Microbiology
Sample Collection and Transport

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INTRODUCTION

The purpose of this document is to provide guidance to patients about specimen collection, transport and storage for the most common microbiology tests.

When using specimen containers ensure the cap is screwed on properly to avoid leakage and that the sample and request form have both been completed with the relevant patient details (Surname, forename/s, date of birth, and the time and date the specimen was taken). Always transport specimens in sealed plastic bags.

Further information:
For further information regarding Microbiology tests, turnaround times and sample types and the policy setting out the standards required with regards to specimen labelling go to:
http://tis/documents/specimenacceptancepolicy.pdf
http://www.labtestsonline.org.uk
SPECIMEN TYPES

URINE

Safety considerations and transport
Collect specimens into a CE marked leak proof boric acid container (red top) or where appropriate a CE marked leak proof container.

Transport to the laboratory
Specimens should be transported and processed within 4 hours if possible. If transport to the laboratory is delayed then the specimen should be refrigerated.

Specimen type and method of collection
Midstream urine (MSU)
This is the recommended routine collection method
Periurethral cleaning is recommended prior to collection (water is considered sufficient)

Females: Hold the labia apart to pass urine. Males: Retract the prepuce if appropriate.

The first part of the urine stream is passed into the toilet and without interrupting the flow the urine is collected into a leak proof sterile container. Red top boric acid containers must be filled up to the mark and the contents mixed. If using a non boric acid container collect at least 10ml. The remaining urine is passed into the toilet.
**Catheter urine (CSU)**

Urine may be obtained from an intermittent catheter (in and out) or an indwelling (closed) system catheter. In the case of an indwelling catheter the urine must be collected aseptically from the sampling port or the tubing using a sterile needle and syringe. The specimen must not be collected from the drainage bag.

**Bag Urine**

These samples are commonly used in infants and young children. The correct size bag must be chosen to reduce leakage or contamination with faeces. After washing and drying the genitalia a bag is placed over the penis and scrotum in males and over the vulva starting from the perineum in females, the bag is stuck to the skin. The collected urine is transferred into a boric acid or CE marked leak proof container.

**Pad urine**

An alternative to collecting bag urine from infants and young children. After washing the nappy area thoroughly, a pad is placed inside the nappy. As soon as the pad is wet with urine (but no faecal soiling), push the tip of a syringe into the pad and draw urine into the syringe. Transfer specimen to a boric acid container or a sterile leak proof container. If difficulty is experienced in withdrawing urine, the wet fibres may be inserted into the syringe barrel and the urine squeezed directly into the container with the syringe plunger.
FAECES

Safety considerations

Samples must be collected in CE leak proof containers, either a blue sterile container with spoon or a white topped sputum container or universal.
Transport to the laboratory

Specimens should be transferred to the laboratory as soon as possible after collection. If transport to the laboratory is delayed then the specimen should be refrigerated.

Method of collection

The specimen may be passed into a clean dry disposable bed pan or similar container and transferred into a blue sterile container with the spoon or into a sputum container. A walnut sizes portion (1-2g) or 10ml of liquid faeces is all that is required. The specimen container must not be filled to the lid.
SPUTUM

Safety considerations

Collect specimens into CE marked sterile leak proof containers (white topped 50ml volume).

Transport to the laboratory

Specimens should be transported and processed within 4 hours if possible

If transport to the laboratory is delayed then the specimen should be refrigerated

Specimen type and method of collection

Saliva and specimens containing food particles are not suitable for culture

For sputum specimens the material required is from the lower respiratory tract, expectorated by deep coughing. When the cough is dry, physiotherapy, postural drainage or inhalation of an aerosol before expectoration may be helpful. Ideally at least 1ml of sputum is required.
SWAB’S and PUS

Safety considerations

Collect fluids and pus into CE marked leak proof containers. Collect swabs into Amies transport media containing charcoal. Collect swabs for virology investigations such as H1N1 and Herpes into a CE marked leak proof viral transport media (conical shaped container with a green or red lid).

Transport to the laboratory

Specimens should be transported to the laboratory as soon as possible after collection. If transport to the laboratory is delayed then the specimen should be refrigerated.

Specimen type and method of collection

Specimens will usually be collected by a medical practitioner.

Samples of pus are preferred to swabs. Ideally a minimum of 1ml of pus is required for meaningful examination. If only a minute amount of pus is obtained send the pus/exudate on a swab in Amies transport media.

Wounds, the deepest part of the wound or lesion should be sampled with a sterile swab

Ulcers, the debris on the ulcer should be removed and the ulcer should be cleaned with saline. A biopsy or, preferably, a needle aspiration of the edge of the wound should then be taken.
Throat swab. The tonsillar area and/or posterior pharynx or where there is a lesion or exudate should be sampled, the tongue and uvula should be avoided.

Nose swab. The swab is inserted into the anterior nares and directed towards the tip, the swab is gently rotated, both nares should be sampled using the same swab.

Ear swab. Swab any pus or exudates. For investigation of fungal infection, scrapings of material from the ear canal are preferred although swabs can also be used.

**SKIN SCRAPINGS, NAIL AND HAIR SAMPLES**

**Safety considerations**

Collect specimens into CE marked leak proof containers, or a Dermapak fungal specimen transport pack.

**Transport to the laboratory**

Specimens should be kept at room temperature and transported and processed as soon as possible although, provided the samples are kept dry, the fungus will remain viable for several months.

**Specimen type and method of collection**

Skin

Skin and nails can be swabbed with 70% alcohol prior to collection of the specimen, this is especially important if creams, lotions or powders have been applied. The edges of skin lesions yield the greatest quantities of viable fungus. Lesions should be scraped with a blunt scalpel blade. If insufficient material can be obtained by scraping, then sticky tape can be pressed on the lesion and transferred to a clean glass slide for transport to the laboratory (’stripping’).

Nails

Good nail samples are difficult to obtain. It should be specified whether the sample is from the fingernails or toenails. Material should be taken from any discoloured, dystrophic or brittle parts of the nail. The affected nail should be cut as far back as possible through the entire thickness and should include any crumbly material. Nail
drills, scalpels and nail elevators may be helpful but must be sterilized between patients. When there is superficial involvement (as in white superficial onychomycosis) nail scrapings may be taken with a curette. If associated skin lesions are present samples from these are likely to be infected with the same organism and are more likely to give a positive culture.

Hair

Samples from the scalp should include skin scales and plucked hairs or hair stumps. Cut hairs are not suitable for direct examination as the infected area is usually close to the scalp surface.
TB Investigations

Safety considerations: Collect specimens into CE marked sterile leak proof containers (white topped 50ml volume), note: bronchial washings specimens are collected into specific sterile bronchial washing containers with tube lids.

Transport to the laboratory

Specimens should be transported and processed within 4 hours if possible

If transport to the laboratory is delayed then the specimen should be refrigerated

Specimen type and method of collection

Sputum specimens

Sputum specimens should be relatively fresh (less than 1 day old) to minimise contamination.

Purulent specimens are best. Three samples of ≥ 5 mL should be collected approximately 8-24 hours apart with at least one from early morning.

Samples taken early morning (ie shortly after patient waking) have the greatest yield. When the cough is dry, physiotherapy, postural drainage or inhalation of nebulised saline (‘sputum induction’) before expectoration may be helpful.

Bronchoalveolar lavage/bronchial washings

These may be sent if spontaneous or induced sputum is unavailable or if such specimens are AFB smear negative.

Note: Contamination of the bronchoscope with tap water, which may contain environmental
Mycobacterium species should be avoided. Minimum sample size is preferably 5 mL

**Urine specimens**

Urine specimens should be collected in the early morning on 3 consecutive days in a CE marked leak proof container (that does not contain boric acid) and placed in a sealed plastic bag. If there are no appropriate containers for a whole Early Morning Urine (EMU) sample, a midstream EMU sample is an acceptable, but not ideal alternative.

**Pus or pus swabs**

Pus or pus swabs should be collected aseptically and the largest practical sample submitted in a CE Marked leak proof container. Pus is the sample type of choice. Swabs are less preferable as Mycobacteria if present may adhere to the swab rather than be transferred successfully to the culture media.
Chlamydia and Gonorrhea Specimens for Molecular (PCR) testing

Urine Collection Procedure
1. The patient should not have urinated for at least one hour prior to sample collection.
2. Using a urine specimen collection cup,* the patient should collect the first 20 to 30 ml of voided urine (the first part of the stream).

![Urine Specimen Collection Cup](image)

3. Unscrew the transport tube cap, taking care not to spill the transport buffer within.

![Plastic Transfer Pipette and Transport Tube](image)

Use the plastic transfer pipette to transfer urine from the collection cup into the transport tube until the liquid level in the tube falls within the clear fill window of the transport tube label. Do not overfill.
4. Recap the transport tube carefully. Ensure the cap seals tightly. Label the transport tube with sample identification information, including date of collection. Take care not to obscure the fill window on the transport tube.
5. After collection, transport and store transport tube at 2 °C to 30 °C for up to 14 days. If longer storage is needed, store at –10 °C or below for up to 90 days.
Female swab collection procedure

**Vaginal Collection**
1. Insert the white tip of the specimen collection swab about two inches (5 cm) into the opening of the vagina.
2. Gently rotate the swab for 15 to 30 seconds against the sides of the vagina.
3. Withdraw the swab carefully. (Continue with 4.)

**or if Endocervical Collection**
1. Insert the white tip of the specimen collection swab into the endocervix canal.
2. Gently rotate the swab for 15 to 30 seconds to ensure adequate sampling.
3. Withdraw the swab carefully. (Continue with 4.)

**Male swab collection procedure**
1. Insert the white tip of the specimen collection swab 3/4 to 1 1/2 inches (2 to 4 cm) into the urethra.
2. Gently rotate the swab for 2 to 3 seconds to ensure adequate sampling.
3. Withdraw the swab carefully. (Continue with 4.)

4. Handle the cap and tube carefully to avoid contamination.
5. Unscrew the transport tube cap and immediately place the specimen collection swab into the transport tube so that the white tip is down.
6. Carefully break the swab at the scored line on the shaft; use care to avoid splashing of contents.
7. Recap the transport tube. Ensure the cap seals tightly.
8. Label the transport tube with sample identification information, including date of collection.
9. After collection, transport and store transport tube at 2 °C to 30 °C for up to 14 days. If longer storage is needed, store at –10 °C or below for up to 90 days.

References:

http://hpa.org.uk/SMI


AR2131/uk Chlamydia and Gonorrhea Specimen Collection and Transport Guide 04/06/12

If you have a visual impairment this leaflet can be made available in bigger print on audiotape. If you require either of these options please contact the Patient Information Centre on: 0161 922 5332

The Trust Public Website is also speech enabled using BrowseAloud
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