – not related to Antenatal tests.
- COVID testing pre travel or employment.

1.5 Confidentiality

Occasionally you might have a patient who wishes to attend the laboratory anonymously. In such cases the patient may be pleased to know that the only persons knowing of their tests are themselves and the requesting doctor.

If anonymity is required, the patient should be identified on the request form and labelling on the specimens using the following code - the first 2 letters of the patient's surname, first initial, gender and DOB. e.g. John Harris - male - DOB 18/09/47 = HAJM180947.

If you have a file number you recognise the patient by, this can be marked on the form as a reference number and the result will be reported with this reference number on it.

1.6 Home Collection Service

Pathlab are contracted by the DHB to collect samples for patients in the community with strict guidelines of which the DHB are aware.

Lack of transport is not a criterion for a home visit. See criteria below:

- Bed bound and / or incapacitated patients.
- Hospital level.
- Severe dementia patients, Mental Health patients or those patients for who traveling to a collection room would cause undue distress.
- Immunocompromised patients (house-bound)

There are a number of transport options available to patients including the St John Shuttle Service currently operating.

If you have a patient that you believe falls within the boundary of Pathlab home collections service, do not hesitate to call and discuss their needs with the head of department, Patient Services.

Patients must ensure that all pets are restrained, and that the phlebotomist can safety gain access to the patient home. Special instructions must be included when requesting a home visit e.g patient fasting, withholding medication or patient can't speak English.

1.6.1 Emailing Request Forms

If sending a request form for a home visit via email, please use the form as below, ensuring all required details are included.

If you are emailing a Home Visit request form please email it to requestforms@pathlab.co.nz – clearly indicating that a Home Visit is required.
Also indicating what area, the patient resides in Hamilton, BOP, Lakes etc

Eform requests must be followed up with a phone call , clearly indicating that a Home Visit request has been sent via electronic ordering.

pathlab

Request for Home (Phlebotomy) Collect

Date:_____ Requested By:_____

Patient Details
Surname:_____ First Name:_____

DOB / NHI:_____ Phone No:_____

Address:_____

Date of required visit:_____

Frequency of visit: Daily / Weekly / Monthly / Urgent (*If urgent, please phone the lab)*

Special Instruction(s):_____

_____

Laboratory request form at: House / Courier / To be faxed / Regular patient

Refer Outtake

2 VENEPUNCTURE PROTOCOL AND PROCEDURE

2.1 Introduction

Before you perform a venepuncture you must become totally familiar with your equipment and the technique.

Most patients have good veins and this makes collecting samples much easier.

If a patient has small or fragile veins and you are not confident please send them to a collection room.

2.2 Identification and Form Check

This is the most important step in the procedure.

Identify the patient. Ask the patient to spell his/her first and last name (underline the surname), and DOB, to ensure you have the right patient, the requesting Doctor's , signature (not required for electronic form) and MCNZ number.

Check the "OTHER TESTS" box for extra tests.

2.3 Equipment Used During Vacutainer Venepuncture

- Vacutainer needle holder (quick release)
- Eclipse 21 or 22 gauge safety shield needle. Check the cover seal is intact, expiry date and needle shaft for burrs.
- Alcohol swab and gauze swab.
- Tourniquet.
- Blood collection tubes, correct order of draw. Check expiry dates.
- Adhesive tape / plaster.
- Sharps container.

2.4 Benefits of the Vacutainer Venepuncture

- Speed of the blood collected by direct draw.
- Low risk of contact with blood.
- Less chance of clotted specimens.
- No need to transfer blood from syringe to tube.
- Cost factor.
- Minimal waste disposal of biohazards.

2.5 Tube Description

Vacutainer tubes have been prepared by the manufacturers to be easily identified by their stoppers and labels. All the tubes have been evacuated of air to compensate exactly for the pre-determined volume of blood that will be drawn into the tube during the venepuncture. Nearly all the tubes contain a chemical additive (e.g. clot activator or anticoagulant) to assist in the protection and preparation of the specimen prior to analysis.

To identify these additives the stoppers and labels are different colours. It is important to learn the properties of the tubes and the correct tube selection for specific tests. Also to prevent the possible carryover of additive from one tube to the next the manufacturer advises a particular order of tubes when collecting blood specimens:

2.5 Tube Description cont

a)	Sterile	Blood Culture	culture media/Sterile
b)	Citrate	Blue Top	liquid anticoagulant
c)	CPDA	Yellow	Citrate phosphate dextrose adenine
d)	Plain	Red Top	no additive
e)	SST	Gold Top	serum separating gel and clot activator
f)	Heparin	Green Top	Heparin anticoagulant
g)	K2 EDTA (trace element)	Navy Blue	Potassium EDTA
h)	EDTA	Purple Top	EDTA anticoagulant
i)	EDTA	Pink Top	powder EDTA anticoagulant
j)	Fluoride	Grey Top	Fluoride Oxalate powder anticoagulant

2.6 Tube Inversion

All tubes contain an additive or clot activator that needs to be thoroughly mixed with the blood sample. Anticoagulants such as EDTA need to be thoroughly mixed to ensure specimens do not clot.

Always mix tubes immediately by inverting at least 8 times. NEVER SHAKE THEM. Citrate 3-4 inversions only required.

Hold the tube upright, gently invert 180° and back. Repeat movement for each tube.

2.7 Preparation

Wash your hands with soap and water / hand sanitiser before you proceed to assemble the equipment.

Gloves must be worn where indicated in a procedure protocol or in any circumstance where your professional judgement indicates this to be appropriate or desirable.

Prepare your equipment **before** you search for a vein.

Lay the collection tubes out in the correct order of collection for easy access.
Break the needle cover seal in view of the patient and attach the needle to the needle holder. Leave the coloured needle cover and safety shield in place.

2.8 Position of the Patient

Patient comfort is of utmost importance.

Normally a venepuncture is performed with the patient sitting comfortably with good back support and the arm resting on a firm base.

Sometimes the patient will request to lie down.

Using an armrest, position the patient's arm downward in as comfortable a position for the patient as possible. The arm should always be lower than the shoulder.

Ensure the patient has adequate back support, to prevent the arm pulling away from you.

If the patient is lying down a pillow or towel may be necessary to help maintain a good position for the arm.

Always check for and remove restrictive clothing that could act as an extra tourniquet.

2.9 Tourniquet

Tourniquet systems are varied, but all are intended to help distend the vein to allow a successful venepuncture.

Become totally familiar with using the tourniquet and practise until you become proficient in using it smoothly.

Apply the tourniquet 7-10cm above the intended site, firmly, but so you can insert two fingers between the strap and the patient's arm.

Apply over the patient's sleeve under the tourniquet to prevent pinching of the skin or pulling arm hairs.

Children sometimes feel threatened by the restriction of a tourniquet and applying it over a sleeve may be preferable.

The tourniquet is **relaxed** as soon as a good blood flow is established, but keep on the arm in case you need to re-tighten , and then **release** at the end of the blood collection.

Remember: the tourniquet must not be applied for more than a minute. Prolonged pressure will obstruct normal blood flow, will cause abnormal accumulation of fluids, which will contribute to inaccurate test results.

Wipe your tourniquet with an alcohol wipe between each patient.

If not using a disposable tourniquet ensure your tourniquet is washed daily with hot soapy water and left to dry.

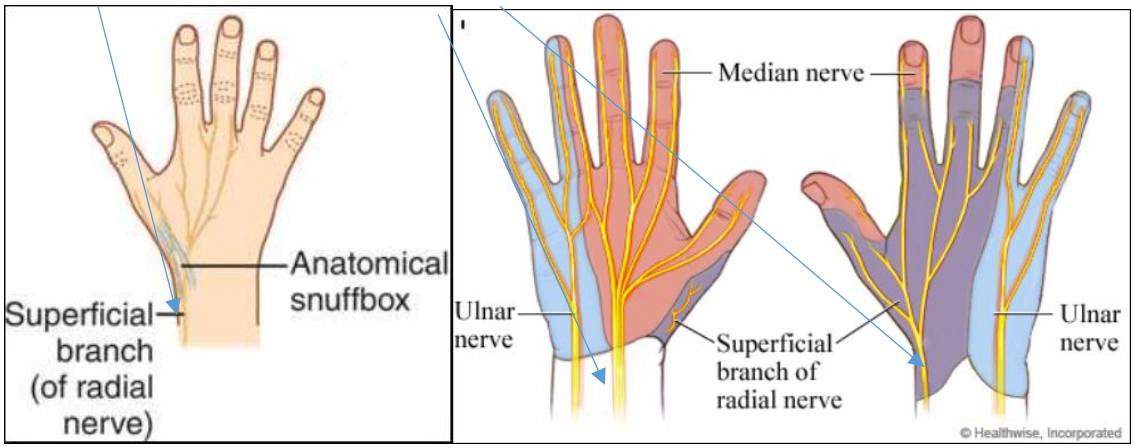
Any blood contamination on the tourniquet - discard it.

After each collect check the inside of the needle holder/barrel for blood contamination – use an alcohol wipe to clean.

2.10 Areas / Sites to Avoid When Choosing A Vein

- **Scars from burns or surgery** -or obvious scarring from excessive needle use.
- **Haematoma or bruised areas -**These are painful and may yield erroneous test results.
- **Arm containing a fistula** – may cause trauma or scarring. If only access use hand or median cubital vein - **not the cephalic vein if possible as this is used for Fistula formation for haemodialysis.**
- **Picc Line** side as may introduce infection but can be used if a last resort but collect sample distal to as possible to the picc line.
- Infected or inflamed areas/sites as may exacerbate the infection and be painful for the patient.
- Side affected by a stroke or injury due to the inability to detect an adverse reaction e.g. nerve injury.
- Veins on the **underside** and **side** of the wrist must not be used due to possibility of nerve and tendon damage. See diagrams below:

2.10 Areas / Sites to Avoid When Choosing a Vein



NEVER USE A VEIN FROM:

- **The side of a mastectomy.** The restriction of the tourniquet on the tissue and the possible introduction of bacteria through a needle puncture may cause **Lymphoedema** (accumulation) of fluid in the extremity) or **lymphostasis** (interruption of the lymph fluid flow. Patients who have had lymph nodes removed, especially from the axilla (under arm) are more likely to experience swelling and pain in the arm and are usually instructed by their doctor, specialist or physiotherapist to avoid having blood taken from that arm.

N.B. If this is the only site available we require a letter from their Surgeon or Doctor giving permission to collect from the side of a mastectomy. A copy of this letter should be retained by the patient.

2.11 Assistance to Hold a Patient During Venepuncture

From time to time it is necessary to seek assistance to immobilise an arm if you suspect a patient will be troublesome.

For an adult - ask the helper to stand/sit to the side of the arm to be used and hold the wrist down firmly. Using the palm of the hand apply firm upward pressure (without pushing the arm up) under the patient's elbow to eliminate the possibility of the arm bending. Do not grip the elbow as this will distort the venepuncture site and can make the patient feel quite uncomfortable.

It may be necessary to request another person to stand behind the patient's chair to hold the patient back in case there is a tendency to jerk forward.

For a child - the helper will sit on the same side as the intended venepuncture and hold the patient as for an adult. It is recommended that very young patients be seated on a parent's knee, to be given a feeling of security during the procedure.

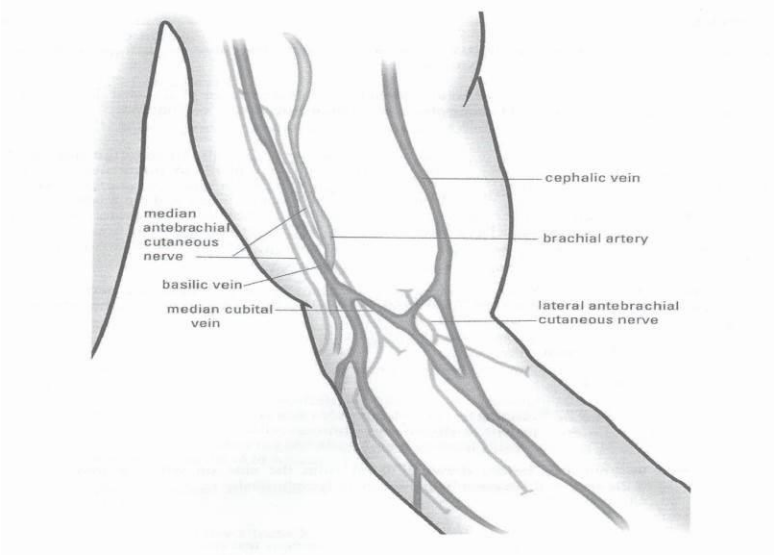
2.12 Cleansing the Venepuncture Site

Once you have selected a suitable vein, assess the direction, size and depth of it. You should be able to palpate the vein for at least 2-3 cm, making sure there is no "junction" where the vein will change direction.
Allow the site to air dry for at least 15 seconds. (Do not wipe the wet alcohol with a dry swab).

If it is necessary to palpate the vein, you must re-swab the site and allow to air dry.

2.13 Selecting a Suitable Vein

Diagram showing Superficial Veins of the Anterior Surface of the Upper Arm.



- It is important to select a vein carefully for blood collection.
- A patient who has had previous blood tests will often indicate which arm has the most accessible veins. This may not be correct and it will require tact if both arms are to be inspected.
- One arm usually has better veins than the other and most often it is the one that is predominantly used.
- Sometimes a slight rotation of the patient's hand will show up a vein in the antecubital fossa.
- The antecubital fossa in front of the elbow joint is the area where Median Cubital, Cephalic and Basilic veins pass through. (Refer to diagram)
- The larger and fuller medium cubital and cephalic veins are used most frequently.
- MEDIAN CUBITAL VEINS are preferred because:
  - They are typically closer to the surface of the skin.
  - Well-anchored and bruises less easily.
  - Less painful upon needle insertion.
  - Less likely to injure nerves if needle placement is not accurate
  - ***NOTE:*** attempt to locate the medial cubital vein on either arm before considering alternative veins.
- Due to the proximity of the Basilic vein to the brachial artery and the median nerve, also the Basilic vein is generally smaller, not particularly well anchored and tends to roll away it should only be considered if no other vein is more prominent.
- Veins on the underside of the wrist must not be used.
- **Palpate the vein.** Using the fingertip press firmly down on the skin and as you lift your finger you will feel the vein bounce back. Move across the ante Cubital area repeating the 'press down/release' motion until you locate a vein. It will feel like a warm rubber tube. Do not press down on a vein and hold the pressure while 'wriggling' the vein, as this will make the vein 'reedy'.
- **Never** assume a blue line is a suitable vein for a venepuncture.
- **Never** slap the patient's arm or 'flick' the vein.

NOTE*:*

- Veins are spongy.
- Arteries are deeper, pulsate and are more elastic and have a thick wall.
- Tendons are tight and string-like
- Thrombosed veins lack resilience, feel cord-like, roll easily and should not be used.

- Veins become more prominent and easier to enter when the patient forms a fist.
- The patient **must not** open and close (pump) their hand. Vigorous hand pumping may cause changes in the concentration of certain analytes, e.g. potassium levels, in the blood.

2.13 Selecting a Suitable Vein cont

- Once you have found a suitable vein, assess the direction, size and depth of it. Palpate the vein for at least 2 –3 cm, making sure there is no 'junction' where the vein will change direction.
- If you have difficulty finding a suitable vein, request that you inspect the other arm.
- If unsure of your selection, please refer the patient to nearest Pathlab Room.

2.14 Vacutainer Venepuncture

a) Slide the first collection tube into the needle holder and press the tube on to the end of the needle, **no further** than the ridge on the needle holder or the rubber stopper will be completely pierced and the vacuum in the tube will be lost.
b) Remove the coloured needle cover. Visually check the needle prior to every venepuncture for burrs, hooks or other manufacturing defects.
c) Try to stand directly in line with the vein you have selected.
d) Anchor the vein, by holding the arm skin firmly down **below** the area that you will puncture. This prevents the vein from rolling or slipping and also helps to hold the arm still.
e) Pull back the needle safety shield back into an upright position. The bevel of the needle will be facing upwards. (Fingertip hold)
f) Puncture the vein in one swift, smooth motion at an angle of 15° - 30°. Insert the needle in the widest part of the vein and in the same direction as the vein. With practice, you should feel the needle "give" as it threads into the lumen of the vein. Once the needle is inserted in the vein there is no need to keep the vein anchored. That hand is now used to manipulate the tube(s) on to the back of the needle.
g) Place your forefinger and middle finger on the needle holder flange and your thumb on the bottom of the tube. Press the Vacutainer tube all the way on to the needle and the tube will begin to fill.
h) Roll the tube so the label is underneath, to allow clear vision of the blood flow.
i) Now lightly rest your hand holding the needle assembly down on the patient's arm making sure you maintain the correct needle angle.
j) **Gently relax the tourniquet pressure as soon as you establish a good blood flow.** (Do not **release** the tourniquet at this time. Just keep it completely **relaxed** on the arm until the last tube has been collected).
k) When the vacuum is exhausted the blood volume is complete. The tube will only fill to the coloured line on the label. Always aim for **maximum tube filling** to attain the correct blood/additive ratio in the tube.
l) To remove the tube from the back of the needle, curl your fingers round the tube. Apply a forward pressure with your thumb against the flange of the needle holder and with your fingers smoothly pull back the tube and remove it from the needle holder.
m) Never push or pull the tube without "bracing" the needle holder as it will cause needle movement or the needle will dislodge from the vein
n) As each successive tube is filling remember to gently invert the tube at least 8 times to mix.'
o) Maintain total focus on the point of needle entry throughout the procedure and keep a forward pressure on the needle holder to prevent the needle coming out of the vein during tube changes. It is vital to keep the needle as still as possible to minimise any discomfit to the patient
p) If the blood flow decreases, it may be necessary to tighten the tourniquet in an attempt to distend the vein. Once the flow improves, the tourniquet pressure **must** be relaxed.

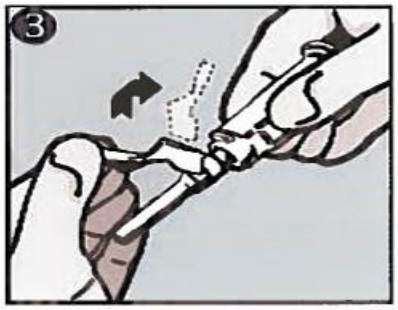
NOTE: Indications show that having the hand clenched may cause abnormal Potassium results. Where possible keep the patient's hand relaxed when searching for a vein and during the blood collection.

2.14 Vacutainer Venepuncture cont

q) When all the required tubes are collected as per order of draw, **release** the tourniquet.
r) Remove the last tube from the needle/needle holder, mix by inversion as per manufacturers instructions.
s) Hold a dry gauze swab above the venepuncture site, but not touching the skin.
t) Place gauze over the needle site (do not press down).
u) Swiftly withdraw the needle from the vein then immediately apply the gauze with firm pressure over the puncture site, push the safety shield forward with your thumb until you hear a click as the shield locks into place covering the needle, then discard the needle immediately by pressing the button on the quick release needle holder into sharps container.
v) The patient's arm remains extended at this time as bleeding will recur if the arm is bent up then straightened again. Allow at least 3 minutes for the clot to form, labelling the tubes while you wait.
w) Advise the patient to leave the plaster on between 30 minutes and an hour to avoid heavy lifting and strenuous exercise directly after blood test.

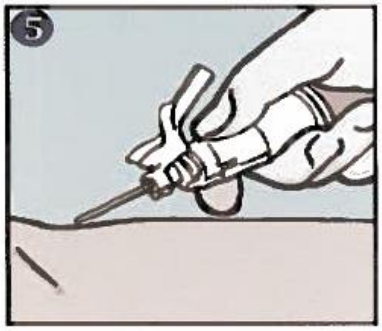
- Holding both coloured shields, twist and remove white shield.

- Screw on holder (if using Pronto™, hold white tab while screwing in needle).



- Rotate safety shield back.

- Twist and pull needle shield straight off.



- Perform venipuncture.

- Firmly push forward on the safety shield, lock into place and inspect.

2.15 Labelling the Tubes

- The blood collector must label the tubes.
- Always label the tubes **after** you collect the specimens, **never before**.
- Label the tubes before you put a plaster on the puncture site (time to stop the bleeding), before the patient leaves the chair.
- Label the tubes from the request form, **not** from the previous tube.
- Always hold the tubes with the top to the left and label from left to right.

For **Community Patients** write on tubes:	Patient's full name Date of birth Time and date of specimen
For **Cross Match Specimens** write:	Patient's surname Full first names Date of birth Time and date of specimen Signature of collector

Tubes must be written in pen, no patient labels.
Never write the Doctor's name on this tube.

Unlabelled or incorrectly labelled tubes will not be processed. Recollection will be required.

2.16 Request Form Documentation

The request form is the main communication through the Laboratory system, so if the information is wrong it will affect all stored patient data in the computer, through the analysis process and the results will be transmitted with wrong patient identification.

As well as the standard Laboratory form there are a number of computer-generated forms with varied formats, which must be read, carefully to ensure patient data is correct and tests are not missed.

All request forms require Clinical Details.

Prior to specimen collection you must check the patient's name (and spelling), date of birth, NHI number (hospital ID) and the **requesting Doctor MCNZ number and signature (MCNZ not required an online order form)**

Use a black pen for added documentation as blue pens photocopy lightly.

When the specimen collect is completed you must add to the form in the "COLLECTED BY" space:

a) The time and date of the specimen collected.
b) The location e.g.: name of medical centre / name of rest-home.
c) Initials of the collector.
d) Whether patient fasting or non-fasting, what samples you have collected e.g.
   - X1 SST
   - X1 EDTA
   - X1 grey
   - X1 urine etc.
e) The time and date of last dose if for therapeutic drug monitoring.

If there are any queries regarding the specimens or the patient, the collector's initials and location enables the Laboratory staff to contact you for any related information. The importance of patient identification and complete and accurate specimen labelling cannot be stressed enough.

2.17 Specimen Storage and Transportation

Place the specimen(s) in a biohazard bag. Fold the request form inwards for confidentiality and place in the bag pocket.

Store in a cool temperature until delivered to the Lab. Ideally, an ice pack attached (inside) to the chilly bin lid prior to the day's blood specimens being collected will maintain a preferred temperature control. Blood specimens should never be in direct contact with an ice pack.

Blood specimens should be delivered to the Lab on the same day as soon as possible after collection Alternative arrangements may be made only after discussion with the department supervisor.

Transport all specimens in a chilly bin to maintain the required temperature, for safety and confidentiality. Extremes of temperature, especially in a hot vehicle can compromise the test results.

2.18 Discharging the Patient

- Check the patient's arm for further signs of bleeding or bruising. If the patient is on anticoagulant therapy, allow extra time to ensure the site will not start bleeding again. Never wipe the puncture site with a gauze swab as this will take the clot from the surface and bleeding will recur.

- Cover the puncture site with a small plaster or micropore. Extra gauze under the plaster may be necessary if the patient is on anticoagulants. Now the patient is requested to minimise arm movement for a few minutes in case the clotting process has not totally completed.

- Watch for any signs of pallor or dizziness – blood tests will often affect patients.

- If the patient feels unwell do not encourage him/her to leave on their own until you are satisfied there will be no further problems as they go home, especially if they are driving a vehicle

- Advise the patient to leave the plaster on for between 30 minutes to an hour and to avoid heavy lifting and strenuous exercise directly after blood test.

2.19 Quality Control

- Do not store unnecessary amounts of tubes.
- Check expiry dates on equipment – monthly
- Collection tubes should only be used within the printed expiry date shown on the label.
- Keep your blood collection kit clean and prepared for the next use.
- Replace old or worn equipment e.g., tourniquet, needle holder, sharps container.
- Ensure patient preparation procedures are followed.
- Ensure specimen storage and transport to the Laboratory is timely.

2.20 Trouble Shooting

If veins are difficult to access, please have no more than 2 attempts. Please send the patient to a Pathlab collection room. Continued needle trauma to veins by an inexperienced person will make it more difficult to successfully draw blood and cause pain and discomfit to the patient.

If you suspect the patient will over-react to the needle prick do not hesitate to seek assistance in holding the patient's arm. If you are on your own, it may be preferable to refer the patient to the closest Laboratory rooms where another person can assist.

2.20 Trouble Shooting cont

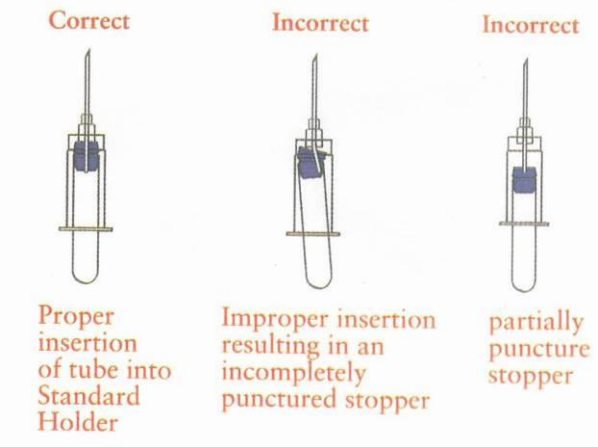
If you have already tried and the patient pulls away and the needle comes out, immediately release the tourniquet and apply pressure to the puncture site with a gauze swab. Your second attempt must be in the opposite arm as tourniquet pressure on the first arm will cause bleeding to recur.

During the blood collection watch out for a “jerky “or irregular blood flow.
Possible cause: the needle position- the bevel may be pressing on the vein wall.
Remedy – re-align the needle.
Possible cause: the vein is collapsing – strong suction from the tube on a small vein.
Remedy – may need to tighten the tourniquet.

If the problem continues, abort the venepuncture attempt as the continued irregular flow is likely to cause haemolysis (blood cells ruptured)

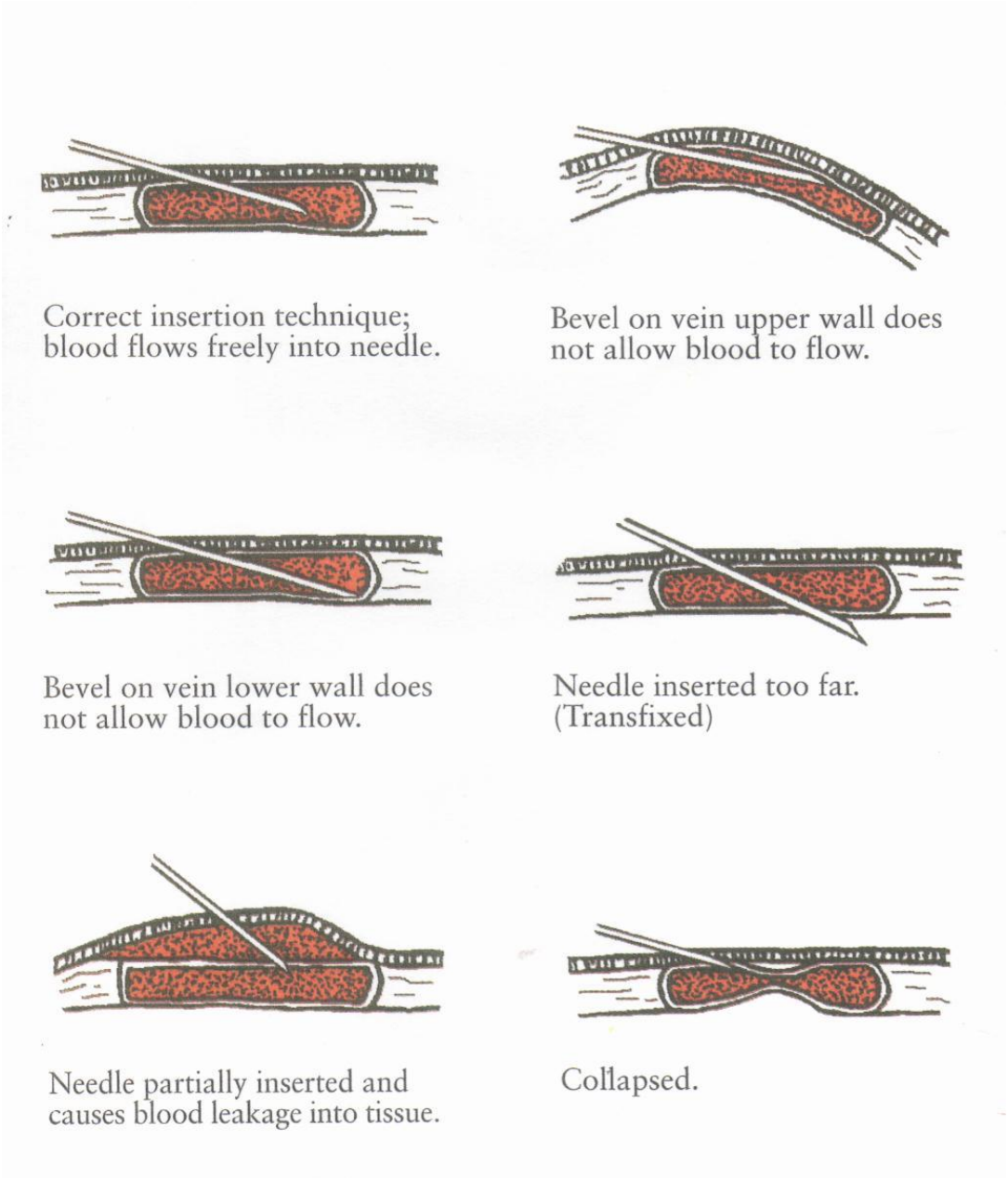
If the flow improves, take an extra tube of blood in the same tube type as the “problem” one to ensure a quality specimen for testing.

2.21 Correct Insertion of Vacutainer Tubes



- When the tube is filled to capacity, remove it from the needle. Apply soft pressure to the needle holder with your thumb and pull with your fingers curled around the tube. Always **maintain firm steady pressure** when introducing or removing the tubes, to maintain needle depth and to prevent needle movement in the patient’s vein.
- Invert the tube 8 times (**never shake)** to ensure the blood is properly mixed with additive.
- Continue filling each tube maintaining firm steady pressure as you change them until the collection is complete.
- Remove the last tube from the needle holder and mix by inversion as per manufacturers recommendations.

2.22 Needle Positioning and Failure to Draw Blood



Correct insertion technique; blood flows freely into needle.

Bevel on vein upper wall does not allow blood to flow.

Bevel on vein lower wall does not allow blood to flow.

Needle inserted too far. (Transfixed)

Needle partially inserted and causes blood leakage into tissue.

Collapsed.

2.23 Inadequate Blood Flow

Causes	Solutions
Tube may be improperly inserted on the needle	Remove the tube and re-insert correctly.
Needle bevel may be flush against the vein wall	Rotate the needle ¼ turn clockwise.
Tourniquet applied too tightly for too long	Slowly and gently release the pressure.
Tube may be damaged, pre-opened or punctured.	Replace the tube. Vacuum lost
Needle has transfixed the vein (gone through the back wall of the vein)	Pull back slightly on the needle. Be alert for haematoma to form.
Needle is not completely in the vein	Advance the needle forward until you feel the 'give' as the needle penetrates the vein.

2.24 Blood Flow Stops Halfway Through Collection

Causes	Solutions
Vein may have collapsed	Remove tube from holder for a few seconds to allow the vein to refill. Replace the tube.
Needle may be displaced during tube changes	Repeat the venepuncture on the opposite arm unless realignment of the needle is attained.

2.25 Under filling of Tubes

Causes	Solutions
Premature removal of the tube	Reintroduce tube to continue tube filling until vacuum is exhausted.
Long line of winged collector set may contain air	Use a 'discard' tube first, to ensure accurate test results

2.26 Haemolysed Specimens

Haemolysis – the breakdown or rupture of red blood cells and the release of haemoglobin to the serum or plasma.

Haemolysis results when Red Blood cells break down and Haemoglobin is released; the serum which is normally straw coloured becomes tinged with pink or red. If a specimen is grossly haemolysed the serum can appear dark red. Haemolysis can be caused by improper Phlebotomy technique such as:

- Using a needle that is too small
- Expelling blood vigorously into a tube
- Shaking or mixing tubes too vigorously
- Performing a venepuncture before the alcohol has dried at the collection site
- Pulling back a syringe plunger too fast
- A slow or jerky collect

2.26 Haemolysed Specimens cont

Cause	Solution
Excessive probing with the needle	Release the tourniquet and remove needle. Repeat venepuncture at a different site
Alcohol contamination	Allow disinfected skin site to totally air dry prior to venepuncture
Prolonged tourniquet application (> 1 minute)	Release the tourniquet, allow normal blood flow to re-establish.
Underfeeding of tubes	Redraw specimen with trauma-free Venepuncture.
Irregular or 'jerky' draw.	Realign needle if pressing on a vein wall or if Vein collapsing gently increase tourniquet pressure.
Vigorous mixing of tubes	Gentle inversion only.
Using a needle too small a gauge for the vacuum force.	Where possible use 21G. Only use 22G for small veins.
Collecting blood from a haematoma.	Never draw blood from a bruised area.
This is due to poor technique:	You may have torn the vein. Punctured both sides of the vein. Left the tourniquet on too tight for too long. Insufficient pressure applied after removing the needle.

Be mindful with patients who are on Anticoagulant therapy e.g. Warfarin, Aspirin or Heparin as they have a tendency to bleed more freely. Also because they have frequent blood tests, their veins need to be well cared for.

2.27 Arteries

In the event your needle entering an artery by mistake, either deep in the antecubital fossa or sometimes in a superficial artery that is abnormally placed, just beneath the skin.

You will recognise it as an artery; by the way the blood spurts out as you insert the needle, the bright red colour of the blood and the rapid haematoma development when the needle is removed.

You must react quickly. Immediately release the tourniquet. Remove the tube from the needle holder and withdraw the needle from the artery. Then apply a firm pressure pad over the puncture site for 10 minutes, timed by your watch. This should give adequate time for the hole in the vessel to be plugged with a blood clot. **Do not leave the patient during this time.** It may be necessary to maintain pressure for a longer period.

2.28 Severe Pain Following Venepuncture

If a patient complains of sudden moderate to severe pain radiating from the puncture site either up or down the arm. This may indicate you have touched one of the many small subcutaneous nerves. Remove the needle immediately and apply pressure.
Rarely does serious nerve damage occur but there is the possibility of continued pain for some time and the patient may require follow-up treatment.

Apologise to the patient and be re-assuring. If you need to have a second venepuncture attempt, ask permission and ensure you are confident. If you are unsure please refer the patient to a collection room. **If pain persists the patient should see a Doctor.**

2.29 Venepuncture Procedure Check

a) Introduce yourself.
b) Identify the patient. Check the request form: name, date of birth, address and phone number, requestor details.
c) Document form. *Must be signed by the requesting Doctor.
d) Requestors MCNZ number and Clinical details required.
e) Explain procedure, and then wash hands.
f) Assemble equipment. Always break the needle seal in front of the patient.
g) Position the patient, either sitting or supine.
h) Apply the tourniquet and palpate for a vein.
i) Swab the venepuncture site using a circular motion from the centre outwards. Allow the skin to air dry. Perform hand hygiene.
j) Anchor and enter the vein.
k) Relax the tourniquet.
l) Fill all tubes according to order of draw, inverting each one when full.
m) Release the tourniquet.
n) Hold dry swab loosely above the needle.
o) Withdraw the needle and activate safety shield and dispose of needle into biohazard container
p) Apply firm pressure on the venepuncture site, arm still extended.
q) Label tubes.
r) Check patient's arm and apply tape over dry swab.
s) Discharge the patient.
t) Post care information
u) Perform hand hygiene.

*Not required for electronically generate forms.

3 SPECIAL PROCEDURES

3.1 Tests Requiring Appointments

There are a number of patients who need to be referred to the laboratory for an appointment for their tests. They are either time consuming tests or require Pathologist / technical assistance.

The following covers these tests and their requirements so you may be able to explain them clearly to your patients.

These include:

3.1.1 DNA Paternity

Performed at:

- **PLBOP -** Cameron Rd and Whakatane Hospital **appointment required.**
- **PLWh** - Refer to Cameron Rd Tauranga.
- **PLW -** Main Lab and some out of town surgeries.
- **PLR** – Haupapa St.
- **PLT** - by arrangement.
- Takes approx. 15 mins per person.
- ID: All parties require a current photo. Adults need two forms of ID e.g. photo + passport or driver's licence or lawyer present. A child under 16 years old requires the mothers consent/Affidavit
- Cost $1275.00

3.1.2 GTT (Glucose Tolerance) / Polycose Tolerance

Performed at:

- **PLBOP / PLWh** all rooms.
- **PLW** – all rooms
- **PLR** – Haupapa St
- **PLT-** Tuwharetoa and Turangi.
- Patient to fast for 10-12 hrs. prior but may drink water only.
- No vigorous exercise on the morning of the test
- Must stay at lab for 2 hrs. During test.
- Not permitted to eat, drink or smoke during test.

3.1.3 Skin Allergy Tests

Request form available on Pathlab website.

Appointment required:

- **PLBOP**- Cameron Rd, Baymed.
- **PLWh** – Whakatane Hospital in the afternoon.
- **PLW** - Main lab, Thames and Matamata.
- **PLR** - Rotorua Hospital site.
- **PLT** - Hospital site telephone for appt.
- Takes approximately 30 minutes.
- Patient must not have taken antihistamines for 3 days prior to test.

3.1.4 FNA (Fine Needle Aspirate)

Performed at:

- **PLBOP**-Cameron Rd
- **PLWh** -Whakatane Hospital (Thursday only)
- **PLW** - Main lab only.
- **PLR/PLT**- Rotorua Hospital site
- By appointment with pathologist.
- Contact phone number of the patient is required.
- Recommend a support person accompanies them.
- Takes up to 20 minutes.
- If mammogram required, this must be done either before FNA procedure or 10 days post procedure.

3.1.5 Bone Marrow

Performed at:

- **PLBOP** - Cameron Rd.
- **PLWh** - Whakatane Hospital, Thursday am.
- **PLW** - Main lab only.
- **PLR/PLT** - Rotorua Hospital site.
- By appointment with pathologist.
- Procedure takes approximately 1 hour.
- Patient will be administered a local anaesthetic.
- We recommend that the patient arrange to be taken home after the procedure. (Advisable that they bring a support person.)
- There may be some discomfort during the procedure and the following 24 hours also. Post procedure care instructions will be given by the Pathologist.

3.1.6 Synacthen (Investigation Addison's disease)

Performed at:

- **PLBOP** - Cameron RD only.
- **PLW -** Main lab only.
- **PLR -** Rotorua hospital site, Chemo Day stay.
- **PLT -** Refer patient to Rotorua hospital site.
- Patient to avoid Cortisone, Hydrocortisone and Prednisone for 8 hours prior to test.
- Procedure duration 1 hour.
- Patient must remain at rooms until test completed.
- **Requestor please write a prescription for patient to collect from pharmacy.**

3.1.7 Drug Screening (clinical purposes only)

Not available for employment / court purposes.

Appointment Only:

- **Bay of Plenty/Whakatane –**Refer patient to TDDA –07 574 3597
- **Pathlab Waikato** – Refer to TDDA – 07 8505056
- **PLR** – Refer patient to TDDA – 07 345 4494 OR 07 343 1952 OR Achieve Workplace Health.
- Mobile testing is also available from TDDA.

3.1.8 Infertility Testing and IVF Programmes PLBOP

- No appointment required.
- Female patients undergoing investigative fertility tests in Auckland or Hamilton, or who are on the In Vitro Fertilisation programme are able to have their monthly hormonal cycles tested at Pathlab BOP.
- Fertility hormones are tested routinely on weekdays at all Pathlab BOP rooms.
- Weekend Testing - **The patient is required to have blood specimens collected before 0900 hrs.**
- Weekend laboratory specimen collection locations:

- Saturday	829 Cameron Rd	0730 – 1145 hrs.
	8 Grenada St	0730 – 1145 hrs.
- Sunday and Public Holidays	**Tauranga Hospital**	**0900 hrs.**
	Patient goes to Main Reception at 9am and asks for the laboratory phlebotomists to be paged.	

3.1.9 Infertility Testing and IVF Programmes PLW

- Female patients undergoing investigative fertility tests in Auckland or Hamilton, or who are on the In Vitro Fertilisation programme are able to have their monthly hormonal cycles tested at Pathlab Waikato.
- Fertility hormones are tested routinely on weekdays at all Pathlab Waikato rooms.
- Weekend Testing - **The patient is required to have blood specimens collected before 0900 hrs.**
- Weekend laboratory specimen collection locations:

- Saturday	Main lab Only	0800 – 1000hrs.
- Sunday and Public Holidays	Main lab Only	0800 – 1000 hrs.

3.1.10 Infertility Testing and IVF Programmes PLR

- Female patients undergoing investigative fertility tests in Auckland or Hamilton, or who are on the In Vitro Fertilisation programme are able to have their monthly hormonal cycles tested at Laboratory Services Rotorua.
- Fertility hormones are tested routinely on weekdays at all Haupapa St rooms.
- **Weekend Testing**:
- **Saturday** - Refer patient to 16 1st Ave Tauranga hours 7.30-12pm or 58 Tristram St Hamilton before 9am.
- **Sunday** - attend Tauranga hospital main Reception at 9am, ask for Phlebotomist on call, or attend Pathlab Waikato, 58 Tristram St, Hamilton between 8.30-9.30am

3.1.11 Thrombophilia Screen

Performed at all rooms.

3.1.12 Venesection

A venesection request form must be completed. Refer website for request form.

Appointment required:

- **PLBOP**-Tauranga Hospital Outpatients department only. Appointment required, Tues and Wed at OPD between 1pm and 3.30pm. Contact Venesection Co-ordinator 5787073.
- **PLR-** OPD Hospital site by appointment.
- **PLT-** Tuwharetoa St by appointment only
- **PLWh-** Hospital site, PM between 2-3pm.
- **PLW-** Refer Main lab for rooms and appointments.

3.1.13 NIPT (Non-invasive prenatal testing)

Appointment required:

- **PLBOP / PLWh-** Cameron Rd, Mon and Tues **only.**
- **PLR -** Mon and Tues only between 9am and 10am.
- **PLT -** refer patient to **PLR** or **PLBOP.**
- **PLW-**Mon and Tues only 8am-10am.

3.1.14 Therapeutic Drug Monitoring

- To check
  a) Therapeutic confirmation
  b) Suspected toxicity
  c) Absence of therapeutic response
  b) Overdose
- Appropriate sampling time
  a) Peak level: a short time after dose taken.
  b) Trough level: immediately prior to next dose.
  c) Random: when level remains stable throughout the day.

Check on Pathlab website, Test Index for drug collection requirements.

3.2 Urine Collections

First ascertain what sort of urine sample has been requested. Samples must be collected into laboratory approved collection containers.

3.2.1 Microalbumin

Random urine sample. The patient is asked to pass urine into the plastic dish and not to flush the toilet as splashes may contaminate the sample. Specimens are labelled as per requirements. Collect into yellow Z tube container:

3.2.2 Chlamydia Urine

Use Specific BD Chlamydia / Gonorrhoea kit.

These are collected for chlamydia testing. First stream urine 5- 10mLs required. The patient must not have passed urine for at least **1 hour** prior to collection of the sample.

The patient must pass the first part of the urine sample into the pot provided and discard the rest. **Chlamydia urine**:

Add urine to level between purple lines

If the doctor has requested both Urine Chlamydia and an MSU – two different collections need to be done at the same time.

a) Label one pot No1 and one tube No1 and the other pot No2 and the other tube No2.
b) Collect the first 10mls (2 teaspoons full) in the punnet No1 and the next 20mls into pot No2.
c) Transfer the urine from the punnets into their respective urine tubes.
d) Make sure that the urine tubes are correctly labelled.

3.2.3 MSU – Mid Stream Urine

- These samples are collected for culture.
- The patient is asked to pass a small amount of urine into the toilet and then pass the next portion (middle portion - around 5-10 mL) into the plastic dish provided. This is the sample we require. Pass the remaining urine into the toilet.
- Collect sample into Tan-top tube, minimum 2.5mL, maximum ¾ full (exception for babies, children, elderly patients etc.)
- Ensure lid firmly in place.
- Label appropriately and return to the laboratory as soon as possible.
- Refrigerate the sample as soon as practical. If there is a delay or it needs to be kept overnight, the sample must be refrigerated.

3.2.4 TB Urines

a) Three urine specimens are required. These are to be collected on three consecutive mornings.
b) Collect ALL 1st urine of the morning, into the 500mL specimen container provided.
c) All specimen containers must be labelled with the patient's **full name, date of birth, and the date and time of collection.**
d) If there is a delay in delivering the specimen to the Diagnostic Laboratory, please refrigerate.

(Specimens may be collected over the weekend, kept in the fridge, and delivered to the laboratory on Monday morning).

3.2.5 Cytology Urine

- Refer website for the most up to date information.
- **Please send patient if possible to a collection room.**
- **Do not** collect the 1st void of the day. **Patient must have been ambulant for several hours prior to collection**. Morning urine specimens have the advantage of highest cellularity, but also disadvantage of cell degeneration.
- **Do not** collect the initial stream, collect a mid-stream specimen. This recommendation has come from the cytology department (Pathologist and Head of Department, Cytology). The reason for this is to try to eliminate specimen contamination of epithelial cells especially from the vulval / vaginal area in female patients.
- Three specimens collected on separate days are diagnostically optimal. Establish if patient has been issued with three forms from requesting doctor.

Containers: Blue lidded 50 mL, containing 25 mL of 50% Isopropanol. A mid-stream sample is required.

3.2.6 24 Hour Urine Collections

Collect container from the Collection Rooms.

Do not use milk bottles for collections. Residual calcium may contaminate samples or elevate results.

Some 24-hour tests can be processed from a random urine collect.

Patients requiring a 24-hour urine collection will be required to attend the laboratory to collect the collection bottles and any special instructions for the collection.

24-hour urine container:

3.2.7 Paediatric Urine Bag

Plastic urine bags for collects from babies.

3.3 Collection & Processing Of Joint Aspirate Specimens

3.3.1 Specimen Container

- Red topped plain (non SST) sterile tube for culture.
- Purple topped EDTA or Green topped heparin tube to prevent clotting for cell count and crystals. Rotorua collect green rubber topped tube
- Please do not send recapped syringes as this could result in a needle stick injury.

3.3.2 Tests Routinely Performed

- Appearance of the specimen.
- Cell count / μL, if specifically requested or an EDTA or Heparin tube is received and provided the specimen is free from clots and large amounts of blood.
- White blood cell differential if significant numbers are present.
- Examination for crystals of calcium pyrophosphate and monosodium urates.
- Gram stain and routine culture. (Culture for TB must be specifically requested.)

3.4 Collection of Swabs

Refer to website for current swab chart.

White cap with transport media. (swabs may change due is supply issues) Use for routine cultures:

- Throat
- Eyes
- Ears
- Nasal
- Wounds
- MRSA collects
- Vaginal plus GBS (vaginal and rectal swab, using the same swab)

3.5 MRSA Collect

The guidelines recommend the following swabs to be collected for MRSA:

- **One nasal swab (used to swab both anterior nares)**
- **One swab from the groin**
- Swabs from possible sites of infection such as skin lesions including paronychia, pressure sores, venous access site, surgical wounds and tracheotomies. The umbilicus should be swabbed in neonates. (The third bullet is mainly applicable to patients.)
- The swabs should be moistened in sterile saline and then rubbed over the indicated area several times to increase the uptake of organisms.
- Swabs are then submitted to the laboratory without undue delay and clearly labelled MRSA specimen so the appropriate culture techniques are applied. The specimen should not be refrigerated or exposed to direct sunlight or extremes of temperature. Unless the person has skin lesion etc., only two swabs need be collected: nasal and groin.

3.6 Chlamydia Swab Collection

Use the white swab to remove excess mucus and blood from endocervices which must be discarded, the pink swab to be used for collecting the specimen:

3.7 Viral Swab / Green Cap

Used to investigate / confirm a viral infection. Site of lesion e.g. lip.

3.8 Flexi Swab

Flocked nasopharyngeal swab and viral medium, various other flexi flocked swabs may also be stocked:

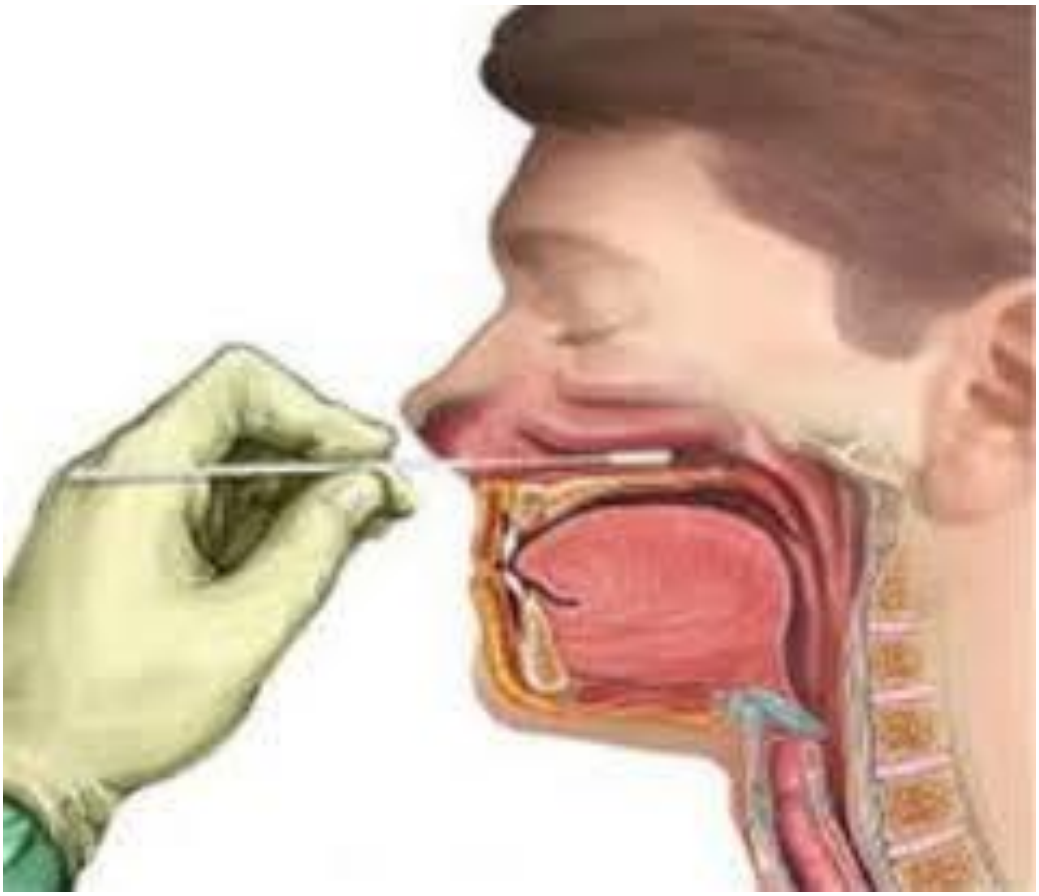
Collected for COVID-19 PCR, Influenza A & B, Measles PCR, Pertussis and RSV.

4 NASOPHARYNGEAL SWAB COLLECTION

Collection of specimens from the surface of the respiratory mucosa with nasopharyngeal swabs is a procedure used for the diagnosis of Covid 19 the illness caused by infection with severe acute respiratory syndrome in adults and children.

The procedure is also commonly used to evaluate patients with suspected respiratory infection caused by other viruses and some bacteria.

a) Wash hands and don PPE (see instructions)
b) Position the patient seated with head straight and not tilted.
c) Stand to one side to protect yourself from possible cough/sneeze.
d) Insert the swab into 1 nostril. Straight back NOT upward and horizontally into the nasopharynx until resistance is met.
e) Rotate the swab and hold in place for 5-10 seconds before withdrawing swab.
f) Insert swab into the viral medium and snap off at break point.
g) Label the swab with patients first and last name DOB and time and date of collection.
h) Remove PPE and wash hands (see instructions)



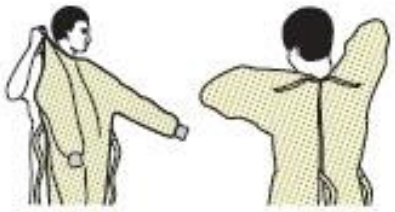
4.1 Putting On PPE

SEQUENCE FOR PUTTING ON PERSONAL PROTECTIVE EQUIPMENT (PPE)

The type of PPE used will vary based on the level of precautions required, such as standard and contact, droplet or airborne infection isolation precautions. The procedure for putting on and removing PPE should be tailored to the specific type of PPE.

1. GOWN

- Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
- Fasten in back of neck and waist



2. MASK OR RESPIRATOR

- Secure ties or elastic bands at middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Fit-check respirator

3. GOGGLES OR FACE SHIELD

- Place over face and eyes and adjust to fit

4. GLOVES

- Extend to cover wrist of isolation gown

USE SAFE WORK PRACTICES TO PROTECT YOURSELF AND LIMIT THE SPREAD OF CONTAMINATION

- Keep hands away from face
- Limit surfaces touched
- Change gloves when torn or heavily contaminated
- Perform hand hygiene

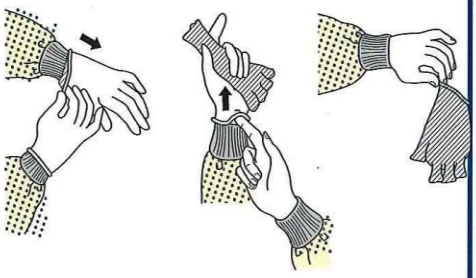
4.2 Removing PPE

SEQUENCE FOR REMOVING PERSONAL PROTECTIVE EQUIPMENT (PPE)

Except for respirator, remove PPE at doorway or in anteroom. Remove respirator after leaving patient room and closing door.

1. GLOVES

- Outside of gloves is contaminated!
- Grasp outside of glove with opposite gloved hand; peel off
- Hold removed glove in gloved hand
- Slide fingers of ungloved hand under remaining glove at wrist
- Peel glove off over first glovet
- Discard gloves in waste container

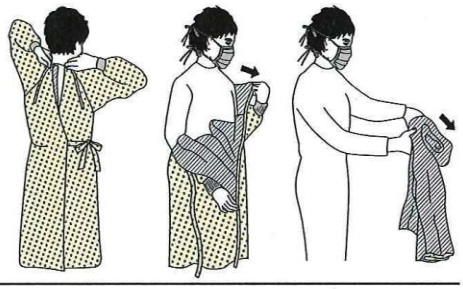


2. GOGGLES OR FACE SHIELD

- Outside of goggles or face shield is contaminated!
- To remove, handle by head band or ear pieces
- Place in designated receptacle for reprocessing or in waste container

3. GOWN

- Gown front and sleeves are contaminated!
- Unfasten ties
- Pull away from neck and shoulders, touching inside of gown only
- Turn gown inside out
- Fold or roll into a bundle and discard



4. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — DO NOT TOUCH!
- Grasp bottom, then top ties or elastics and remove
- Discard in waste container

PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE

CDC

CS250672-A

4.3 Low Vaginal Self-collect swab instructions

Please read all instructions before collecting specimens. If you have any questions about this procedure, please ask your doctor or nurse.

1. Wash hands with soap and water. Rinse and dry.
2. It is important to maintain a comfortable balance during the collection procedure.
3. Twist the cap to break the seal (Figure 1). Do not use if seal is broken or damaged. Pull the cap with attached swab off the tube. Do not touch the soft tip or lay the swab down. If you touch or drop the swab tip or the swab is laid down, discard the swab and request a new vaginal swab.
4. Hold the swab by the cap with one hand so the swab tip is pointing toward you (Figure 2).
5. With your other hand, gently spread the skin outside the vagina. Insert the tip of the swab into the vaginal opening (Figure 2.) Point the tip toward your lower back and relax your muscles.
6. Gently slide the swab no more than two inches into the vagina (Figure 3). If the swab does not slide easily, gently rotate the swab as you push. **If it is still difficult, do not attempt to continue.** Make sure the swab touches the walls of the vagina so that moisture is absorbed by the swab.
7. Rotate the swab for 10-15 seconds (Figure 4).
8. Withdraw the swab without touching the skin. Place the swab in the tube and cap securely (Figure 5).
9. After collection, wash hands with soap and water, rinse, and dry.
10. Return tube with swab as instructed.

BD

BD Diagnostics
7 Loveton Circle
Sparks, MD 21152-0999 USA
800.638.8663
www.bd.com/ds

BD
11, rue Aristide-Bergès
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1-222801 July 2009 Printed in USA

4.4 Yellow Screw Top Containers (60mL)

Referred to as Histo jars.

Specimen Types:

- Sputum
- Semen
- Histology with Formalin added
- Clinical Drug Urines

4.5 Collection of Specimens for Fungal Examination / Cultures

4.5.1 Specimen Collection (Key Points)

Individual specimens from different lesions. Do not combine scrapings from different sites. It is more likely to get a positive direct and culture if individual specimens collected as more material is available for lab to process. Some of the lesions may not be dermatophyte infections i.e. psoriasis, dermatitis.

a) Clean area with an alcohol wipe before scraping and allow to air dry - helps clean any dirt, bacteria, or ointments from lesion. If patient has been using anti-fungal / anti-bacterial ointments or creams, it is best not to collect the specimen but ask them not to apply them for the next 3 days and then return for specimen collection.
b) Quantity of specimen - enough to cover a 5 cent piece is optimal. Half of this is adequate.
c) Once your collection is completed, scrape the blade edge across the top of the envelope to remove any extra specimen into the envelope. Discard the blade into a sharps container. DO NOT enclose in the fungal envelope.
d) Swab the site with Culture swab wet with sterile saline first.

4.5.2 Equipment

- Forceps, small scissors.
- Needles, nail clippers.
- Scalpel blade.
- Culture swab.
- Sterile saline.
- Specimen containers/ black fungi envelopes.
  (Specimens are to be collected into a cardboard collection envelope, a plastic specimen container (histology container).
- Clean equipment (forceps, nail clippers etc.) with detergent, sterilise as for surgical instruments.
- If there is a delay in transporting the specimens to the laboratory, store at room temp, not in the fridge.
- On arrival in the lab, the specimen is cultured and examined microscopically for the presence of fungal elements (e.g. spores, hyphae).
- If there is only a small amount of specimen, microscopy only will be performed.
- Cultures are incubated for 3 weeks before being reported as negative.

THE FINAL RESULTS ARE ONLY AS GOOD AS THE INITIAL SPECIMEN.

4.5 Collection of Specimens for Fungal Examination / Cultures cont

4.5.3 Skin

a) Using a specific blunted scalpel blade, scrape the skin holding the blade at a 90°angle to the skin so as not to cut the patient.
b) Scrape from the outer edge of the lesion into the nearby apparently “normal” skin; this is the active area where the fungus is growing. The centre of the lesion contains only dead fungal elements.
c) In the horny layer of the feet and hands the fungal growth is deep so the scraping must be taken deep into the skin layers.
d) Moisten a dry swab with sterile saline and roll over the area after scraping. This may pick up any leftover loose skin. Put into transport medium and send to lab. This is **not** a substitute for a scraping but an additional specimen.

4.5.4 Scalp

a) Pluck hair shafts (do not cut) and scrape skin from the outer edge of the lesion.
b) “Black dot scalp” (fractured hair shafts) - use tweezers to pluck out the remaining hair shaft.
c) A cervical brush may be useful for collecting specimen.
d) Be aware of non-dermatophyte infections e.g. nodules on the hair - lice, thick coated hairs - trichomycosis axillaris (bacterial)

4.5.5 Nail

Fungi grow in the nail bed and so often need to remove or burrow into the upper nail plate to reach the infected area.

a) Scrape area between infected and healthy nail, discard outer edge of nail previously infected.
b) Clip and scrape nail bed at lesion edge.
c) Look for newly infected nails where lesion edge is easily accessible at nail edge.
d) Look for skin involvement, and do skin scraping separately.

4.6 Tests

Use the test guide on Pathlab website www.pathlab.co.nz or alternatively contact the lab.

5 COLLECTION, STORAGE AND TRANSPORTATION OF LABORATORY SPECIMENS

5.1 Objectives

a) To obtain excellent biological specimens for pathology testing while:
- Ensuring the comfort and safety of the client / patient.
- Protecting the health and safety of the collector.

b) To preserve the integrity of the specimen ensuring optimum results by:
- Collecting the specimen into the correct container (size, medium, expiry etc.).
- Storing the specimen at the correct temperature.

c) To ensure that the specimen is transported to the laboratory in a safe and timely manner.

5.2 Standard Precautions

- Always wash hands before and after the collection of specimens.
- Wear gloves when necessary.
- Disposal of needles, syringes and sharps must be into approved sharps containers. (Never over fill for risk of needle stick injuries.)

5.3 Sample Collection

- Always identify the patient.
- Check spelling of the name, the date of birth and gender of the patient with the details on the form and correct if necessary.
- Check that the information on the form is clear and legible. (Remember if you have difficulty reading a form then the next person to see it will also.)
- Indicate if the patient is fasting (if relevant), or how many hours post dose medication.
- Select the right equipment required to collect the specimens (blood tubes, swabs etc.). If you are unsure contact the lab for advice. We are only too happy to help.
- Once the sample is collected, dispose of any sharps objects immediately. The sooner sharps are disposed of the less chance there is of personal injury. (Never recap needle.)
- If the needle is to be sent to the lab as part of the test (e.g. needle washing for FNA etc.) Place the needle in a firmly sealed Histology pot or urine tube and label appropriately including **NEEDLE ENCLOSED** as part of the labelling.
- Label all specimens to the required standards ensuring that the specimen labelling matches the form documentation.
- Labelling is **first name, surname, DOB and/or NHI and time and date of specimen collect**. However the more information on the specimen the better, especially the site if specimen is a swab.
- Indicate on the form what specimens you have collected (e.g. **1 x urine / 1 x SST / 1 x EDTA** etc.). This is a good point of reference for the lab staff when the specimen arrives at the lab. We then know what has been collected and can look for any outstanding specimens not received knowing they have been collected.
- Place the form folded inwards in the side pocket of the bag.

5.4 Microbiology Specimens

https://www.pathlab.co.nz/static/f811e9d458536c46afc3ebb3b6f178ec/microbiology-clinical-details-guide.pdf

The New Zealand Microbiology Network «

5.5 Histology

Specimens fixed in Formalin. Room temperature. Deliver to lab ASAP.

Remember: the longer the delay in getting the sample to the Lab, the less accurate the results due to deterioration.

5.6 Sample Transportation

Ensure the following prior to sending specimens to the Laboratory:

- Forms are completed.
- Specimens are correctly labelled.
- Histology specimens have site, type and number of samples indicated.
- All Microbiology specimens have collection sites indicated (includes mycology samples and all swabs etc.).
- Lids of all specimen containers are tightly sealed and not cross-threaded.
- All blood sample should be sent to the Laboratory on the day of collection.

Place the specimens in a specimen bag and **seal the bag.** (It is important to seal the bag as specimens can fall out of the bags before reaching the Lab and either be lost or end up being mismatched with forms, especially if the specimens have been poorly labelled.)

Place the form in the side pocket of the specimen bag. Please ensure that the specimen and form match.

Have the samples ready for pick up, in the designated area, for the courier at the appropriate times. (For samples being picked up by the Courier, please remember that the courier driver is on a tight schedule and may not be able to wait for samples in the process of being collected. Also, the couriers will only pick up specimens packaged appropriately in chilly bin and at the designated area.)

N.B All swabs and urine samples should be refrigerated if there is a delay in transporting to the laboratory.

If you are in any doubt about any specimen please contact the laboratory for advice.

5.7 Insufficient Specimens

- Particularly volumes of blood samples.
  (Includes citrate and INR tubes not full, clotted or haemolysed specimens).
- Mycology scrapings and to a lesser extent urine and faecal samples.

5.8 Urgent Specimens

- If you require a specimen to be processed urgently, please contact the Laboratory and inform us of your requirements, or indicate on request form
- When you send the specimen to the lab please indicate the urgency on the accompanying specimen bag so as that stands out when received at the Lab.

5.9 Mislabelled and Unlabelled Specimens

- Illegible writing on specimens occurs regularly.
- Incorrect information transcribed from form to specimen.
- Mismatch between specimens and forms
- Specimens received at the laboratory unlabelled are unacceptable. IANZ certification body does not permit testing of unlabelled specimens.
- **Specimens received unlabelled will require recollection for all but non-replaceable samples – these will be sent back for labelling.**

5.10 Documentation Problems

- Unsigned form – a specimen sent with unsigned form stating 'signed form to follow' is acceptable but it is the Practice Nurse's responsibility to ensure the signed form is sent to the Lab as soon as possible.
- Specimens sent but no request for the tests on the form, or tests ordered on the form but no specimen collected.
- Form written out using patient's nicknames etc.
- Incomplete – date/ time or site not recorded.
- Insufficient, illegible or no clinical information.
- Fasting status not recorded.
- Hours post dose of drug levels not recorded.
- Specimens received with another patient's request form.

6 PATIENT INFORMATION

PLEASE REFER TO OUR WEBSITE FOR UP-TO-DATE PATIENT INSTRUCTIONS
https://www.pathlab.co.nz/static/dfb3ae7161c7ec2d3fad233d788ad857/global-swab-chart.pdf

6.1 Faecal Collection

Faecal collections are to be done by the patient at home. We will supply the patient with the necessary instructions and collection apparatus.

The specimens must be labelled clearly with the patient's full name, date of birth, the doctor's name, the time and date of collection and must be delivered to the laboratory as soon as possible. If there is a delay in transporting the specimen to the lab, ask the patient to refrigerate the specimen if possible (otherwise at room temperature) and transport to laboratory ASAP. No longer than 24 hours before delivery to the laboratory.

6.2 Seminal Fluid Collection

Seminal fluid collection is to be done by the patient at home. We will supply the patient with a specimen container and instructions on how to collect the sample.
The specimen must be **delivered to the laboratory within one hour of collection**. It should be labelled with the patient's full name, date of birth, and time and date of collection.
The handout given to the patient must be completed.

6.2.1 Fertility Specimens

These are analysed for the motility and sperm count present in the semen. The specimen must be kept at body temperature during transport to the laboratory.

PLBOP - Deliver to Cameron Rd within 1 hour.
PLW - deliver to Anglesea St Clinic within 1 hour.
PLR – deliver to Haupapa St within 1 hour.
PLT – Contact Hospital to arrange a delivery time.

Remote surgeries: Liaise with the Laboratory nurse to ensure the specimen is collected as close as possible to courier pick-up time. Once delivered to the Lab room, the specimen will be couriered to the Lab in a special container.

6.3 Post Vasectomy Specimens

These are analysed for the lack of, or low count of non-motile sperm.

Deliver to Cameron Rd ASAP.

Remote surgeries: As for fertility specimens

6.4 Sputum Collection

Sputum collects are collected by the patient at home as we need an early morning specimen (on awakening and prior to breakfast). We supply the patient with the specimen container and instructions on how to collect the specimen.

The specimen must be labelled with the patient's full name, date of birth, time and date of collection and be delivered to the laboratory as soon as possible after collection.

See Pathlab website for specific collection instructions.

7 HEALTH AND SAFETY

7.1 Infection Control – Standard Precautions

All procedures must be performed in accordance with standard infection control practices to avoid risk to Staff and cross infection to patient or between patients.

A proportion of patients will be experiencing the acute phase of an infectious illness or may be carriers of infectious microorganisms.

- Wash hands before and after each patient procedure.
- All broken skin on hands or forearms must be covered with waterproof dressing. (Wear gloves if necessary to ensure a barrier.)
- Maintain a clean work area.
- Blood or body fluid spills - clean up with Trigene Advance or equivalent disinfectant immediately. Soak linen in the disinfectant. Launder as usual.
- Blood splashes on to skin – wash immediately with soap and water.
- Dispose of all contaminated equipment appropriately - e.g. needles/ glass into Sharps container.
- Sharps containers and biohazard waste containers must be out of children's reach. (Not on floor.)
- Secure lids tightly on urine samples and place swabs firmly into tubes.
- Place specimens in plastic biohazard bag **and put form in outside pocket** for transportation to laboratory.

7.2 Cleaning and Disinfection of Vacutainer Holders

- The holders are designed for multiple use. The following instructions are essential to maintain health and safety standards
- Visible blood specks require immediate washing of holder under running water, and then disinfection by immersion in disinfectant for a minimum of 10 mins. (Rinse well with water and dry by standing on absorbent tissue before use).
- At the end of each day wash the holders as above.
    - Quick release – Pronto – model needs timed disinfection or its quick release function will deteriorate.

8 NEEDLESTICK ACCIDENTS / OTHER BLOOD OR BODY FLUID ACCIDENTS **(includes splashes involving mucous membranes or eyes, and human bites)**

8.1 First Aid

Encourage bleeding from puncture site and wash with soap and water. Disinfectants can be used as well if appropriate for the site of injury.

Copious water washing for mucous membranes or eyes.

- Notify Doctor / Practice Manager immediately - before *'patient'* leaves.
- Baseline Infectious Diseases testing on a blood sample is required on *'injured'* person and the *'patient'* involved.
- **Blood samples are to be taken immediately from the injured person and the patient following the accident and sent to Laboratory ASAP for urgent testing for HbsAg, anti HBV, anti HCV and HIV).**
- Informed consent for testing is required from the *'injured'* person and the *'patient'* involved.
- Please notify the Laboratory in advance of the urgent specimens arriving.
- Results will be notified back to Orderer urgently.
- Both the *'injured'* person and the patient involved need to be informed of their results.
- The *'injured'* person requires follow up according to international policy for 12 months.

Scenario 1. Tests on *'patient'* involved all Negative. Standard follow up applies (6/12 and 1 year)

Scenario 2. Test on *'patient'* involved Positive - Urgent Medical management including counselling plus possible use of Immunoglobulin or HIV prophylaxis – within hours of accident. (Consultation with Infectious Diseases Physician may be required.)

- When the *'patient'* involved is not known and testing not able to be done - Perform baseline Infectious Diseases tests as above on *'injured person'* and repeat at intervals determined by the nature and severity of the accident, for 12 months.

APPENDIX 1 – BLOOD CULTURES

Introduction

To test for the presence of bacteria in the blood stream. A strict aseptic technique is vitally important; otherwise a false positive could result.

Collection Times

- Adult Blood Culture sets are taken at **two separate collections** from **two different sites**.
- Take first set stat.
- Second set should be obtained simultaneously.
- If the Blood Culture request is for Sub-Acute Bacterial Endocarditis (SBE) investigation, collect 3 separate sets (venepunctures), at intervals of 30 minutes to 1 hour apart.

Blood Culture Bottles

- Blood Culture Sets
  Adult patient:
  1 x grey, aerobic bottle
  1 x purple, anaerobic bottle
  Paediatric patient:
  1 x pink, Bactec aerobic bottle or grey aerobic bottle
- The bottles are sterile and contain media formations which enhance micro-organism growth
- Check expiry dates on bottles.
- The coloured plastic lids flip off to reveal the rubber stoppers. The blood is introduced directly through the stopper via a needle after cleansing the stopper with an alcohol stopper and allowing to air dry.
- It is not necessary to warm or mix bottles prior to collecting specimens.

Blood Volume

- **Adults:** collect 8 – 10 mL blood per bottle
- **Paediatric:** collect 4 – 7 mL blood per bottle (0.5ml-4ml acceptable)
- The bottle labels have graduated marks on one edge to measure blood volume collected.
- Mark the level required on the label before starting the venepuncture.
- Overfilling may give a false positive result.

Equipment

- Blood Culture Bottles
- 21g push button collection set
- Needle Holder
- Chlorhexidine and Alcohol swabs
- Alcohol swabs
- Gauze
- Vacutainer tubes – if other tests requested
- Tourniquet
- Plaster /Tape

Collection Procedure

- Check the patient's form for correct documentation.
- If necessary, give the patient a copy of the request form for a following blood culture test.
- Explain procedure.

a) Wash hands thoroughly.
b) Apply tourniquet.
   - Palpate for suitable vein.
   - Relax the tourniquet.
c) Swab the chosen site.
   - Using a 70% Isopropyl alcohol swab, keeping the swab on the arm continually for 30 seconds. Allow to air dry (minimum 30 seconds).
   - The site should then be disinfected – use Chlorhexidine and alcohol swab, keeping the swab on the arm when cleaning the site for a minimum of 30 seconds. Allow to air dry (minimum 30 seconds)
   - If further palpation is necessary, site must be re-swabbed unless a sterile glove is worn.
d) Remove and discard plastic lids on bottles. Using a new alcohol swab for each bottle, swab the rubber stopper.
e) Attach the needle holder to the Luer (screw) connector of the push button collection set.
f) Wash Hands thoroughly
g) Reapply the tourniquet, taking care not to touch the prepared venepuncture site.
h) Remove the plastic guard from the needle and Insert the needle into the vein.
   - Once blood is visible in tubing, you may choose to secure wings of the needle to arm with tape without dislodging the needle position.
i) Collect the aerobic (grey) bottle first.
   - Keep the bottle in an upright position and lower than the patient's arm,
   - Press the needle holder over the bottle until needle pierces stopper.
   - Check blood flow has commenced.
   - Relax tourniquet.
   - When the marked recommended blood level on the bottle is reached, (do not overfill), remove bottle from needle holder and mix.
j) Repeat collection for the anaerobic (purple) bottle.
k) If additional blood tests are required.
   - Proceed with blood collection.
l) When all specimens have been collected, release the tourniquet, and activate the push button to withdraw the needle.
   - Apply firm pressure on gauze over venepuncture site.
   - Discard push button blood collection set into biohazard sharps container.
m) On the bottle there is an area for labelling the specimen.
   - Complete the labels with Patient's full name, DOB, time/date of collection.
   - Do not write over the barcode.
n) Complete documentation on request form including date/time of collection , detailing the sites that the cultures have been taken
o) Wash Hands thoroughly

Flow Chart Summary

BLOOD CULTURE COLLECTION

Blood Culture Set: 1 x grey and 1 x purple bottle.
Check expiry date, mark 10 mL level required.

Thoroughly wash hands and prepare equipment, swab the top of each bottle with an alcohol swab and allow to dry.

↓

Swab site keeping alcohol swab in contact with skin for 30 seconds, allow to dry.

↓

Swab site using Chlorhexidine and alcohol swab keep swab in contact with skin for 30 seconds, allow to dry.

↓

Remove caps from bottles, swab rubber stoppers with alcohol swab.

↓

Use 21g push button collection set blood collection set to collect specimen

↓

Collect 8 – 10 mL blood into each bottle

↓

Collect other specimens required

↓

2nd set collected immediately from another site if possible.

OUTTAKES

Tube Guide for Blood Sample Collection

ORDER OF DRAW

COLOUR	TUBE ADDITIVE	TESTS/DEPT
Blood Cultures	**Sterile**	**Microbiology**
	Citrate	INR Coagulation
	CPDA	Tissue typing
	Plain / Clot Activator	
	SST II - Clot Activator	Biochemistry Immunology
	Heparin	Chromosome study
	K2EDTA	Trace metals
	EDTA	Haematology HbA1C
	EDTA	Transfusion Lab
	Fluoride Oxalate	Glucose

Test Price List

For charging patient when test not covered by DHB funding.

Please refer to our website for up-to-date price lists.

https://www.pathlab.co.nz/payment

Prices inclusive of GST. Prices are subject to change.

Special Tests Available *Only* At Main Lab

PLBOP – CAMERON RD,
PLW – 58 TRISTRAM ST
PLR - HOSPITAL SITE
PLT- contact Tuwharetoa St for instructions

- Ammonia
- Aspirin/Salicylate levels
- Bone Marrow
- Cryofibrinogen
- Cryoglobulins
- Cryopathy Screen
- DNA/Paternity Testing
- FNA
- Myoglobin Urine
- Mercury Urine
- Metanephrines – **PLR** Hospital site only
- Normetanephrines – Blood
- Normetadrenaline – Blood
- Noradrenaline – Blood
- Red Cell Morphology – Urine
- Semen Analysis- Fertility.
- Thiamine/ Vitamin B1- blood
- Vasculitis Screen
- White cell enzymes - **PLBOP** blood, morning collect

Test Services Available at All Pathlab Rooms

- 24 Hour Urine
- Blood Culture
- Chlamydia urine
- GTT
- PTT
- *H. pylori* Faeces
- Heparin Assay
- Mycology
- Polycose Screen
- PTT
- Quantiferon Gold
- Scabies
- Thrombophilia
- Tissue Typing
- Triple Testing (Maternal Serum)
- Viral Load
- Pertussis Swabs

Tests for Which Doctors Surgeries Are Not Able To Take Samples

- ACTH
- Bone Marrow
- Calcitonin
- Coagulation
- Fertility Semen
- FNA
- Gastrin
- H. Pylori Breath Test
- Homocysteine
- Insulin
- Metanephrines/Normetanephrines
- Mycology (except by arrangement with Charge Phlebotomist, Training required to meet technical standards.)
- Myoglobin Urine
- Polycose Screen (except by arrangement)
- PTT Polycose (2-hour test)
- GTT
- Red Cell Morphology (Urine)
- Synacthen
- Thrombophilia
- Tissue Typing
- Triple Testing (Maternal Serum)

Check with Charge Phlebotomist for other tests:

- **PLBOP / PLWh – Cameron Rd (07) 578 7073**
- **PLW – Tristram St (07) 858 0799**
- **PLR / PLT – Haupapa St (07) 348 7317**

Request for Home Collect

Request for Home (Phlebotomy) Collect

Date:_____ Requested By:_____

Patient Details
Surname:_____ First Name:_____

DOB / NHI:_____ Phone No:_____

Address:_____

Date of required visit:_____

Frequency of visit: Daily / Weekly / Monthly / Urgent (*If urgent, please phone the lab)*

Special Instruction(s):_____

_____

Laboratory request form at: House / Courier / To be faxed / Regular patient

Request for Home (Phlebotomy) Collect

Date:_____ Requested By:_____

Patient Details
Surname:_____ First Name:_____

DOB / NHI:_____ Phone No:_____

Address:_____

Date of required visit:_____

Frequency of visit: Daily / Weekly / Monthly / Urgent (*If urgent, please phone the lab)*

Special Instruction(s):_____

_____

Laboratory request form at: House / Courier / to be faxed / Regular patient

Collection Facility Locations

Please refer to our website for up-to-date information.

www.pathlab.co.nz