

INFECTION PREVENTION AND CONTROL POLICY AND PROCEDURES **Sussex Partnership NHS Foundation Trust (The Trust)**

ICP3

COLLECTION OF MICROBIOLOGICAL SPECIMENS

INTRODUCTION

Information from the Microbiology Laboratory is not only important as a guide but necessary for a definitive diagnosis, treatment and care of service users. Prompt, accurate laboratory reports are possible only if specimens are properly collected and they are accompanied by specific, detailed service user information on the request form.

Taking and processing specimens is a time consuming and costly process.

Taking, labelling and transportation of clinical specimens for laboratory investigation are potentially a high risk activity and should only be undertaken:-

- When there are clinical signs of infection
- When requested to do so by the clinician, infection prevention and control team, by occupational health department, or local Health Protection Team (at PHE) in an outbreak investigation
- For investigation of substance misuse/drug screening

AIM

To ensure that all staff are properly advised on the correct methods of collecting, bagging, labelling and transportation of specimens and that risks in handling clinical specimens are reduced.

BACKGROUND

Information from the Pathology Laboratory is not only important as a guide but also necessary for a definitive diagnosis, treatment and care of service users. Prompt, accurate laboratory reports are possible only if specimens are properly collected and they are accompanied by specific detailed service user information on the request forms. Risks inherent when dealing with blood and body fluids should be reduced to the lowest level possible with the safety of service user and staff paramount.

Healthy individuals are colonized by a variety of normal flora which are non-pathogenic (do not produce disease) in their usual (resident) site but may become pathogenic if transferred to another site and then an infection may occur. The best

example is gut (bowel) bacteria which reside in the large bowel and form part of the digestion process of foodstuffs e.g. *E.coli* which, if transferred to the urinary tract (during catheterisation or as a result of inadequate hygiene) can result in urinary tract infections.

Infections derived from the service users' own resident flora are termed 'endogenous'.

Transient organisms acquired from a source outside the body are termed 'exogenous'.

Transient flora may be acquired from any source and are usually easily removed by ordinary hygienic measures such as bathing and hand washing.

Pathogenic organisms are those which are virulent or invasive enough to cause infection in exposed susceptible service users.

PROCESS

It is the responsibility of any staff collecting a specimen to ensure that they are practising in a safe manner and that their actions do not put any service user or colleague at additional risk.

If infection with a highly contagious organism is known or suspected, i.e. viral haemorrhagic fever, vCJD, the clinician in charge of the service user **MUST** discuss the problem with the consultant microbiologist **BEFORE** any specimen is taken.

COMMUNICATION

It is the responsibility of the clinician in charge of the service user to ensure that specimens are correctly obtained, contained, labelled and transported and that staff to which this role is delegated are familiar with the processes involved.

If service users are required to obtain their own specimens, it is important that they are given a full explanation of the process and a rationale.

CONFIDENTIALITY

It is essential that confidentiality is maintained at all times and local arrangements must be in place to ensure sensitive information is not revealed unnecessarily on request cards. This is of particular importance with Blood Borne Viruses (BBVs) and Sexually Transmitted Diseases (STDs).

INFORMATION REQUIRED

In addition to the service user's name, NHS Number, date of birth, location e.g. facility / ward, clinician's name, address and doctor's name, which are all essential for the return of the report, the form should include specific information about the individual service user, including:

Service user's condition: e.g. immuno-compromised; if unusual organisms are suspected; RELEVANT clinical conditions; if part of a suspected outbreak.

Current medication and treatments: current or recent antibiotics, steroids or other immune-suppressive drugs, etc.

Source of specimen: particular body site; type of body fluid including method of collection e.g. MSU, catheter specimen of urine (CSU) etc. Wound swabs must specify the body area from which the specimen is obtained. Multiple swabs from the same area e.g. wound swabs must be accurately labelled e.g. swab 1 - left lower leg medial aspect; swab 2 - left lower leg lateral aspect etc.

Investigations required e.g. Culture & Sensitivity (C & S). Discuss with the Infection Prevention and Control Lead prior to collection if necessary.

Failure to complete the form correctly can result in delayed or missing results that can have a major impact on the service users care and risk management.

COLLECTION OF SPECIMENS

All laboratory staff are required to reject specimens that appear to be poorly collected or are inadequately labelled as results may be unreliable and misleading. Poorly collected specimens can cause delayed results and subsequent delays in treatment, service user inconvenience, wasted time and increased costs. When collecting specimens observe the following:

- Whenever possible always take specimens prior to commencing antibiotics. If a course of antibiotics has started the specimen should be taken immediately prior to next dose **and the antibiotics being given should be documented on the request form.**
- Collect fresh materials as free from extraneous contamination as possible and take material only from the site of infection.
- Prior to taking swabs from a dry area the swab can be moistened in sterile normal saline to improve adherence of bacteria.
- Secure lids immediately, to avoid spillage and contamination during transport.
- Write details on container prior to filling.
- Do not overfill containers especially faecal containers. These can 'explode' on opening.
- All specimens must be placed in a specimen bag with the request form in a separate pocket. An additional 'Danger of Infection' label must be attached to specimens and request forms for known or suspected "high risk" pathogens.

- Always follow standard infection control precautions when handling specimens e.g. ensure appropriate protective clothing is used and ensure safe disposal of sharps.

See Appendix 1 for Collection of Specimens – Reference Guide.

SPECIMEN CONTAINERS

No change in the type of containers purchased or used should be made without discussion with the local laboratory.

The individual sending the specimen must ensure that an appropriate container is used, that it is securely closed and not externally contaminated.

LABELLING OF SPECIMENS

Every specimen container and request form should describe the nature of the specimen contained, the source, and any other relevant information to allow the laboratory staff to identify the source quickly in the event of a laboratory accident.

Specimens must be sent to the laboratory in a sealed, waterproof bag within a rigid shatterproof container (request forms for most departments incorporate a pocket with a seal) and transported by an authorised carrier service. In addition the specimen itself should be in contact with an absorbent material.

Specimens should **not** be transported by community staff in their own vehicles unless the vehicle carries an appropriate 'biohazard' notice and a spillage kit and a risk assessment has been completed. Staff are also required to have appropriate business insurance.

HIGH RISK “BIOHAZARD” SPECIMENS

Specimens containing or suspected of containing high risk micro-organisms require handling and processing differently in the laboratory in order to prevent cross infection to staff processing them. All such specimens and the request forms must have a biohazard sticker attached.

If in doubt as to whether a specimen should be accompanied by a biohazard sticker, consult local Infection Prevention and Control Lead or Microbiology laboratory.

- **ADDED RISK** labels are available and should be attached both to the request form and to the specimen.
- The specimen should be placed in a small clear sealable polythene bag before placing it in the request form pocket. This is necessary for the protection of porters and laboratory staff.
- **ADDED RISK** labels should be used if the service user is suspected to have HIV, Hepatitis B or C, TB, Brucellosis, typhoid, and paratyphoid. This also

includes service users in the risk category for HIV, Hepatitis B and C. No other information is needed on the request form.

- Any further information needed for optimum specimen processing should be discussed with a consultant in the relevant diagnostic department. This is necessary for service user confidentiality.

High risk micro-organisms include:

Group 3

Human Immunodeficiency Virus (HIV)

Hepatitis B Virus (HBV)

Hepatitis C Virus (HCV)

Tuberculosis (TB)

Salmonella Typhimurium, etc.

Group 4

Viral haemorrhagic fevers

Rabies

Anthrax, etc.

NB: Swabs for MRSA carriage are **not** high risk.

STORAGE OF SPECIMENS

Any fridge that is used for the storage of specimens **MUST NOT** be used for the storage of any food items or drugs including vaccines. The fridge should have a min/max thermometer and be regularly cleaned and serviced.

Do not leave specimens over the weekend or bank holidays even in the fridge.

- Urine should ideally be examined in the laboratory within two hours, but can be stored in a refrigerator for up to twenty-four hours. Bacteria will multiply at room temperature and therefore give a misleading result.
- Sputum specimens should be sent to the laboratory immediately as respiratory pathogens will not survive for prolonged periods.
- Stools should be examined within twelve hours unless parasites are suspected in which case a warm stool is required.
- Wound swabs should ideally reach the laboratory on the day they are taken. However they can be stored in a specimen refrigerator overnight if this is not possible.

See Appendix 2 for Storage of Specimens

CARE OF SPECIMENS

Specimens must be received in the laboratories in a safe condition.

- Tops of bottles should be tightly closed and not leaking.
- There must be no trace of blood or other body fluids on the outside of the specimen container.
- Samples thought to constitute a risk to staff because of inadequate packing, warning, or delivery in a hazardous condition may be discarded un-analysed.

TRANSPORT OF SPECIMENS

All specimens must be placed in a specimen bag with the request form in a separate pocket.

All specimens should be placed in a designated, secure collection area until ready for collection.

Specimens to be transported off-site must be bagged as usual and then placed in a designated secure rigid container for transport.

Larger specimens such as 24 hour urine collections should be placed in clear plastic sacks which are tied at the neck. The request form should be attached to the outside of the bag. DO NOT use pins or staples to attach the form to the bag.

Specimens to be sent by post to specialist laboratories MUST be sent in packaging that conforms to the current transportation of dangerous goods regulations (Packaging Instruction P650). Usually this is undertaken by the local medical microbiology laboratory and it may be necessary to send specimens there for transportation. Staff should liaise with the local laboratory undertaking diagnostic medical microbiology for further guidance. Under no circumstances must specimens be posted in packaging which does not conform to current regulations.

SPECIMENS CONTAINING RADIOACTIVE MATERIAL

If sending specimens from service users receiving therapeutic doses of unsealed radioactive sources seek advice from the laboratory staff before collecting the specimens.

Specimens from service users who have received tracer doses of radio-pharmaceutical products constitute no radiation risk and no special precautions need to be taken.

SPECIMENS CONTAINING CYTOTOXIC DRUGS

Specimens from service users receiving cytotoxic drugs may contain some unchanged drug or active metabolites. Specimens and request forms should be appropriately labelled and advice should be sought from the clinician/specialist nurse prior to transportation.

SPECIMENS AND CONTAINERS CONTAINING HAZARDOUS REAGENTS

If there is a hazardous reagent (e.g. liquid acid preservatives) present in the container, a hazard label should be attached to the container by the issuing laboratory.

RECEPTION OF SPECIMENS BY LABORATORY

If an unlabelled specimen is sent it will be discarded. If damaged or unlabelled specimens are received by local laboratories, the recipient should, where possible, inform the sender that specimens have been discarded and should request further specimens are sent.

ACCIDENTS AND SPILLAGE

A bio-hazard spill kit will normally contain appropriate equipment and guidance for dealing with specimen spillage. These kits should be carried in vehicles used to transport specimens on a regular basis.

ADVICE

Further advice on collection, labelling or transportation of specimens can be obtained from the relevant pathology service or infection prevention and control lead / teams.

APPENDIX 1 COLLECTION OF SPECIMENS – REFERENCE GUIDE

SITE	ACTION
Nose	Prior to taking swabs from the nose, moisten with sterile saline. One swab should be rolled inside both nostrils.
Throat	One swab should make contact with one tonsil. The service user should stick out their tongue whilst the swab is guided down the side of the throat to make contact with the tonsil. A tongue depressor may be required.
Perineum	One swab should be rolled over the area between the genitalia and the anus (from front to back). Hygienic cleaning of the area should be undertaken if required prior to swabbing.
Axilla	One swab should be rolled over the skin of both armpits. Moisten with sterile saline beforehand.
Groin	One swab should be rolled along the area of skin on the inner part of the thighs closest to the genitalia. Moisten with sterile saline beforehand.

Eye swabs	The exudate from the eye can be swabbed to identify some bacteria but others need to be identified by conjunctival scrapings which should be taken in an eye clinic. If both eyes are to be swabbed a separate swab must be used for each eye.
Wounds / Skin Lesions	One swab should be rolled over the area. The wound may be irrigated with saline to remove surface debris before taking the swab if remnants of dressing remain. For large wounds, roll swab in a zig-zag motion to include all wound surface.
Catheter specimen of urine (CSU) 5-10mls is required	Urine specimens should only be taken from the specimen port using a sterile syringe (most manufacturers provide needleless ports). Urine specimens must not be taken from the catheter bag as misleading results will be obtained due to bacteria having multiplied in the previously drained urine.
Mid-stream specimen of urine (MSU) 5-10mls is required	The first few mls. of urine should be discarded and the mid-stream specimen collected into a sterile container. The value of cleaning the perineum prior to taking the specimen is questionable.
Sputum	Ensure that specimen is mucoid or micropurulent. Specimens of saliva are of no value.
Stool / Faecal specimens	15mls of liquid or approximately the size of a walnut is sufficient. Stool specimens can be obtained from a bedpan containing urine. This does not affect results. Only liquid stools (Bristol Stool Chart 6/7) will be examined for <i>C. difficile</i> toxins.
High Vaginal Swabs	A sterile vaginal speculum must be used in order to separate the vaginal walls. The swab must be taken from as high in the vagina as possible.
Indwelling devices e.g. PEG site	One swab to be rolled over the area of skin surrounding the device. Pre-moisten swab with sterile saline if necessary.
Pus	Pus may be collected using a sterile syringe and transferred into a sterile specimen container.
Blood (Venous)	Refer to venepuncture guidelines and training.

APPENDIX 2 STORAGE OF SPECIMENS

Specimen	Comments
Urine	Should ideally be examined in the laboratory within two hours. Otherwise, urine may be stored in the fridge for up to twenty-four hours. Bacteria will multiply at room temperature giving misleading results.
Sputum	Should be sent to the laboratory immediately as respiratory pathogens will not survive for prolonged periods.
Stool (faeces)	<p>Stools for viral culture e.g. during an outbreak of diarrhoea and vomiting should reach the laboratory as soon as possible after collection as viral particles are rapidly killed.</p> <p>Other stool samples should usually be examined within twelve hours.</p> <p>Rectal swabs are only of value if they show the presence of faeces but stool specimens are preferred when possible.</p>
High Vaginal Swab	High vaginal swabs should reach the laboratory within four hours
Wound swabs	<p>Should ideally reach the laboratory on the day they are taken. However, they can be stored in a specimen fridge overnight if this is not possible.</p> <p>Wound swabs must be collected using an appropriate transport medium e.g. Stewarts medium.</p>
Blood Cultures	Send to laboratory immediately (the receiving lab is usually notified of blood cultures by the clinician).