

SPECIAL INSTRUCTIONS

Contents

1. [Arterial Punctures - Blood Gases - ABG](#)
2. [Blood Cultures](#)
3. [Capillary Acid Base](#)
4. [Dexamethasone Suppression Test](#)
5. [Drug Monitoring – General Information](#)
 - a) [Gentamicin](#)
 - b) [Amikacin](#)
 - c) [Tobramycin](#)
 - d) [Vancomycin](#)
6. Faeces
 - a) [Microscopy, Culture, PCR, Ova, Cysts and Parasites - PCR](#)
 - b) [Occult Blood](#)
 - c) [Reducing Sugars \(Substances\)](#)
 - d) [Rotavirus, Clostridium Difficile](#)
 - e) [Faeces for Threadworms/Ova](#)
 - f) [Tryptic Activity](#)
 - g) [Pancreatic Elastase](#)
7. [Fungal Examination - Skin, Nails and Hair](#)
8. [Fungal Examination – Scabies](#)
9. [Gestational Diabetes Screen \(Glucose Challenge Test\)](#)
10. [Glucose Tolerance Test \(G.T.T.\)](#)
11. [Microalbumin](#)
12. Sputum
 - a) [Cytology](#)
 - b) [Microscopy and Culture](#)

13. Swabs - [General Instructions](#)

- a) [Ear](#)
- b) [Eye](#)
- c) [Eye Chlamydia](#)
- d) Genital Tract
 - Female:
 - i. [Cervix](#)
 - ii. [Vagina](#)
 - Male
 - iii. [Urethra](#)
- e) [Nasal](#)
- f) [Rectal](#)
- g) [M.R.S.A. Screening](#)
- h) [Throat](#)
- i) [Viral](#)
- j) [Wound](#)

14. [Synacthen Test](#)

15. Urine

- a) [Cytology](#)
- b) Microscopy and Culture
 - i) [Female](#)
 - ii) [Male](#)
 - iii) [Paediatric](#)
 - iv) [Indwelling Catheter](#)
- c) 24 Hour Collection of Urin

ARTERIAL PUNCTURES - BLOOD GASES - ABG

1. Pre-requisites

- 1.1 Notify Laboratory prior to collection of blood gas specimens to ensure machine on and functioning.
- 1.2 The specimen must be tested within 60 minutes of collection.
- 1.3 Record on request form if patient is on oxygen therapy at time of specimen collection.
- 1.4 Record on request form patient's temperature at time of collection.
- 1.5 Ensure request form is complete including Doctor's telephone/fax numbers and/or Hospital telephone/fax number and Hospital name and Ward.

2. Equipment

- Blood gas syringe (pre-heparinised available from laboratory)
- Disposable gloves
- 23g needle
- Alcohol swabs / or relevant skin prep
- Dry swabs/cotton ball
- Container with ice/water mix
- Plastic bag to put syringe in
- Patient label for syringe

3. Collection of Specimen

- 3.1 The specimen is obtained from the radial artery. This can be painful and there is risk of arterial injury and gangrene in the hand if this is not done properly. This procedure should only be done by people who have completed the appropriate training. The procedure should only occur if the collector has demonstrated and recorded that Allen's test has been completed and shows that the patient ulnar artery is working.
- 3.2 Prepare equipment by removing rubber stopper from the syringe. Attach 23g needle to syringe. Withdraw plunger to 0.5ml and place syringe nearby. Wash hands. Wear gloves.
- 3.3 Palpate the artery carefully assessing size, depth and direction.
- 3.4 Cleanse the puncture site with alcohol swab or appropriate skin prep per facility guidelines; allow to air dry.

- 3.5 Collect specimen by slowly advancing the needle, directing it toward the artery just under the finger. When the artery is pierced, a “flash” of blood will appear in the hub of the needle.
- 3.6 Wait for blood to fill to the plunger.
- 3.7 Quickly withdraw the needle and place dry swab over the puncture site. Maintain firm pressure for a minimum of 5 minutes, longer if patient is on an anticoagulant.
- 3.8 Immediately expel any air bubbles from the specimen and gently mix the blood by rolling the syringe between the fingers.
- 3.9 Remove the needle from the syringe and cap immediately with the rubber stopper making sure no air enters the syringe.
- 3.10 Label the syringe with patient details, place in plastic bag and then into ice- water mix ensuring that the specimen is completely immersed.
- 3.11 Deliver the specimen to on-site Laboratory or arrange transport to Laboratory as soon as possible, i.e. within 60 mins.

BLOOD CULTURES

1. Bottles

Blood Culture bottles can be stored in a cupboard.

The liquid is normally dark charcoal.

The gas permeable sensor installed in the bottom of the bottle should be blue/grey in colour.

Do not use the bottle if the sensor is mustard yellow in colour.

Do not use bottle past expiry date - marked on each bottle.

2. History

2.1 Record on request form:

- Suspected source of infection.
- All current medication, particularly antibiotics, and the length of time the patient has been taking them.

3. Collection of Specimen

3.1 Obtain 2 Blood Culture bottles: Ideally collect 8 – 10 mls of blood.

- **1x Aero** (Green Cap) for aerobic collection **Collect first in order of draw.**
- **1 x ANA** (Orange Cap) for anaerobic collection. **Collect second in order of draw**

For **paediatric/low volume** or a difficult collection use 1x Paediatric (yellow top) bottle.

Ideally not greater than 4mls of blood should be collected.

The method of collection for blood cultures will also be determined by specific guidelines of facilities.

3.2 **Label bottles with:**

- Surname/last name
- Given name/ first name
- Date of birth or UR number
- Date and time of collection
- Site of collection (ie. L arm, R arm, intravenous catheter)

Do not obliterate any of the barcode on the labels.

Do not put any labels on the gas permeable sensor (base of bottle)

3.3 Wash hands thoroughly, wear disposable gloves.

- 3.4 Remove protective plastic caps, swab each rubber top with a separate alcohol swab and allow to air dry.
- 3.5 Swab the venepuncture site thoroughly with an alcohol swab or appropriate skin prep and allow to air dry.
- 3.6 Collect the blood sample using the order of draw and an aseptic, no-touch technique, ensuring the needle does not touch the dry swab when withdrawing needle from the vein. (Change the needle if this occurs.)
- 3.7 Insert the needle through the rubber cap and inoculate a **maximum 8 - 10 mls of blood into each bottle- DO NOT OVERFILL**. In the case of a difficult bleed, or for paediatric collections, no greater than 4 mls is to be inoculated into the paediatric bottle (yellow cap.) Send bottles to the laboratory as soon as possible.
- 3.8 Keep the bottles at room temperature for transportation to the laboratory.

DO NOT REFRIGERATE

CAPILLARY ACID BASE STUDIES

To investigate abnormalities of acid base balance in neonates and young children. These imbalances may be metabolic acidosis or alkalosis and respiratory acidosis of

alkalosis. Very frequently a combination of these abnormalities occur (e.g.: a combined respiratory and metabolic acidosis in respiratory distress due to CO₂ retention and hypoxaemia) or a compensated situation (e.g.: a respiratory acidosis and compensatory metabolic alkalosis in infants with chronic lung disease or a metabolic acidosis and compensatory respiratory alkalosis in pre-term infants with 'late metabolic acidosis')

1. Equipment

- Heparinised capillary acid base tubes, caps (obtain from laboratory)
- Disposable Gloves
- Alcohol Swab
- Dry swab/cotton wool ball
- Lancet – tenderfoot for heel collection or Microtainer lancet for finger puncture
- Plain tube (if required to hold tubes during transport to laboratory)
- Ice water slurry in a suitable container (for transportation of specimen)
- Plastic bag for specimen to be put in for transportation

2. Collection

- 2.1 Check with the appropriate laboratory to establish the availability of the blood gas analyser.
- 2.2 The site of the collection, for neonates and young children up to approximately twelve months, is usually the heel. For older children, the site of preference is the thumb or third finger.
- 2.3 Warm the collection site.
- 2.4 Swab the site with an alcohol swab and allow to air dry
- 2.5 Puncture firmly with lancet to produce a free flow of blood, ie a good drop formation. Light massaging may be used to promote drop formation, do **not** squeeze excessively.
- 2.6 Introduce the capillary tube into the centre of the drop and allow the tube to fill **without** any bubbles present.
- 2.7 When tube is full, seal one end with a rubber cap then other end with the other cap. Place dry swab over puncture site and apply pressure or have someone else apply pressure until bleeding has stopped.
- 2.8 Once both ends are sealed invert tube gently to ensure the heparin and blood is mixed to prevent clotting.
- 2.9 Label the tube with the patient's details then place it into a zip lock plastic bag. The bag and capillary tube is then placed into the ice water slurry. The capillary tube can also be placed into a plain blood collection tube then put into the ice water if tube is available.
- 2.10 Transfer specimen on ice to laboratory to be processed within 15 minutes.
- 2.11 Dress site with clean dry swab

DEXAMETHASONE SUPPRESSION TEST (DST)

This test is performed as an aid to diagnosis of Cushing's Syndrome and Endogenous Depression.

Usually the referring doctor provides the patient with the appropriate dose of Dexamethasone.

It is important to note the time the tablet was taken and when the blood was collected.

1. Collection

- 1.1 Record the dose and time of Dexamethasone given on request form.

1.2 Cushing's Syndrome

- 1.2.1 Dexamethasone 1mg is taken as a single dose at 2300 hours (11.00pm).
- 1.2.2 Collect blood for serum Cortisol (gel tube – gold cap) at 0900 hours the following morning.

1.3 Endogenous Depression (Rarely Performed)

- 1.3.1 Dexamethasone 1mg is taken as a single dose at 2300 hours (11.00pm)
- 1.3.2 Collect blood for serum Cortisol (gel tube - gold cap) at 09:00 then again at 16:00 hours (4.00pm) the following day. The afternoon blood specimen must have a new lab number.
- 1.3.3 In the case of hospital in-patients, collect an additional blood sample (for serum Cortisol) at 2300 hours (ie 24 hours after Dexamethasone). Some doctors may also request a sample to be collected at 0900 hours (10 hours after Dexamethasone)

DRUG MONITORING

1. GENERAL INFORMATION

- 1.1 The timing of blood sampling in relation to dosage is critical for correct interpretation of the serum concentration result. It is therefore very important to write the time and date of last dose (LD) and the time the blood was collected on the request form and blood tube.
- 1.2 Some drugs are best sampled at peak levels and others at trough levels. Refer to Manual for collection instructions for specific drugs.
- 1.3 For Amikacin, Gentamicin, Tobramycin and Vancomycin see following pages.
 - 1.3.1 **Peak Sampling** – Maximum Drug concentration in the blood stream usually:
 - 1) A number of hours after oral administration
Or
 - 2) 30 minutes post injection or infusion
Or
 - 3) As directed by doctor
 - 1.3.2 **Trough Sampling** – lowest or minimum drug concentrations in the bloodstream - usually just prior to the next dose of medication.
- 1.4 Encourage patients to take tablets at the same time each day. Suggest sample collection time is always predose or always 6 hours post dose to facilitate monitoring – unless the doctor advises otherwise. Some frequently requested drug levels have specific instructions, e.g. Lithium.
- 1.5 **Always write the time and date of last dose and the time the sample was taken on the request form.**

Tube Labelling:

SURNAME / LAST NAME:

FIRST NAME: DOB:

DD/MM/YYYY

WARD: NO:

TEST:

DATE: DD/MM/YY

TIME: 00:00 SIGNATURE

Request Form:

SPECIMEN COLLECTED DATE: DD/MM TIME: 14:30

DRUG – LAST DOSE DATE: DD/MM TIME: 08:30

GENTAMICIN IV

1. If times not specified by doctor and –

- 1.1. The dose is daily; the preferred method for monitoring is peak and 6 – 14 hours post dose.
- 1.2. If the dose is NOT daily, then trough (just before dose is given) should be collected.

Tube requirement – Plain tube – Red cap

2. All locations – once daily (except for Peninsula Health Network)

- 2.1 Only if requested take a pre-dose specimen, record time and date of collection on the request form.
- 2.2 Note dosage amount, time of dosage, route of administration and frequency on the request form. (Eg: 360mgs IV once daily completed 0800.)

3. If Peak and Post levels are required:

- 3.1 The Peak -1 hour post should be collected 60mins after the dose is given, which is usually 30 mins after the completion of the infusion (labeled PEAK), and
- 3.2 The Post - collected 6 – 14 hours post dose (labelled 6 – 14 hours POST).
- 3.3 Send specimen (post, or both if taken) immediately to the laboratory.

4. If doctor has ordered Pre and Post Levels

- 4.1 Take a pre-dose specimen, immediately before next dose, record time and date of collection on the request form.
- 4.2 Note dosage amount, time of dosage, route of administration and frequency on the request form. E.g. - 120mgs IV B.D.
- 4.3 Post dose specimens are taken 30 mins after a bolus injection or at the end of the infusion. Record time on the request form. E.g. if the dose is due at 0800, take a predose at 0755. If Gentamicin is given over ½ hour i.e. completed at 0830 then post dose is collected at 0900.

NB: If Gentamicin is given IM, follow above but take post dose 60 minutes after injection.

- 4.4 Send both specimens to the laboratory immediately after both tubes are collected.

5. If the doctor has ordered a once only/spot or trough level

- 5.1 If the dose is daily, the blood should be collected between 6-14 hours post dose.
E.g. Gentamicin is given at 0800; the level can be taken any time from 1400 to 2200.
- 5.2 If the dose is not daily, then a Pre-level should be collected.
- 5.3 If the Gentamicin is to be suspended temporarily, blood can be collected at any time.

6. Frankston / Rosebud Hospitals – Inpatients only – SST (Gel tube used at Frankston)

- 6.1 This test is performed at Frankston Laboratory only
- 6.2 Take a pre-dose specimen, i.e. immediately before administration of next dose (Gel tube – gold cap). Note time on the request form.
- 6.3 Note dosage amount, time of dosage, route of administration and frequency on the request form. Eg 360mgs IV once daily completed 0800.
- 6.4 Post dose specimens (peak levels) are taken 30 minutes after a bolus injection or at the end of the infusion. Note time on tube and request form.
- 6.5 Send specimens immediately to the laboratory after both tubes are collected.

AMIKACIN LEVELS

As per Gentamicin – Plain tube – Red cap

TOBRAMYCIN LEVELS

As per Gentamicin – Plain tube – Red cap

VANCOMYCIN LEVELS

The pre-dose level is the most important, post dose levels are only collected if specifically requested.

- 1.1 Take a **pre dose specimen** i.e. immediately before dose. (**plain tube-red cap**). Record date and time on the request form.
- 1.2 Route of administration is I.V. usually over a one hour period. Note dosage, time of dose and frequency on the request form.
- 1.3 **Post dose specimens** (peak levels) are taken 30 minutes after completion of the infusion (**plain tube-red cap**). Record time infusion completed on request form also date and time of specimen collected.
- 1.4 Send both specimens immediately to the laboratory after both tubes collected.

FAECES - MICROSCOPY, CULTURE, PCR, OVA, CYSTS AND PARASITES

To investigate pathogens in the bowel.

1. Background

Current Medicare Benefits guidelines state that one (1) faecal specimen for routine microscopy and culture can be processed in a 7-day period. Up to 2 samples can be processed for examination for ova, cysts and parasites in a 7-day period. A further request for Microscopy, culture and sensitivity and/or OCP (Ova, Cysts and Parasites) can be made after 7 days from the first M/C/S request.

PCR testing of faeces for the 10 most common bacteria and parasites is now run in conjunction with microscopy and culture. Whilst this method is more sensitive and specific than traditional methods, not all pathogens will be detected thus both methods need to be run in parallel. A separate Medicare item number is billable for the PCR testing.

2. Equipment

- 1x Set of faeces containers:
 - 1 Brown topped faeces container – plain
 - 1 White topped faeces container – with clear fluid
- Wooden spatulas
- Sealable plastic bio-hazard specimen bag
- Instruction leaflet

Note: Fluid in the white-topped bottle is **poisonous** and must be handled with care.

3. Collection

- 3.1 Label each container with surname, given name, date of birth, time and date specimen collected.
- 3.2 Using the spatula, place a small amount of faeces (about the size of a 10 cent coin) into each of the containers:
 - i) Brown topped faeces container
 - ii) White topped container with clear fluid and mix well.

Specimens should reach the laboratory as soon as possible after collection. If there is any delay, refrigerate specimens.

3.3 Record on Request Form

3.3.1 If the patient has been overseas or to remote areas, and if so, where and when.

3.3.2 If the patient has recently taken antibiotics.

3.3.3 Any past history or contact with faecal pathogens or parasites.

3.3.4 If the patient's condition chronic or acute.

FAECES - OCCULT BLOOD

To investigate gastro-intestinal bleeding.

1. Equipment

- 1x FOBT kit – containing
 - 2x Bio-degradable collection sheets (like tissue paper)
 - 2x Collection probes
 - 2x Collection tubes
 - 2x Detail labels/stickers
- Patient information sheet – Faecal Occult Blood Kit
- Sealable plastic bio-hazard specimen bag

NOTE – DO NOT SEND SPECIMEN IN JARS. THEY MUST USE FOBT KIT

2. Patient Requirements

- 2.1 It is important to give the patient clear and detailed instructions when explaining this test. If the instructions are not followed carefully a recollection of the sample will be required.
- 2.2 Instruct the patient not to alter their diet or their medication in any way during this test.
- 2.3 Instruct the patient not to collect their sample during or within 3 days of their menstrual period or bleeding haemorrhoids.
- 2.4 The sample is to be collected from 2 different bowel movements, (less than one week apart).
- 2.5 Only **a tiny amount of faeces is to be collected**, less than a grain of rice is required, (not all of this will go into the collection tube).
- 2.6 If the liquid in the collection tube does not stay clear, if it turns brown or if too much faecal matter is collected a recollection will be required.
- 2.7 The patient is to place the label on the collection containers with their name, date of birth, date and time of collection.

3. Collection

- 3.1 Prior to collection, instruct the patient to carefully read the instruction sheet.
- 3.2 The patient should be instructed to empty their bladder into the toilet and flush the toilet.
- 3.3 Patient to place one of the biodegradable collection sheets into the toilet bowl over the water.
- 3.4 Instruct the patient to pass their bowel movement onto the sheet.
- 3.5 The patient is to then take one of the collection probes, insert the tip into the faeces and drag it along the length of the faecal movement 3 times. The patient should be instructed not to keep pushing the probe in and out of the sample.
- 3.6 The patient is then to push the tip of the probe through the open end of the collection tube until they hear an audible click.
- 3.7 The toilet can then be flushed.
- 3.8 The second sample can then be collected in the same way the next day.
- 3.9 When both samples have been collected, the patient is to return them in the bio-hazard bag. The sample can then be forwarded to the laboratory for testing. If there is a delay in transportation the samples should be stored in the fridge.

FAECES FOR REDUCING SUGARS (SUBSTANCES)

To investigate failure to absorb certain sugars in the diet.

1. Equipment

- 1x Brown topped container
- 1x Wooden spatula
- 1x Sealable plastic bio-hazard specimen bag

2. Collection

- 2.1 Label the container with full name, date of birth, time and date of collection.
- 2.2 Using the spatula provided, place a small amount of faeces (about the size of a 10 cent coin) into the container.
- 2.3 Replace top, seal container in plastic bag and place into a suitable plastic container, (eg. Recycled ice-cream or margarine container) which has water in it. Place container (with specimen in it) in freezer and freeze.
- 2.4 Keep frozen until delivery to the collection centre can be arranged.

FAECES - ROTAVIRUS, CLOSTRIDIUM DIFFICILE

The investigation of pathogens in the bowel.

1. Equipment

- 1x Brown topped container
- 1x Wooden spatula
- 1x Sealable plastic bio-hazard specimen bag

2. Collection

- 2.1 Label the container with full name, date of birth, time and date of collection.
- 2.2 Collect a small amount of faeces (about the size of a 10c coin) into the jar with the spatula.
- 2.3 If any delay in delivery to laboratory, refrigerate specimen.

FAECES FOR THREADWORMS/OVA

To detect the presence of threadworm in the bowel.

1. Equipment

- Pre-labelled frosted end slide and slide carrier
- Cello tape
- Gloves
- Sealable plastic bio-hazard specimen bag

2. Patient Requirements

- 2.1 Test is preferably performed in the morning.
- 2.2 The patient should **NOT** bathe or wash the anal area on the morning of the test.
- 2.3 The test should be performed prior to bowel action, as eggs are deposited in the peri-anal folds during the night.

3. Collection

- 3.1 Apply cello tape firmly to anal folds, remove and stick on a pre-labelled frosted end slide.
- 3.2 Place in slide carrier, then place request form and carrier into plastic biohazard bag and forward to the laboratory promptly.

FAECES FOR TRYPTIC ACTIVITY

To investigate the activity of the enzyme trypsin in the bowel.

1. Equipment

- 1x Brown topped jar
- Wooden spatula
- Sealable plastic bio-hazard specimen bag

2. Collection

- 2.1 Label the container with full name, date of birth, time and date of collection.
- 2.2 Using the spatula provided, place a small amount of faeces (about the size of a 10 cent coin) into the container.
- 2.3 Replace top, seal container in plastic bag and place into a suitable plastic container, (eg. Recycled ice-cream or margarine container) which has water in it. Place container (with specimen in it) in freezer and freeze.
- 2.4 Keep frozen until delivery to the collection centre can be arranged.

FAECES FOR PANCREATIC ELASTASE

To investigate pancreatic exocrine insufficiency (PEI)

1. Equipment

- 1x Brown topped container
- Wooden spatula
- Sealable plastic bio-hazard specimen bag

2. Collection

- 2.1 Label the container with full name, date of birth, time and date of collection.
- 2.2 Using the spatula provided, place a small amount of faeces (about the size of a 10 cent coin) into the container.
- 2.3 Freeze the specimen immediately after collection and until delivery to the laboratory

FUNGAL EXAMINATION – SKIN NAILS AND HAIR

Skin Scraping for Scabies - see separate entry

1. Equipment

- Alcohol swab- 70% Isopropyl alcohol
- Sterile scalpel blade No.10 or blunt forged scalpel Nail clippers
- Petri dishes/specimen container
- Gloves
- Sealable plastic bio-hazard specimen bag

2. Prior to collection note the following: -

- 2.1 The application of a **steroid cream** may alter the appearance of the lesion but usually does not affect the isolation of a fungus. The steroid cream should be removed with a cleansing swab before scraping.
- 2.2 If an **antifungal powder or cream** has been used within the last 48 hours, it will affect the fungal culture and it is preferable to take the scraping 2 days after application of antifungal.
- 2.3 Nail clippings can be collected even if nail polish is worn.
- 2.4 **Each site collected must be in a separate dish or container appropriately labeled**

3. Collection

- 3.1 **Helpful history required from the patient to be recorded on request form:**
 - Any contact with pets?
 - Any recent visits to rural areas, farms, or contact with farm animals?
 - Any recent visits outside Australia?
 - Is the patient on any antifungal treatment?

3.2 Skin Scrapings

Always collect from the active advancing borders of the lesion, and collect as much material as possible. Do not scrape the skin at the centre of the lesion, or the macerated material between the toes, as there are rarely fungi in these areas.

- 3.2.1 Label lid of petri dish/container with patient name, DOB, date/time of collection and site.
- 3.2.2 Clean the area to be scraped with alcohol swab, allow to air dry.
- 3.2.3 Using the No.10 scalpel blade or forged scalpel, collect the skin scrapings from the active periphery of the lesion into a sterile petri dish. If blisters are present cut the top off the blister and place it in the petri dish also.
- 3.2.4 Tape top and bottom of petri dish together.

3.3 Nail Clippings

- 3.3.1 Label lid of the petri dish/container with patient name, DOB date/time of collection and site.
- 3.3.2 Clean the area with the alcohol swab and allow to air dry.
- 3.3.3 Using the nail clippers, clip the edges of the infected part of the nails.
- 3.3.4 Using a scalpel, collect the heaped debris beneath the nail, or the crumbly surface of the nail
- 3.3.5 Tape top and bottom of petri dish together.

3.4 Hair

- 3.4.1 Label lid of the petri dish/container with patient name, DOB date/time of collection and site.
- 3.4.2 Clean the area with an alcohol swab and allow to air dry.
- 3.4.3 Search the affected area for lustreless or broken hairs and remove these to the petri dish with forceps. Infected hairs usually pull out easily. It is very important to collect the **hair root**, as this is where the fungi usually are. About 40 hairs is a good sample.
- 3.4.3 Take scrapings of skin from the surrounding areas also.
- 3.4.4 Tape top and bottom of petri dish together.

- 4. The result of microscopy of the specimen is sent to the doctor within 48 hours, culture reports are sent after 1 weeks incubation (interim report), and the final report after 3 weeks incubation.

FUNGAL EXAMINATION

Skin Scrapings for Scabies

Collect as much skin as possible from the sites suspected of being infested. No swab is required. Diagnosis is made by locating the mite in a papule or vesicle in the epidermis or in a tiny burrow in the superficial skin.

In young children, the mites may be found on any part of the body. In adults, most mites occur on some part of the hands or arms, particularly the webbing between fingers or the folds of the wrists, external genitalia on males, and on breasts of women.

Ideally, material should be collected from an early papule or burrow that has not been excoriated or scratched. Trauma to the papule surface usually indicates that the mite has already departed from the burrow. Another method of obtaining a suitable site for scraping is to ask the patient if an area itches at the present moment.

1. Equipment

- Sterile distilled water
- Scalpel blade No 10 / forged scalpel
Petri dish
- Disposable Gloves
- Sealable plastic bio-hazard specimen bag

2. Collection

- 2.1 Label petri dish with patient's name, DOB, date, time of collection and site.
- 2.2 Wear gloves
- 2.3 When a likely area is located, dip the scalpel blade into the water so that a drop or two can be transferred to the surface of the papule.
- 2.4 Scrape vigorously about 6 to 7 times with the scalpel blade and place the blade and skin scrapings into the petri dish. Seal dish with cellotape.

GLUCOSE CHALLENGE TEST (1 HOUR TEST)

Screening for Gestational Diabetes

**This test is no longer recommended for the investigation of diabetes in pregnancy.
The recommended test is a full glucose tolerance test.**

Patient does not have to fast.

Normally a 75gm load of glucose is administered (unless otherwise instructed by doctor) with blood being collected 1 hour later. (For any patient with an allergy to food colouring contact laboratory for 75gm glucose, dissolve in warm water and chill in fridge overnight).

1. Equipment

- 1x Fluoride oxalate tube (grey cap)
- 1x Bottle glucose (75grams glucose in 300ml, 25 grams per 100 mls)
- Disposable cup
- Timer

2. Instructions to Patient

- 2.1 Unless otherwise ordered by the doctor, do not restrict the patient's intake of carbohydrates (meats, pastry, sugar, potatoes, etc.) prior to the test.
- 2.2 This test does not require the patient to be fasting, however, if the patient has fasted, the test may still proceed but document on request form that patient has fasted.
- 2.3 Patient should be asked not to smoke during the test or for the rest of their pregnancy.
- 2.4 Water intake during test restricted. Activity restricted as for 2 hour G.T.T.
- 2.5 If the patient vomits during the test it is suspended. The patient may return on another day.

3. Collection of Specimen

3.1 Give the patient a 75gm glucose load or as specified by the requesting doctor.

If bottled Glucose 75 gm = 300mls
 50 gm = 200 mls

- THE GLUCOSE MUST BE CONSUMED WITHIN A FIVE-MINUTE PERIOD.

- RECORD THE TIME GLUCOSE WAS CONSUMED ON REQUEST FORM.

- NOTE GLUCOSE LOAD ON REQUEST FORM (eg: 75 gm glucose given.)

3.2 Collect the specimen of blood, 1 x fluoride oxalate tube (grey top);
ONE HOUR AFTER the glucose intake was completed.

3.3 Ensure tube is labelled with patient's name, date of birth/ UR number, time and date of collection and collectors signature.

GLUCOSE TOLERANCE TEST / DIABETES SCREEN (2 HOUR TEST) (GTT)

Note: All specimens for this test should be collected by venous OR capillary means. Changing from one means of collection to another during the test should be avoided.

Note: Urine specimens are no longer required for a Glucose Tolerance Test unless specifically requested by the doctor.

Note: If the patient is a known diabetic **DO NOT PROCEED**, contact the Doctor or Chemical Pathologist at the Laboratory for advice.

1. Dietary Instructions

- 1.1 Unless otherwise ordered by the doctor, do not restrict the patient's intake of carbohydrate foods (meat, pastry, sugar, potatoes, etc.) for at least 3 days before the test.
- 1.2 Patient to fast for 12 hours prior to the test. Adequate water intake prior to the commencement of the test is recommended. No smoking.

2. Activity of Patient

Resting and comfortable. Some walking permitted but undue exercise should be prohibited.

3. Equipment

- 3 x Fluoride oxalate tubes – grey cap

4. Collection of Specimens

- 4.1 When a number of venepunctures need to be performed for specific tests (eg GTT), each container should be dealt with as follows:
- 5.1.1 Number in sequence on each label the order of collection, e.g. 0, 30, 60, 120.
 - 5.1.2 Collect blood sample as required.
 - 5.1.3 Whilst patient is applying digital pressure to puncture site label container with name, D.O.B., time, and date of collection and collector's signature.
 - 5.1.4 All samples for that patient episode should be kept together with the request form throughout the test period to enable easy identification prior to each specimen collection.
- 4.2 Collect a **fasting blood glucose** (Fluoride oxalate tube - grey cap) specimen. (Collect all specimens with minimum haemostasis).
- 4.3 Administer a 75 gram glucose load or as specified by the requesting doctor. Some doctors will require either a 50 gram or 100 gram load for pregnant patients. **Please make note of glucose amount given on the request form.** (For children, contact laboratory with the child's weight and age for correct dose of glucose).

**THE GLUCOSE MUST BE CONSUMED WITHIN A FIVE-MINUTE PERIOD.
NOTE TIME OF COMPLETION ON REQUEST FORM.**

Note: 100g load patients are likely to vomit. If the patient vomits during the test it is suspended, as the results will be inaccurate. This can be discussed with the laboratory.

Note: For any patient with an allergy to food colouring, powdered glucose is available from the laboratory.

- 4.4 Collect the **second** specimen of blood (Fluoride oxalate/grey top tube) **ONE HOUR AFTER** the glucose intake was completed. Label this tube 60 minutes.
- 4.5 Collect the **third** specimen of blood (Fluoride oxalate/grey top tube) **TWO HOURS AFTER** the glucose intake was completed. It is particularly important the last specimen of the curve be correctly collected, the basis of a diagnosis is heavily dependent upon this result. Label this tube 120 minutes.

MICROALBUMIN URINE

There are three common ways in which a specimen may be collected: Random, timed overnight or 24 hour collection.

1. Collection

- 1.1 **Random:** Collect at least 5ml urine into a small specimen container. The preferred time of collection is the first urine specimen of the day when the patient wakes up.
- 1.2 **Timed Overnight Collection:** A timed overnight collection can be any “timed period” (usually 12 hours) while patient is recumbent, e.g. 8pm to 8am. Patients should empty bladder just before retiring and then collect all urine passed during the timed period. Record initial bladder emptying time (start time) and finish time on bottle. Collection is made into 24 hour urine bottle obtained from Laboratory.
- 1.3 **24 hour timed collection.** See special instructions - [“Urine - 24 hour collection”](#).
- 1.4 Unless specified on the request form, instruct the patient to collect a “spot”/random collection.
- 1.5 Contact Laboratory regarding any further information required.
- 1.6 When an MSU and a microalbumin are requested at the same time it is recommended that the patient is given two jars. The patient prepares for the MSU as usual and collects the first pass of urine into the first jar (for the microalbumin) then passes the mid part of the stream into the second jar (for the MSU). This gives a better quality sample for testing the MSU and microalbumin.

SPUTUM CYTOLOGY

To examine cells for visible changes, which may indicate the presence of malignancy.

1. Equipment

- 3x Specimen jars (yellow lid)
- 3x Sealable plastic bio-hazard specimen bag

Note: Clearly label patients full name and date of birth on specimen jar

2. Collection

- 2.1 Label the jars with the patient's name and the day numbers 1, 2 or 3. Date and time of collection must be included when each specimen is collected.
- 2.2 Specimens must be sent to laboratory on the day of collection.
- 2.3 Collect an early morning specimen of sputum on (preferably) three (3) consecutive days. **Adequate specimens are essential.** If the patient has a more productive cough at any other time of the day then the patient should be instructed to collect the specimen then. The container may be used more than once on the day to get an adequate specimen.
- 2.2 It must be impressed on the patient that the specimen is "sputum" (phlegm) as opposed to saliva
- 2.3 Advise patient to rinse their mouth out with water prior to collection.
- 2.4 Encourage the patient to deep breathe 3 or 4 times before collecting the specimen, "huffing" on expiration - helps produce a deeper specimen
- 2.5 The specimen must be delivered to the laboratory on the day of collection, if there is a delay it needs to be kept refrigerated to prevent degradation of specimen.

SPUTUM – MICROSCOPY AND CULTURE

To isolate pathogens that causes infection of lower respiratory tract.

1. Equipment

- 1 x Specimen jar, yellow lid (MSU jar)
- Sealable plastic bio-hazard specimen bag

2. Collection

- 2.1 Instruct the patient to rinse mouth out with water prior to collection.
- 2.2 The specimen is ideally collected at the time of the day when the cough is most productive - usually the early morning.
- 2.3 It must be impressed on the patient that the specimen required is sputum (phlegm), not saliva.
- 2.4 Encourage the patient to take three or four deep breaths, “huffing” on expiration. This helps produce a deeper specimen.
- 2.5 The specimen is collected directly into the container.
- 2.6 Ensure jar is labelled with the patient’s name, DOB, date and time of collection.
- 2.7 Place jar into biohazard bag with request form.
- 2.6 The specimen must be delivered to the laboratory on the day of collection and should be stored in the refrigerator if any delay.

SWABS - GENERAL INSTRUCTIONS

FOR ILLUSTRATIONS AND DESCRIPTIONS OF SWAB TYPE SEE [SWAB GUIDE](#).

Pathogenic micro-organisms are many and varied in site and type. It is therefore essential that in the collection of specimens for culture, great care must be taken to avoid contamination of micro flora indigenous to the skin and mucous membranes, growth of which may lead to inappropriate diagnosis and therapy.

1. Collection

- 1.1 Specimens should be kept at room temperature and ideally should reach the lab within 12 hours. Speed is essential, particularly with specimens involving isolation of gonococci and swabs from the eyes.
- 1.2 Record on the request form how long the condition has been present.
- 1.3 Record on request form the name of any antibiotics and length of time since commencement.
- 1.4 Avoid any external contamination during collection.
- 1.5 Always use disposable gloves when collecting specimens.
- 1.6 Swab the affected area obtaining as much material as possible.
- 1.7 When inoculating transport media or handling swabs, an, aseptic technique must be used. There is little point in getting a “clean” specimen from the patient and then contaminating the specimen by improper handling.
- 1.8 All specimens for culture are potentially dangerous to the collector and laboratory staff who handle them. Leaking containers are not acceptable for this reason and the possible contamination of the specimen may lead to false diagnosis.
- 1.9 Ideally, specimens should be collected before antibacterial therapy is commenced.
If in doubt, contact the laboratory.
- 1.10 Amies medium is a useful preservative for any type of swab for bacterial culture that will inevitably be delayed in transport.
- 1.11 Non-sporing anaerobic bacteria e.g. bacteroides from deep wounds, are extremely susceptible to the presence of oxygen. The specimens should be placed immediately into Amies transport media after sample.

Note: If possible, a syringe of the pus (approx 1ml) is preferred; this should be put into a labelled specimen jar.

EAR SWAB

To diagnose bacterial infection of the ear.

1. Equipment

- 1x Bacterial Transwab kit containing:
 - 1x Plastic capped swab stick
 - 1x Medium transport tube
- Disposable gloves
- Sealable plastic bio-hazard specimen bag

Note: If bilateral swabs are requested a separate swab will be required

2. Collection

- 2.1 Label swab carrier with patients name, DOB, date, time and site from which specimen is collected
- 2.2 Remove swab stick with the plastic cap on the end.
- 2.3 Holding this swab stick by plastic cap, insert into the ear and rotate gently.
- 2.4 Remove lid from transport medium tube and insert swab stick, capping tightly.
- 2.5 Place swab into plastic bio-hazard bag with request form for transportation to the laboratory.
- 2.6 If bilateral swabs are requested, repeat the procedure on the other ear.

EYE SWAB

To diagnose bacterial infection of the eye.

1. Equipment

- 1x Bacterial Transwab kit containing:
 - 1x Plastic capped swab stick
 - 1x Medium transport tube
- Disposable gloves
- Sealable plastic bio-hazard specimen bag

Note: If bilateral swabs are requested a separate swab will be required

2. Collection

- 2.1 Label swab carrier with patient's name, date of birth, date, time and site from which specimen is collected - loosen top.
- 2.2 Take swab stick that has a plastic cap on the end. Holding swab stick by plastic cap, evert the lower lid, ask patient to look upwards and firmly swab inside the lid.
- 2.3 Remove lid from transport medium tube and insert swab stick, capping tightly.
- 2.4 If bilateral swabs are requested, repeat the procedure on the other eye.
- 2.5 Place all swabs collected into bio-hazard bag with request form for transportation to laboratory.

EYE CHLAMYDIA

To diagnose Chlamydia infection due to trachomatis.

1. Equipment

- Aptima unisex collection kit for Chlamydia/gonorrhoeae containing:
 - 1x White swab stick – not used for this collection
 - 1x Blue swab stick – used for collection of specimen
 - 1x Tube containing buffer solution
- Disposable gloves
- Sealable plastic bio-hazard specimen bag

2. Actions

- 2.1 Label tube that contains buffer solution with patient's name, DOB, date, time and site of collection.
- 2.2 Evert the lower lid, ask patient to look upward and firmly swab inside the lid with the blue swab stick.
- 2.3 After collecting specimen, remove tube top and insert swab into the tube and break off at score mark replace the cap. Do not pierce the foil top.
- 2.4 Specimen may be kept at room temperature and should reach the lab within 12 hours.
- 2.5 If bilateral swabs are requested, repeat procedure on the other eye with a second Aptima Chlamydia swab kit.
- 2.6 Place specimen with request form into bio-hazard bag for transportation to laboratory.

FEMALE GENITAL TRACT

CERVIX – MICROSCOPY AND CULTURE/CHLAMYDIA

To detect the presence of pathogens.

1. Equipment

- Bacterial Transwab kit containing:
 - 1x Plastic capped swab stick
 - 1x Transport tube containing Amies medium
 - 1x Frosted end slide
 - 1x Slide carrier
 - 1x Plain swab stick used for making slide
- Aptima unisex specimen collection Chlamydia kit containing:
 - 1x White swab stick
 - 1x Blue swab stick
 - 1x Tube with buffer solution
- Speculum moistened with water
- Disposable gloves
- Good lighting
- Blue under-pad or dressing towel
- Sealable plastic bio-hazard specimen bag

2. Collection

- 2.1 Label swabs, slide and Chlamydia tube with patients name, DOB, date and time.
- 2.2 Place patient on back and using gloved hand, gently separate the labia.
- 2.3 Gently insert the speculum into the vagina, then open speculum to site cervix.
- 2.4 **Microscopy and Culture:** Take the plastic-capped swab stick from Transwab kit and holding it by the cap, insert the tip carefully into the opening of the cervix, rotating gently. Avoid touching the vaginal surface with the swab as contamination can occur.
- 2.5 Remove and place into transport medium. Capping firmly.
- 2.6 Use second swab stick to sample cervical opening as above. Roll tip over fully labelled slide and allow to air dry, place into slide carrier when dry.

- 2.7 **Chlamydia trachomatis/Neisseria gonorrhoeae:** Prior to collecting *Chlamydia trachomatis/Neisseria gonorrhoeae* swab, remove excess mucus that could interfere with the test by swabbing the cervix with the white swab stick provided. Dispose of swab stick into infectious waste.
- 2.8 Insert the small blue *Chlamydia trachomatis/Neisseria gonorrhoeae* swab stick into the cervical os/opening until most of the tip is no longer visible. Rotate the swab for 3 or 4 seconds to ensure adequate sampling and absorption by the swab.
- 2.9 Remove lid from container with buffer solution, place swab stick into container.
Break swab stick off at score mark, replace lid ensuring foil top remains intact. Carefully remove speculum.
- 2.10 Send specimen to laboratory in bio-hazard bag with request form

VAGINA – MICROSCOPY AND CULTURE

To detect the presence of pathogens.

1. Equipment

- Bacterial Transwab kit containing:
 - 1x Plastic capped swab stick
 - 1x Transport medium tube
- Disposable gloves
- Blue under-pad or dressing towel
- Sealable plastic bio-hazard specimen bag

Note: If Bacterial Vaginosis is suspected include a slide for microscopy.

2. Collection

- 2.1 Label swab carrier with patient's last name, first name DOB, site, date and time of collection. If request is for a Group B Strep swab on a pregnant woman, the collection is a low vaginal swab. When a slide is required label frosted end of slide with patients name, DOB and site using a grey lead pencil.
- 2.2 Place patient on left side or on back. If a high vaginal swab is required a speculum should be used.
- 2.3 Using gloved hand separate the labia.
- 2.4 Remove the swab stick with plastic cap on the end.
- 2.5 Holding the swab by its plastic cap, gently insert into the vagina and swab the vaginal wall rotating the stick at the same time.
- 2.6 Remove lid from transport medium tube and insert swab stick, capping tightly
- 2.7 Place swab carrier (slide if required) and request into plastic bio-hazard bag for transportation to the laboratory
- 2.8 When procedure is finished, assist patient from the couch.

MALE GENITAL TRACT

URETHRAL SWABS MICROSCOPY AND CULTURE/*CHLAMYDIA TRACHOMATIS*/*NEISSERIA GONORRHOEAE*

To isolate micro-organisms causing infection of the genital tract.

1. Equipment

- Bacterial Transwab kit
 - Unisex thin wire mini tipped (orange cap)
- Frosted end glass slide and carrier
- Aptima unisex kit for *Chlamydia trachomatis*/*Neisseria gonorrhoeae* if requested
- Disposable gloves
- Blue under-pad
- Sealable plastic bio-hazard specimen bag

2. Preparation

- 2.1 Pre-label all swabs and slides with patients' name, DOB, site, date and time of collection.

3. Collections

It is preferable that the patient does not urinate for one hour prior to collecting *Chlamydia trachomatis*/*Neisseria gonorrhoeae* swab. Collect M&C first if *Chlamydia trachomatis*/*Neisseria gonorrhoeae* sample also required.

- 3.1 Ask the patient to express any discharge from Urethra (symptomatic patients only) and place on slide to dry.

3.2 Microscopy and Culture

- 3.2.1 Gently insert Bacterial gel (orange cap) swab 1-2cm into the urethra, rotate swab and remove. Never use force to pass swab.
- 3.2.2 Dab this swab onto slide and allow to air dry.
- 3.2.3 Then place swab into transport media tube.
- 3.2.4 If patient is not circumcised, retract foreskin before swabbing. On completing the swab ensure foreskin is drawn back into place.

3.3 ***Chlamydia trachomatis/Neisseria gonorrhoeae Swab - If required***

3.3.1 Insert blue swab gently 1-2cm into Urethra.

3.3.2 Rotate swab 360°- Remove swab and replace in tube breaking at score mark, replace lid, do not pierce foil.

3.3.3 Place swabs, slide and request form into bio-hazard bag for transportation to laboratory.

NASAL SWABS

A dry swab sometimes fails to collect enough material from the nose. The swab may therefore be moistened by dipping it into sterile water and rotating in the nares.

1. Equipment

- Bacterial Transwab kit containing
 - 1x Plastic capped swab stick
 - 1x Transport tube with Amies medium
- Disposable gloves
- Sterile water
- Sealable plastic bio-hazard specimen bag

2. Collection

2.1. Microscopy and Culture:

- 2.1.1. Using the capped trans-swab moistened in sterile water, firmly swab both nares and place swab into Amies medium.

2.2. If bilateral swabs requested:

- 2.2.1. Using the capped trans-swab moistened in sterile water and firmly swab the left nostril. Place into Amies medium
- 2.2.2. Repeat in other nostril using second Transwab.
- 2.2.3. Label swabs L nasal, R nasal appropriately.

2.3. Nasal Lesion

- 2.3.1. Using the capped trans-swab moistened in sterile water, swab the affected nostril firmly and place into Amies medium.
- 2.3.2. If more than one lesion, use a separate swab for each site.
- 2.3.3. Label swabs L nasal or R nasal appropriately.

2.4. Eosinophils:

- 2.4.1. Using the capped trans-swab moistened in sterile water, swab the nostril firmly and place into Amies medium.
- 2.4.2. Label swabs L nasal or R nasal appropriately

RECTAL SWAB

Used for the diagnosis of pathogens including gonococci or VRE – Vancomycin Resistant Enterococci

1. Equipment

- Bacterial Transwab kit containing:
 - 1x Plastic capped swab stick
 - 1x Transport tube with Amies medium
- Disposable gloves
- Sterile water to moisten swab stick
- Sealable plastic bio-hazard specimen bag

2. Collection

- 2.1 Label swab carrier with patients last name, first name, DOB, site time and date of collection.
- 2.2 Place patient in the lateral position on couch.
- 2.3 Insert moistened swab stick, (1/2 the length of the cotton tip) into the anal opening, in the direction of the umbilicus and rotate. Withdraw swab stick and place the swab into transport medium.
- 2.3 A slide is not required for this test.
- 2.4 Place swab and request form into plastic bio-hazard bag for transportation to the laboratory.

M.R.S.A. SCREENING

To exclude carriage of Methicillin Resistant Staphylococcus Aureus (MRSA).

1. Equipment

- 3 – 7 x Bacterial Transwab kits containing:
 - 1x Plastic capped swab stick
 - 1x Transport tube with Amies medium
- Tongue depressor – for throat swab
- Disposable gloves
- Sterile water – used to moisten swab stick
- Sealable plastic bio-hazard specimen bag

2. Collection

- 2.1 Sites to be sampled for MRSA screening are **nose, throat, axilla, groin** and any **ulcers** or broken areas of skin.

Note: Unlike diagnostic swabs, no slides are required for these specimens.

- 2.2 Remove transport medium tube - label with patient's name, date of birth, date, time and site from which specimen is collected - loosen top.
- 2.3 Holding this swab stick by the cap, firmly swab the site several times.
- 2.4 Remove lid from transport medium tube and insert swab stick, capping tightly.
- 2.5 Sample each site as follows:
- 2.5.1 **Nose.** Swab both anterior nares. Use separate swabs for R and L.
- 2.5.2 **Throat.** Ask patient to open mouth and extend the tongue. Swab both tonsils and posterior pharynx, placing the tongue depressor firmly on the back of the tongue.
- 2.5.3 **Axilla.** Swab both axillae, with one swab.
- 2.5.4 **Groin.** Swab both groins, with one swab.
- 2.5.5 **Other sites.** One swab per site.
- 2.5.6 Place swabs and request form into plastic bio-hazard bag for transportation to the laboratory.

THROAT SWAB

1. Equipment

- Bacterial Transwab kit containing:
 - 1x Plastic capped swab stick
 - 1x Transport tube medium
- Tongue depressor
- Disposable gloves
- Safety glasses (personal protection against airborne contamination)
- Sealable plastic bio-hazard specimen bag

2. Collection

- 2.1 Remove transport medium tube from kit - label with patient's name, date of birth, date and site from which specimen is collected - loosen top.
- 2.2 Ask patient to open mouth and say "aargh"
- 2.3 Using a tongue depressor, place tongue depressor firmly on the back of the tongue and quickly swabbing both tonsil areas and the posterior pharynx without contamination from the mouth or tongue.
- 2.4 Remove lid from transport medium tube and insert swab stick, capping tightly.
- 2.5 Place swab and request form into plastic bio-hazard bag for transportation to the laboratory.

VIRAL SWABS - PCR

When collecting swabs for viral PCR testing, ensure all necessary additional information is included on the request form – medication, appearance of lesion, amount and colour of any discharge, difficulty in collection (if any).

1. Equipment

- Dry flocked swab – general PCR specimen (Red Cap)
- Dry flexible flocked swab – for naso-pharyngeal collections (Orange Cap)
- Disposable gloves
- Sterile water – to moisten swab
- Sealable plastic bio-hazard specimen bag

2. Collection

- 2.1 **Moist areas** – collection as much material as possible
- 2.2 **Dry lesion** – wet swab stick with sterile water or saline
- 2.3 **Vesicles** – break vesicle and scrape base of lesion with swab
- 2.4 **Respiratory viruses** – a nasal swab is better than throat
- 2.5 **Label all swab carriers with** – patients name, DOB, site, date and time of collection
- 2.6 Place the swab and request form into plastic bio-hazard bag for transport to the laboratory
- 2.7 Transport the specimen cool (2-8°C) after collection and during transport
- 2.8 **Eye, nose and throat swabs** are collected in the usual manner (see swabs section) using the dry flocked swab (Red cap)
- 2.9 **Genital swabs (for herpes)** use the dry flocked swab (red cap) and collect as much material as possible. It may be necessary to prick the vesicles with a sterile needle. Antenatal patients - if no lesions, firmly swab the area where the eruption usually occurs.
- 2.10 **Saliva swabs** for viral culture (CMV in particular) are currently preferred to throat swabs. A salivary swab using the dry flocked swab stick (red cap) is collected from beneath the tongue.

- 2.11 **Vesicle fluid.** Break vesicles and scrape base of lesion with the dry flocked swab (Red cap) place into swab carrier. Choose vesicle that has most recently erupted and contains clear fluid. *Contact laboratory for any further information.*
- 2.12 **Nasopharyngeal** – use dry flexible flocked swab (Orange cap). Insert swab into nose and slide along floor of nasal cavity approximately the length of the patient's index finger. This should be done for both sides of the nose using the same swab stick to obtain the best sample.

WOUND SWAB

To isolate pathogens causing infection.

1. Equipment

- Bacterial Transwab kit swab
 - 1x Plastic capped swab stick
 - 1x Transport tube with Amies medium
- Disposable gloves
- Sealable plastic bio-hazard specimen bag

2. Collection

- 2.1 Remove transport medium tube from kit - label with patient's name, date of birth, date, time of collection and site from which specimen is collected - loosen top.
- 2.2 Remove plastic capped swab stick.
- 2.3 Holding swab stick by plastic cap, firmly swab the wound.
- 2.4 Remove lid from Amies transport medium tube and insert swab stick, capping tightly.
- 2.5 Place swab and request form into sealable bio-hazard bag for transportation to the laboratory.

SYNACTHEN TEST

To assess adrenocortical function.

1. Contraindications

1.1 **Absolute**

Hypersensitivity to the preparation, viral disease or recent vaccination with live virus, acute psychoses, infectious disease (unless antibiotics are being administered at the same time), peptic ulcer and Cushing's syndrome, cardiac insufficiency, pregnancy.

1.2 **Relative**

Diabetes mellitus, moderate or severe hypertension. Patients already receiving medication for diabetes or hypertension must have their dosages readjusted.

1.3 **Precautions**

Particularly in patients with **allergic disorders** or with an allergic diathesis, hypersensitivity reactions are liable to occur in response to Synacthen.

1.4 *A pathologist or doctor must be present to administer:*

1.4.1 The Synacthen injection

1.4.2 Any treatment if reactions occur – the use of Epipen

1.5 Timing of specimen collection is important.

1.6 All tubes must be accurately labelled with patient's name, DOB, date and time of collection.

2. Collection

2.1 Test is ideally performed in the morning before 10 am.

2.2 Serum Cortisol - blood in Gel tube (gold cap) to be taken prior to Synacthen injection.

2.3 An injection of IM Synacthen 250 micrograms (0.25mgs) in 1 ml sterile water or isotonic saline is given by a Doctor and the **TIME CAREFULLY NOTED.**

2.4 **EXACTLY 30 MINUTES** after injection, a further serum Cortisol, of blood in a Gel tube (gold cap) is collected

- 2.5 **EXACTLY 60 MINUTES** after injection, a further serum Cortisol level, of blood in a Gel tube (gold cap) is collected.
- 2.6 Send all specimens at the same time to the laboratory in a bio-hazard bag with request form.
- 2.7 For any other information contact the laboratory (Biochemical Pathologist).

URINE CYTOLOGY

1. Actions

- 1.1 3x specimens obtained on 3 separate days not necessarily consecutive.
- 1.2 Each specimen must be delivered to the laboratory on the day of collection.

2. Instructions for the Patient

- 2.1 The first morning specimen is not suitable for the test and should be discarded.
- 2.2 There is no restriction on food intake, but extra fluid intake is recommended.

3. Equipment

- 3x Urine cytology jars (yellow lids)
- Sealable plastic bio-hazard specimen bags

4. Collection

- 4.1 Discard the first specimen of the morning, as this is not suitable for cytology.
- 4.2 **Collect at least 50 mls of urine** at any other time of the day, preferably after the patient has had plenty of fluids to drink. Label jar with patient's name, date and time of collection and test – Urine Cytology - Day 1.
- 4.3 If it is difficult for the patient to void into the screw top container, provide a larger container and pour 50 – 100 mls into the correct cytology container for transportation.
Note: Do not allow sample to sit for any time in the larger container – the cells will settle and then may not be transferred into the specimen jar.
- 4.4 Repeat on other 2 days to give a total of 3 specimens.
- 4.5 In the case of urine cytology being requested on a patient with an in-dwelling catheter, specimens should be obtained (at least 50mls) during the day and should **not** include the overnight urine sample.
- 4.6 A specimen of urine for cytology obtained during cystoscopy or catheterisation should be forwarded to the laboratory without the addition of fixative or preservative.

- 4.7 It is most helpful to know if urine specimens for cytology have been obtained by catheterisation or if the patient has had catheterisation or cystoscopy during the previous 10 days. Record this information on the request form.
- 4.8 If the patient is to have an I.V.P around the same time as urine cytology, then it is important to collect the cytology specimen **before** I.V.P. or wait for several days after the procedure before commencing collection to allow clearance of the dye

URINE MICROSCOPY AND CULTURE (MSU) FEMALE COLLECTION

The technique for collecting a clean voided urine specimen is relatively simple and can be readily taught to most patients. A few words to decrease anxiety and stimulate the patient's interest will assist in enlisting the patient's co-operation.

Hair or other particulate matter from the perineum in females may fall into the urine collecting vessel or bacteria from vaginal secretions from the vulva or distal urethra may contaminate the specimen.

The cleansing procedures must therefore remove the contaminating organisms from the vulva, urethral meatus and related perineal area so that bacteria found in the urine can be assumed to have come from the bladder and urethra only.

If it is necessary to store urine (for MC&S), refrigerate for no more than 12 hours. Urine (for? casts) may be stored in the refrigerator for 5 hours.

An MSU may be collected during menstruation if adequate cleaning takes place and a fresh tampon is used when possible. Note on request form that patient is menstruating.

1. Equipment

- 1x Specimen jar (yellow lid)
- 2x Sterile water towelettes
- Sealable plastic bio-hazard specimen bag

2. Collection

- 2.1 Label jar with patient's name DOB, time and date of collection.
Explain the procedure to the patient, emphasising the importance of collecting as clean a specimen as possible.

2.2 ***The patient is instructed to:***

- 2.2.1 Wash hands.
- 2.2.2 Prepare by opening the jar and the towelettes and placing them where they can be reached conveniently.
- 2.2.3 Sit well back on the toilet (preferably with the seat up). Part the labia and clean the vulva from front to back with the first towelette. Repeat with the second towelette.

- 2.2.4 With the labia still apart the patient is instructed to pass the initial amount of urine into the toilet (20-25mls), place the jar under the stream (i.e. without interrupting the flow) and collect enough urine to half fill the container. The rest of the urine is passed into the toilet.
- 2.2.5 Screw the lid on firmly. Refrigerate specimen if there is any delay in delivery to the laboratory
- 2.2.6 Place the jar and the request form into plastic sealable bio-hazard bag for transportation to the laboratory

The two most important considerations when collecting an MSU are:

- 1. To keep the labia parted (following cleansing) until urine collected.**
- 2. To allow a continuous stream while collecting urine**

URINE MICROSCOPY AND CULTURE (MSU) MALE COLLECTION

The technique for collecting a clean voided urine specimen is relatively simple and can be readily taught to most patients. A few words to decrease anxiety and stimulate the patient's interest will assist in enlisting the patient's co-operation.

Bacteria from beneath the prepuce may contaminate the stream.

The cleansing procedures must therefore remove the contaminating organisms from the urethral meatus so those bacteria found in the urine can be assumed to have come from the bladder and urethra only.

Arrange pick up/delivery to Lab. If it is necessary to store urine (for MC&S), refrigerate for no more than 12 hours prior to pick up. Urine (for? casts) may be stored in the refrigerator for 5 hours

1. Equipment

- 1x specimen jar (yellow lid)
- 1x Sterile water towelette
- Sealable plastic bio-hazard specimen bag

2. Collection

2.1 Label container with name, DOB date and time of collection.

2.2 Instructions to patient

2.2.1 Instruct patient to wash hands thoroughly.

2.2.2 If uncircumcised, retract the foreskin and cleanse around the opening of the urethra with the towelette provided.

2.2.3 Avoid touching the inside of the container and the lid.

2.2.4 Pass a small amount of urine into the toilet and **without stopping the stream** collect approximately 25mls of urine into the specimen container (ie: half fill the container.) The remaining urine is passed into the toilet.

2.2.5 Screw the lid on firmly, refrigerate specimen if there is any delay in delivery to the laboratory.

2.2.6 Place jar and request form into plastic bio-hazard bag for delivery to the laboratory.

URINE MICROSCOPY AND CULTURE (MSU) PAEDIATRIC

1. Equipment

- Paediatric Urine Collection kit
- Specimen jar (yellow lid)
- Disposable gloves
- Blue under-pad or dressing towel
- Scissors
- Sealable plastic bio-hazard specimen bag

2. Collection

- 2.1 Label container with patient's full name, date of birth, time and date of collection
- 2.2 If the child has bladder control, the same instructions apply as for adults MSU's.
- 2.3 In untrained children, a paediatric urine collection kit is used.

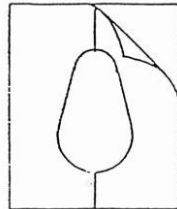
Carefully follow these instructions:-

- 2.3.1 Wash your hands.
- 2.3.2 Wearing gloves, remove the baby's nappy. Wash the genital area thoroughly with soap and water. Dry thoroughly.
- 2.3.3 Open the urine collection pack.
- 2.4 Take the tube marked "**Chlorhexidine 0.1% Aqueous Irrigation**" and twist the lid off. Pour the contents into **one** of the compartments containing three cotton wool balls.

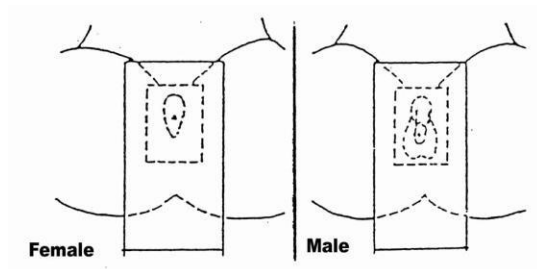
For Female: Take one of these swabs and wipe the genital area from front to back on the left side and discard. Repeat on the right side then in the centre.

For Male: Wipe around the head of the penis with each swab.

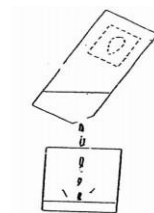
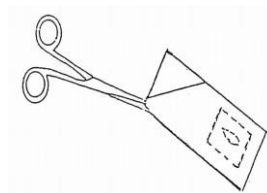
- 2.5 Open the other sachet marked "**Water for Irrigation**" in the same manner and pour over the other cotton wool swabs. Wipe the genital area in the same way.
- 2.6 Thoroughly dry the area so that the collection bag will adhere to the skin.
- 2.7 Remove the adhesive protector.



- 2.8 Apply the bag over the urethral opening.



- 2.9 After the urine has been passed, carefully remove the bag.
- 2.10 With scissors, snip the corner of the bag and pour the urine into the specimen jar.



- 2.11 Notate on request form that specimen is a "bag" collection.
- 2.12 Refrigerate if there is a delay in transport.
- 2.13 Place jar and request form into bio-hazard bag for transportation to the laboratory.

URINE MICROSCOPY AND CULTURE (MSU) INDWELLING or SUPRA PUBIC CATHETER

Important: Record on request form that specimen is from an indwelling or supra pubic catheter.

1. Equipment

- 1x Specimen jar (yellow lid)
- Clamp (or 5ml syringe to be used as a clamp)
- Alcohol swab
- Disposable gloves
- Blue under-pad or dressing towel (used under catheter and bag connection when disconnecting)
- Sealable plastic bio-hazard specimen bag

2. Collection

- 2.1 Label jar with patient's name, DOB, time and date of collection.
- 2.2 DO NOT obtain specimen from collecting bag.
- 2.3 Wearing gloves, clamp off drainage tube with clamp or 5ml syringe. (To use 5ml syringe as a clamp - remove plunger from syringe, bend catheter in two and place barrel of the syringe over the bend to hold the catheter pinched). Leave clamp/syringe in place at least 30 mins so that a quantity of urine can collect in the bladder. Cover area with dressing towel whilst waiting.
- 2.4 Cleanse the area with the alcohol swab where the catheter connects with the tubing for the bag, allow to air dry for 2 mins. Disconnect catheter from tubing, hold catheter over the specimen jar, release clamp and allow urine to flow into the jar.
- 2.5 Reconnect catheter to bag to allow resumption of free drainage.
- 2.7 Refrigerate sample if there is any delay in transportation to the laboratory.
- 2.8 Place jar and request form into bio-hazard bag for transportation to the laboratory.

URINE - 24 HOUR COLLECTIONS

1. Equipment

- 24 hour urine collection bottle (contact laboratory for bottles with additives)
- Disposable cup or clean container

2. Actions

- 2.1 Label bottle with patient's full name, DOB and name of test. For list of tests and the additive (if required) see Attachment A at end of procedure.
- 2.2 Strong acid or acid washed bottles can be obtained through the stores department at the laboratory.
- 2.3 Explain to the patient that accurate 24-hour collection is essential to enable correct laboratory analysis results, e.g. 0700 to 0700.
- 2.4 At commencement time, completely empty bladder into toilet. Record the commencement time and date on the bottle.
- 2.5 Keep bottle cool throughout collection and until delivery/pick up ie bathroom, laundry.
- 2.6 When one 24-hour urine container does not provide sufficient capacity, patient may collect urine into a clean dry bottle. When two 24 hour urine containers are used, mark both containers (preferably with texta pen) with "1 of 2", "2 of 2".
- 2.7 The patient is asked to record the finishing time and date on the bottle.
- 2.8 If test is for **Creatinine Clearance**, the patient's weight and height must be recorded on the request form. Collect a blood sample - Gel tube for serum Creatinine within 6 hours of completing 24 hour urine collection. Avoid vigorous exercise during collection.
- 2.9 **Note:** If test is for **5 HIAA (5-Hydroxy Indole Acetic Acid)** dietary restrictions apply. For 2 days prior to and during the test avoid tomatoes, avocados, walnuts, bananas, red plums, eggplant, pineapple and kiwi fruit.
- 2.10 **Note:** If test is for **Hydroxy Proline** dietary restrictions apply. Instruct patient to stop eating meat, chicken and fish for 2 days prior to and during the urine collection.

- 2.11 **Note:** If test is for **Arsenic** instruct patient to avoid seafood particularly shellfish for 2 days prior to the test and for the test period.

3. Urine Collection Containers

3.1 Combinations:

3.1.1 The following combinations can be collection in the one 'Plain Bottle' container: Calcium, Creatinine, Urate, Phosphate, Urea, Sodium, Potassium and Protein

3.1.2 For combinations with other analytes please contact the laboratory

3.2 Preservatives

3.2.1 Strong Acid – 20ml HCL 6M – *Contact laboratory for bottle*

3.2.2 Acid Washed – *Contact Biochemistry department*

Analyte	Collection Instructions
5 – HIAA (<i>See Special Instructions – Urine 24hrs</i>)	Strong Acid Bottle (<i>See dietary restrictions</i>)
5 HT	Strong Acid Bottle
5-Hydroxy Indole Acetic Acid	Strong Acid Bottle
5-Hydroxy Tryptamine	Strong Acid Bottle
Adrenaline (Urine)	Strong Acid Bottle
Aetiocholanolone	Plain Bottle
Aluminium (Urine)	Acid Washed Bottle
Amino Laevulinic Acid / ALA	Plain Bottle (<i>Foil wrap to protect from light.</i>)
Amylase / AMY	Plain Bottle
Androgen Metabolites	Plain Bottle
Androgens	Plain Bottle
Androsterone	Plain Bottle
Arsenic (Urine-24 Hour) / AS	Acid Washed Bottle (<i>See dietary restrictions</i>)
Ca (Urine-24 Hour)	Plain Bottle
Ca++ (Urine-24 Hour)	Plain Bottle
Cadmium (Urine-24 Hour)	Plain Bottle
Calcium (Urine-24 Hour)	Plain Bottle
Catecholamines (Urine-24 Hour)	Strong Acid Bottle
Citrate (Urine 24 hour)	Plain Bottle
Copper (Urine-24 Hour)	Acid Washed Bottle
Coproporphyrin Quantitation (Urine-24 Hour)	Plain Bottle (<i>Foil wrap to protect from light.</i>)
Coproporphyrins (Urine)	Plain Bottle (<i>Foil wrap to protect from light.</i>)
Cortisol (Urine-24 Hour)	Plain Bottle
Creatinine (Urine-24 Hour)	Plain Bottle
Creatinine Clearance / Creat -see <i>Special Instructions-Urine 24hr*</i>	Plain Bottle
Cu (Urine-24 Hour)	Acid Washed Bottle
Cystine (Urine – 24 Hour)	Plain Bottle
DHEAS (24 Hour Urine)	Plain Bottle
Diastase (Urine-24 Hour)	Plain Bottle
Dopamine (Urine)	Strong Acid Bottle
E3 (Urine-24 Hour)	Not Available
Estriol (Urine-24 Hour)	Not Available
FSH (Urine)	Plain Bottle

HCG (Urine-24 Hour)	Plain Bottle
HMMA	Strong Acid Bottle

HMMA (Urine-24 Hour)	Strong Acid Bottle
Homovanillic Acid	Strong Acid Bottle
HVA (Urine)	Strong Acid Bottle
Hydroxy Indole Acetic Acid <i>see Special Instructions-Urine 24hour**</i>	Strong Acid Bottle <i>(See dietary restrictions)</i>
Hydroxy Methoxy Mandelic Acid	Strong Acid Bottle
Hydroxy Proline (Urine-24 Hour)	Plain Bottle <i>(See dietary restrictions)</i>
K+ (Urine-24 Hour)	Plain Bottle
Lead (Urine-24 Hour)	Acid Washed Bottle
LH (Urine)	Plain Bottle
Luteinizing Hormone (Urine)	Plain Bottle
Magnesium / Mg (Urine-24 Hour)	Plain Bottle
Manganese / Mn Urine-24 Hour)	Acid Washed Bottle
Mercury (Urine-24 Hour)	Acid Washed Bottle
Mg (Urine-24 Hour)	Plain Bottle
Mg++ (Urine-24 Hour)	Plain Bottle
Mg2+ (Urine-24 Hour)	Plain Bottle
Microalbumin	Plain Bottle (specify timing ie 12hr, 24 hr)
Na (Urine-24 Hour)	Plain Bottle
Nickel (Urine-24 Hour)	Plain Bottle
Noradrenaline (Urine-24 Hour)	Strong Acid Bottle
Oestriol (Urine-24 Hour)	Not Available
Oxalate (Urine-24 Hour)	Strong Acid Bottle
Pb (Urine-24 Hour)	Acid Washed Bottle
Phos (Urine-24 Hour)	Plain Bottle
Phosphate (Urine-24 Hour)	Plain Bottle
Phosphorus (Urine-24 Hour)	Plain Bottle
PO4 (Urine-24 Hour)	Plain Bottle
Porphyrins (Urine-24 Hour)	Plain Bottle <i>(Foil wrap to protect from light.)</i>
Porphyrins (Urine-Total)	Plain Bottle <i>(Foil wrap to protect from light.)</i>
Potassium (Urine-24 Hour)	Plain Bottle
Pregnanediol-3-glucuronide (Urine)	Plain Bottle
Protein (Urine)	Plain Bottle
Sodium (Urine-24 Hour)	Plain Bottle

UA (Urine-24 Hour)	Plain Bottle
Urate (Urine-24 Hour)	Plain Bottle
Urea (Urine-24 Hour)	Plain Bottle
Uric Acid (Urine-24 Hour)	Plain Bottle
Urinary Free Cortisol (Urine-24 Hour)	Plain Bottle
Uroporphyrin Quantitation (Urine-24 Hour)	Plain Bottle (<i>Foil wrap to protect from light.</i>)
VMA (Urine-24 Hour)	Strong Acid Bottle
Zinc (Urine-24 Hour)	Acid Washed Bottle