The Pathology Department at Withybush General Hospital is a busy department receiving in excess of 300,000 requests for investigations in the year. This handbook is designed to give the information necessary to make best use of the services provided by the Department. The department is currently accredited by CPA (UK) Ltd.

The Pathology department is located on the ground floor of the hospital, just off the main corridor. The Department is divided into the disciplines of Haematology with Blood Transfusion, Histopathology with Cytology, Microbiology, and Biochemistry.

We are also happy to listen to any constructive suggestions about the layout of the handbook and the information presented. If there are any glaring omissions please let us know.
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1 **Contact details of key members of staff**

Dialing in from outside:
Prefix extension numbers with 01437 77…. (STD Direct line) or using WHTN, dial 0 – 1720 – then 100 for switchboard or extension number for direct line.

- General enquiries and results
  Pathology Office 3238
  Fax 3124
- Consultant Microbiologist/Infection Control Doctor
  3240
- Laboratory
  Microbiology main lab 3318
- Chief Biomedical Scientist
  Mr. M Williams 3243
- Laboratory services manager
  Mrs. A. Stiens 01267 248655
  01554 783065
- Specialist nurses
  Senior Infection control nurse 3123 (Bleep 2112) - Pembrokeshire
  Lead BBV CNS (HDHB) 3125
- Pathology quality manager
  Mrs. H. Albery 3270

Laboratory Address:
Microbiology Department
Withybush General Hospital
Fishguard Road
Haverfordwest
SA61 2PZ

2 **Services offered by the laboratory**

The Microbiology department provides a comprehensive repertoire of general microbiology to both the acute sector, primary care and to community hospitals.

Please discuss difficult/unusual cases – we may be able to help.

Please let us know if a sample is urgent and we will do all we can to give you a result as quickly as possible.

3 **Times of opening of the laboratory**

A routine service is available from 0830 to 1800 Monday to Friday.

All specimens received up until 1730 in pathology specimen reception will be processed. Please arrange that any specimens arriving between 1730 and 1755 are transported directly to the Microbiology department and not left at pathology reception.

4 **Details of out of hours service**

NB. This is also available as a stand alone document on the pathology intranet site (LIMIC011 Microbiology Policy for Processing of On-Call Samples).
The Microbiology department provides an On-call service for the weekends and bank holidays only.

Weekend and Bank Holiday service is available through the on-call microbiology biomedical scientist. This work will normally be carried out “at the next planned visit”, with the BMS attending morning and evening each day. However, immediate processing can be requested for some samples (CSF, hot joints).

Specimens received during the weekend or at Bank Holidays will only be processed if the on-call BMS has been informed of the specimen. This can be done by telephone the next morning if clinically appropriate for patients admitted during the night, BUT do not delay taking the specimen. Specimens taken more than 48 hours previously will normally be discarded since the results of culture are unreliable.

The on-call biomedical scientist should normally be telephoned by a Doctor, but, in exceptional circumstances the nurse-in-charge may initiate a call-out provided that they are acting on a doctor’s instructions.

There is currently no on-call service available Monday-Friday. Clinical advice is available from the Consultant Microbiologist.

Weekend and Bank Holiday service includes:
- CSF examination
- Urgent specimen culture including those where the culture result is needed for the next working day (e.g., pre-op urines) and where clinical management could be altered by the results.

Most tests are available if clinically indicated.

Culture results from prior specimens are available for the following samples and all positive results are telephoned to the ward or clinician:
- ALL blood cultures
- ALL CSF’s
- ALL fluids from sterile sites

Clinical and Infection control advice can be obtained from the Consultant Microbiologist who is available via the hospital switchboard.

5 Instructions for completion of the request form

Please refer to MPPAT012 Patient Sample and Request Form Identification Criteria for further details (available on the Hywel Dda Pathology intranet site).

All request forms must be fully completed, using a ballpoint pen or addressograph label, including details of exact nature/type of specimen, anatomical site and relevant clinical information, so that appropriate tests are carried out.

Because Microbiology reports are computer generated, patient data and other request form details have to be transferred to a data bank. It is therefore IMPERATIVE that such details are LEGIBLE (using block capitals for name and address where addressograph labels are unavailable) and ACCURATE, especially with regard to first names, the spelling of the surname, the date of birth and the clinician’s name and location so that the
report will be returned to the requesting doctor. If possible the patient's NHS number should be included.

Please note that unlabelled or mislabelled samples will be discarded according to laboratory procedures for specimen rejection.

6 Specimen collection and handling
Please refer to LPMIC007 Specimen collection and handling for further details (available on the Hywel Dda pathology intranet site).

Hospital transport will pick up specimens from GP surgeries and community hospitals and deliver them to the laboratory for processing (Monday to Friday).

Hospital wards are visited by phlebotomists 7 days per week for the collection of blood samples. All other samples should be delivered to pathology reception.

7 Instructions for transportation of specimens, including and special handling needs
Please refer to LPPAT002 Procedure for the transportation of diagnostic specimens to the pathology department for further details (available on the Hywel Dda pathology intranet site).

Samples from AE, ACDU and CDU may also be sent via the air-tube transfer system, copies of which are available at these locations (MPPAT013 and LIPAT012).

It is the responsibility of the requestor to ensure that specimens reach the department in a timely manner and they must be aware of the final pick-up times for routine specimens and if necessary arrange special collection and transport to the laboratory.

8 Reporting of Results

8.1 Availability of Clinical Advice and Interpretation
The department provides a consultant led, or equivalent, scientific service, twenty four hours a day. If you need help interpreting results or have any general queries please do not hesitate to telephone the department during normal working hours or via the hospital switchboard at other times (see section 1 for contact details of key members of staff).

If you are unsure about which specimen is required for a particular investigation, then please contact the department.

The Consultant Microbiologist is also the infection control doctor and will give advice on control of infections and use of antibiotics.

Advice on infection control is also available from the Infection control Nurse for Pembrokeshire, Sr. Sue Richards.

8.2 Reporting
Results are delivered to the wards once a day. GP results are delivered electronically as soon as authorised to most GP practices. Urgent or priority results will be telephoned.
Results may be available to the ward via the Myrddin system.

All positive intestinal pathogen isolates, hepatitis positive results, mycobacterial microscopy and culture, CSF and positive blood culture results are telephoned immediately as routine.

Unless otherwise stated, printed reports are final reports.

Any results of clinical importance (or with infection control implications) are telephoned to the ward or doctor concerned.

9 Repertoire

Take specimens before starting antibiotics wherever possible. Specimens more than 48 hours old are of very little use and are normally discarded (exceptions: fungi, chlamydia, faeces and serology).

Before requesting tests, consider whether the result will influence your management. If not, then the test may not be appropriate or necessary.

9.1 Specimen Collection and Tests

9.1.1 Antibiotic assays:

GENTAMICIN: 5ml clotted blood needed. Single assay at stated time post-dose is usually sufficient, but traditional pre/post levels may be appropriate, e.g. in endocarditis. Read policy/chart on ward. Requests for this assay must be discussed with the Consultant Microbiologist.

OTHER ANTIBIOTICS: Telephone laboratory or Consultant Microbiologist when you start the drugs so that assay arrangements can be made. These may include vancomycin, streptomycin, or flucytosine.

9.1.2 Blood Cultures:

Use a 'no-touch' technique and never fill any other blood bottle (e.g. for FBC or U+E) before you fill the blood culture bottles. Remove plastic flip-top from culture bottle. Prior to inoculation, disinfect the culture top with an alcohol swab. Allow to air dry. Inoculate anaerobic bottle (purple cap) first and then the aerobic bottle (blue cap) so that any oxygen trapped in the syringe will not be transferred to the anaerobic bottle. Line demarcations on the bottle label should be used to assist in estimating the sample volume.

Take 2-3 sets at separate times in suspected endocarditis. Blood cultures are monitored continuously for 5 days by an automated system. Positive blood cultures are telephoned to the clinician or ward; there is no need to ring asking about results.

9.1.3 Chlamydia Trachomatis:

The Chlamydia multi-Collect Specimen Collection and transport kit is used for collection of swabs and urine for Chlamydia detection by NAAT (nucleic acid amplification test). The specimens validated for testing include male urethral swab and urine and female endocervical swab.
vagina swab and urine. Eye swabs can be collected using the same kits and will be tested using NAAT, although the manufacturer has not validated this test for this specimen type. Specimens can be stored in the buffer for up to 14 days at 2-30°C temperature before testing. Please discuss with Microbiology if testing other samples.

**Urethral specimen Chlamydia**
Swab urethra using the swab provided in the kit. Insert the white tip of the swab 2-4cm into the urethra, gently rotating the swab for 2-3 seconds and withdrawing carefully. Handle the cap and tube with care to avoid contamination. Unscrew the cap and place the swab immediately into the buffer provided making sure the white tip is facing down. Break the swab at the scored line on the shaft while avoiding splashing the contents. Recap the transport tube so that it is sealed to avoid any leakage. Do not obscure the clear fill window. Label specimen correctly.

**Endocervical specimen Chlamydia**
Swab cervix using the swab provided in the kit. Insert the white tip of the swab into the cervical canal and rotating the swab at the columnal-epithelial junction for 15 – 30 seconds. Withdraw the swab without touching the vaginal surface. Handle the cap and tube with care to avoid contamination. Unscrew the cap and place the swab immediately into the buffer provided making sure the white tip is facing down. Break the swab at the scored line on the shaft while avoiding splashing the contents. Recap the transport tube so that it is sealed to avoid any leakage. Do not obscure the clear fill window. Label specimen correctly.

**Vaginal specimens Chlamydia**
Swab vagina using the swab provided in the kit. Insert the white tip of the swab 5cm into the vagina, gently rotating the swab against the sides of the vagina for 15-30 seconds and withdrawing carefully. Endo cervical swabs are preferred as vaginal swabs can give false negative results. Handle the cap and tube with care to avoid contamination. Unscrew the cap and place the swab immediately into the buffer provided making sure the white tip is facing down. Break the swab at the scored line on the shaft while avoiding splashing the contents. Recap the transport tube so that it is sealed to avoid any leakage. Do not obscure the clear fill window. Label specimen correctly.

**Ophthalmic specimens Chlamydia**
Carefully remove excess exudate from the surface of the eye before sampling. Vigorously apply swab provided in the kit to the lower lid conjunctiva of the affected eye. Handle the cap and tube with care to avoid contamination. Unscrew the cap and place the swab immediately into the buffer provided making sure the white tip is facing down. Break the swab at the scored line on the shaft while avoiding splashing the contents. Recap the transport tube so that it is sealed to avoid any leakage. Do not obscure the clear fill window. Label specimen correctly.

**Urine specimen (Male/female) Chlamydia**
*The patient should not have urinated at least an hour before collection of specimen.*
Approximately 20ml of first catch urine should be collected in a urine collection cup (NOT boric acid or red top container). Carefully open the transport buffer tube and using the plastic pipette provide in the kit, carefully transfer 2-3 ml of urine into the buffer till the level of urine falls into the clear fill window of the transport tube. Do not overfill the tube. Recap the transport tube so that it is sealed to avoid any leakage. Do not obscure the clear fill window. Label all specimens.

CHLAMYDIA PSITTACI & CHLAMYDIA PNEUMONIAE See serology (section 9.1.17).

9.1.4 Eye infections
Unless there is profuse discharge, eye swabs are likely to be unsatisfactory for bacterial isolation.

9.1.5 Faeces
Should be passed into a clean vessel and a small portion transferred to the blue screw topped faeces container using the spoon provided. Urinary contamination does not matter. Rectal swabs or dried up faecal swabs are not acceptable. Ordinary faecal specimens are suitable for ova and cysts provided that liquid paraffin has not been given to the patient in the preceding few days. Threadworm eggs are most suitably collected by pressing the sticky side of a piece of sellotape against the perianal area. This sellotape is then stuck to a glass slide.

Faeces are routinely examined for:-

Community-acquired diarrhoea: culture for salmonella, shigella, campylobacter, E.coli O157, microscopy for cryptosporidia, Giardia lamblia, C.difficile on patients >60 years old, on or after antibiotic therapy, recent hospital admission.

Children: rotavirus: if negative tested for above organisms

Post-travel diarrhoea: above plus vibrios and examination for Ova / Cysts / Parasites

Hospital-acquired diarrhoea: C.difficile toxin only, unless outbreak or specific request.

Other tests are available in defined circumstances: e.g. B.cereus, S.aureus or C.perfringens in food-poisoning, Yersinia culture in terminal ileitis, norovirus PCR in D&V outbreaks.

Please give the appropriate history to help us select the correct tests [and avoid waste from unnecessary work]. Do not send multiple samples on the same day: wait for the results of the first, and if this is negative and symptoms persist, repeat the sample.

Rotavirus and C.difficile tests are usually available by 5pm on the day the sample is received: culture results and OCP examination takes up to
5 days. Referred tests [virology, EM, specialist food-poisoning screens] take up to 14 days.

REMEMBER: FOOD POISONING IS STATUTORILY NOTIFIABLE: - even if the laboratory results are negative.

### 9.1.6 Faecal Occult Blood:
This test is performed in the Microbiology Laboratory. A positive test is invalid if the patient has eaten any of the following in the preceding 3 days: red meat (chicken and fish are fine), liver, blood (e.g. black pudding), kidneys, raw vegetables, bananas, turnips, horseradish, soya beans, Vitamin C (in large doses), aspirin. The test detects blood from GI tract, and is therefore pointless in patients with bleeding mouth ulcers, piles, or visible PR bleeding.

### 9.1.7 Faecal antigen testing for Helicobacter Pylori
This test has replaced Helicobacter serology. Use blue faecal collection pots with spoons, a spoonful of sample is sufficient. This test is carried out on day of receipt.

### 9.1.8 Fungal Infections
Most mycological specimens are from cases of suspected ringworm; they usually consist of skin, nail or hair from infected areas. Each sample should be placed in the “Dermapak” kits available from the Microbiology laboratory, nails can be placed in white topped sterile containers. For other specimens, such as sputum, pus, urine, blood, serum or biopsy material, standard transport systems are suitable. Please give history of travel/residence overseas, occupational / domestic exposure (including animals), and current antibiotic and other therapy including any antifungal therapy, details of surgery or surgical devices - this is RELEVANT information and should be included.

CANDIDA is grown simply in the laboratory from any routine specimen and does not need to be specially requested, although the suspected diagnosis should be indicated on the request, especially blood cultures.

Skin lesions:

Note: Ringworm may appear pustular.
Small discrete lesions. Sample over the whole of the affected area.

Large lesions. Scrape the edge of the lesion (area of active growth).

For suspected Pityriasis versicolor only: press sticky side of a piece of sellotape onto the lesion, remove and place sticky side down onto clean glass slide.

Nail:

Entire clippings should be taken, if possible.
Thickened friable nail. Scrape underside of nail plate.

Short nail. Scrape diseased area with scalpel blade.

Paronychia. Nail often appears normal. Clip nail, or run swab/plastic loop under cuticle for direct plating onto agar. DO NOT PARE NAIL LENGTHWAYS, IF THIS CAN BE AVOIDED, AS IT IS DIFFICULT TO SEE THE FUNGAL ELEMENTS IN SUCH MATERIALS. Place nail clippings in sterile white topped specimen container.

Scalp:

Scrape / epilate hairs from area of alopecia (broken, scaly or pustular).

SUBCUTANEOUS/SYSTEMIC INFECTIONS:

Skin lesions. Scrape area, as for superficial Infections.

Pus, sputum, bronchial lavage, blood and similar specimens. These are collected as for Bacteriology specimens, into sterile containers, with sterile dry swabs, or directly into blood culture bottles.

Biopsy / Post Mortem specimens. Material should be sent in sterile dry containers.

9.1.9 Genital tract specimens:

The GUM clinic is available for advice/ referral on Tuesday evenings at Withybush General Hospital Wednesdays (mornings at South Pembs Hospital, afternoons at Withybush,) and Friday afternoon at Withybush. It is advisable to refer all confirmed cases of STD to GUM, for full screening and contact tracing.

- **MALES** - Take ordinary swab (black packet/charcoal transport medium).
  - Ensure rapid transport to laboratory
  - Chlamydia-urethral swab - full instructions are given in the chlamydia kit available from the laboratory.

- **FEMALES** - If the problem is simple vaginal discharge, take HVS. Add urethral swab and ECS if gonorrhoea is suspected. For investigating PID the ideal sample is pus obtained at laparoscopy. HVS is of little value, ECS can be helpful.

- If herpes is suspected, discuss with Consultant Microbiologist or the Chief Biomedical Scientist.

For viral investigations, take swab as normal but place into sterile container instead of charcoal.

If specimens do not reach the laboratory within 4 hours, the chances of confirming gonorrhoea are remote. Most other bugs will last for 24 hours though not reliably, and many “innocent” bacteria will overgrow during...
this delay. NAAT testing for gonorrhoea is only available to GUM and SRH patients and should be requested with Chlamydia test.

9.1.10 Viral Hepatitis

7 ml clotted blood should be collected and labelled with a “DANGER OF INFECTION” sticker. Use warning labels for blood from patients with acute hepatitis, abnormal LFT’s. Jaundice, chronic carriers, intravenous drug abuse and close contacts of cases.

9.1.11 HIV

Take 7 ml clotted blood, labelled “DANGER OF INFECTION”. The patient should be counselled before venepuncture. If infection is suspected or the patient is very anxious consider referral to the GUM clinic. PATIENT COUNSELLING IS MANDATORY PRIOR TO TAKING BLOOD FOR HIV TEST.

If urgent, any clinician can undertake counselling, but whenever possible refer patient to specialist counsellor as below.

GUM Clinic, Wednesday mornings at SPH, Weds and Friday afternoons at Withybush
By appointment with Sr Janice Rees (Tel: (01437) 773125. Anyone can telephone to make an appointment or just to discuss a problem on the telephone.
All local GPs are encouraged to provide counselling and blood-testing facilities.

Only a single sample of 5ml clotted blood is needed. This should be labelled as “high risk”, IF YOU ARE EXPECTING A POSITIVE RESULT. [NOT for “routine” tests].

9.1.12 Meningitis:

CSF should be taken unless contraindicated. Blood culture should always be done. Administration of antibiotics before admission is recommended but will render blood culture, and possibly CSF, sterile. [The CSF cell count will not be materially changed]. If meningococcal meningitis (or septicaemia) is suspected then take bacterial throat swab, and 5ml EDTA blood for PCR testing.

Prophylaxis of close contacts is needed in meningococcal infection [and Haemophilus meningitis] - see Infection Control Policy File. In suspected viral meningitis a throat swab in virus transport medium, or faecal sample, and clotted blood for viral serology, should be sent within 24 hours.

REMEMBER: MENINGITIS IS STATUTORILY NOTIFIABLE

9.1.13 Notifiable disease

The following diseases must be notified as soon as diagnosed, to the Consultant in Communicable Disease Control. Also inform the Consultant Microbiologist.
Acute Encephalitis  Parathyphoid Fever
Acute Meningitis  Plague
Acute Poliomyelitis  Rabies
Anthrax  Relapsing Fever
Cholera  Rubella
Diphtheria  Scarlet Fever
Dysentery (Amoebic or Bacillary)  Smallpox
Food poisoning (all sources)  Tetanus
Infectious Jaundice  Tuberculosis
Lassa Fever  Typhoid Fever
Legionnaire's Disease  Typhus
Leprosy  Fever
Leptospirosis  Viral hepatitis
Malaria  Whooping Cough
Marburg Disease  Yellow Fever
Measles
Meningococcal septicaemia

9.1.14 Pertussis

Pale blue topped per nasal swabs, (charcoal transwab, wire – NOT wooden stemmed) should be used as these yield more positive results than nasal swabs. The swab should reach into the naso-pharynx. An incorrectly taken swab is a common cause of failure to isolate the causative organism. Specimens should be taken as early as possible in the course of the disease, since by the time the whoop has developed, cultures are usually unsuccessful.

9.1.15 Pus Swabs

Many “pus swabs” received in Bacteriology are dry, badly taken specimens. In many clinical situations, a collection of pus is seen but only a swab is taken. Bacteriological investigations will yield more significant results if the pus itself is sent in a dry sterile universal container. This is particularly important where abscess cavities are drained or actinomycosis or anaerobic organisms are suspected. The site from which the “pus” is obtained must be indicated on the request form so that appropriate culture can be performed.

9.1.16 Rubella Serology:

a. Screening tests
Rubella status e.g. in pregnancy, preconception, etc. Clotted blood (7 ml)
b. Rash or rubella contact in pregnancy – clotted blood 7 ml. If positive, we will report Rubella antibody >10 IU and ask for a follow up specimen usually immediately. These paired sera will then be sent to reference laboratory where both titres, an IgM result and an interpretation of rubella status will be given. Please give date of contact.

9.1.17 Serological tests in virology:

It is always desirable and frequently essential for diagnosis, to diagnose a significant rise (usually at least 4 fold) in antibody titre. At least 2, 7ml
specimens of clotted blood (paired sera) are therefore necessary. In general, individual viruses or groups of viruses cause illnesses having characteristic clinical features. The GP submitting specimens for viral examinations should give as full a list of relevant symptoms as possible and a date of onset of symptoms. This knowledge allows the correct specimen to be collected at the optimum time and the appropriate viral investigation to be performed. The Microbiologist will be pleased to advise in individual cases.

Serological specimens should be taken:
- as early as possible in the illness and certainly within 5 days of onset.
- in the 3rd week of illness; sometimes an additional specimen taken later in convalescence is of value.

A FULL clinical history should be supplied, including date of onset of illness, details of animal contacts, residence or recent visits abroad etc.

The following serological tests are currently available - some of these tests are referred to other laboratories.

- Adenovirus
- Anti-streptolysin (ASOT)
- Chlamydia
- Cytomegalovirus
- Respiratory syncytial virus
- Hepatitis A, B&C
- Herpes simplex
- HIV
- Influenza A&B
- Legionella
- Leptospira
- Measles
- Mycoplasma pneumoniae
- Q fever
- Glandular fever
- Rubella
- Staphylococcus aureus (chronic infection)
- Toxoplasma gondii
- Varicella zoster

As methods are developed other serological tests may become available; contact Microbiologist for current advice.

Vesicular viral infections, e.g. Herpes Simplex and Zoster can be diagnosed from vesicle fluid. Orf can only be diagnosed by electron microscopy. Contact the Microbiology laboratory for details and equipment.

### 9.1.18 Semen

**CULTURE:**
Patients should be requested to void urine and wash penis prior to producing ejaculate. Transfer the specimen to the laboratory immediately.

**INFERTILITY ANALYSIS**
These tests are NOT carried out in Withybush Microbiology. Please contact laboratory for details

**POST VASECTOMY SEMEN ANALYSIS**

MICROBIOLOGY HANDBOOK
9.1.19 Sputum
Patients should be instructed that sputum, and not saliva, is required (i.e. collected by deep cough, preferably collected in the morning before drinking, eating or teeth cleaning has taken place). Salivary samples will be rejected. Routine sputum cultures include only screening tests for aerobic organisms. If full comprehensive anaerobic cultures are requested this must be clearly indicated on the request form, and the case should be discussed with the Microbiologist who will advise if further specimens are required. When sputum is sent from a case of “atypical” pneumonia, this diagnosis must be indicated on the request form since methods are now developed for culture of organisms such as Legionella. In these cases it is advisable to submit a urine sample as well for Legionellosis and discuss the case with the Microbiologist.

9.1.20 Staphylococcal Carriers (including MRSA)
Take moistened swabs initially from the anterior nares, throat and any skin lesion and, in infants, the umbilicus. The Microbiologist or infection control nurses will advise if additional sites are to be swabbed. All MRSA screening swabs must be identified as such on the form.

9.1.21 Streptococcal Carriers:
Swab anterior nares as well as throat.

9.1.22 Serological Tests for Syphilis:
A RPR test is routinely used for screening serum for Syphilis. 7ml of clotted blood is required. Any positive results are referred for confirmation.

9.1.23 Tuberculosis
**Urine** – early morning mid-stream specimens (the first voided during the day) on 3 consecutive days should be sent to the laboratory in sterile universal containers (NOT boric acid containers). The usual method of collection is essential (see under urine sections) the samples should be taken immediately to the laboratory to avoid multiplication of contaminating organisms. These samples are referred to another laboratory.

**Sputum** - early morning specimens on 3 consecutive days should be sent. In cases of suspected pulmonary tuberculosis and when it is difficult to obtain sputum, repeated gastric lavage specimens or laryngeal swabs should be collected. Warn the patient against providing saliva.

9.1.24 Urine Specimens for Microscopy and Culture
Mid-stream specimens should be taken aseptically into sterile boric-acid containing universal containers. Mid-stream catheter specimens should also be taken into sterile boric-acid containers. All urine samples must
be taken immediately to the laboratory. Urines are NOT routinely cultured for anaerobic organisms.

Please use plain containers if Mumps or Cytomegalovirus detection is required as the boric-acid can kill viruses.

Advise for collection of urine from females.
Using warm water, thoroughly wash hands and genital region including between the labia of the vagina. Dry with a clean towel wiping from the front backwards.

Remove the cap from the sterile container and put it down rim uppermost, ensuring that the inside of the container or the cap is not touched.

Separate the labia of the vagina with 2 fingers of 1 hand and begin passing urine.
While continuing to urinate move the container into the stream of urine with the other hand. Remove the container before the stream of urine stops. Fill to the line.
Replace the cap securely, again without touching the inside of the cap or the container.
Dry the outside of the container. Label the sample. Urine microscopy is performed by an automated analyser. Samples which do not meet the laboratory’s criteria indicating infection, are not routinely cultured.

9.1.25 Vaginal and Cervical Swabs
Black topped transwabs should be used for bacteriology, see section for Chlamydia. For viral investigations, take swab as normal but place into sterile container instead of charcoal.

9.1.26 Varicella Zoster Immunity
Clotted blood (7ml)
In Antenatal patients, neonates or immunocompromised patients in contact with chicken pox or shingles. Contact Consultant Microbiologist to discuss necessity for Varicella zoster Immunoglobulin.

9.1.27 Virus Isolation
For isolating viruses from the alimentary tract, faeces sufficient to fill 1/3 of a sterile universal container, are required. NO PRESERVATIVE must be added. From other sites, swabs broken off into a sterile container are suitable. When viral meningitis is suspected, specimens of faeces and throat swabs should be sent as many cases of viral meningitis are caused by the enterovirus group (e.g. Coxsackie, Polio, and ECHO) which are excreted in large numbers for up to 3 weeks following an attack.

Virus survival at room temperature is usually short. Specimens should, therefore, reach the laboratory as rapidly as possible.
For the best diagnostic yield, specimens for virus culture should be taken within 2 days of onset of symptoms.

### 9.2 Table showing Specimen Investigations

<table>
<thead>
<tr>
<th>Specimen investigation</th>
<th>Container and comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antimicrobial assays</td>
<td>Specimen of clotted blood (5-10ml each)</td>
</tr>
<tr>
<td>Antral washings</td>
<td>Sterile universal container</td>
</tr>
<tr>
<td>Aspirates and fluids from sterile sites</td>
<td>Sterile universal container</td>
</tr>
<tr>
<td>Blood cultures</td>
<td>BacT ALERT 3D bottles (use special bottles for infants)</td>
</tr>
<tr>
<td>Bronchoalveolar lavage</td>
<td>Sterile universal containers. Send for MC&amp;S, virology, PCP, mycology and TBG as appropriate</td>
</tr>
<tr>
<td>Cerebrospinal fluid (CSF)</td>
<td>For cell count, Gram’s stain and culture send 2-3 ml in each of 3 universal containers. Discuss with Microbiologist if PCR required</td>
</tr>
<tr>
<td>Chlamydia</td>
<td>Swabs from conjunctiva, urethra or endocervix in Chlamydia transport media</td>
</tr>
<tr>
<td>Faeces</td>
<td>With the spatula provided transfer a portion of faeces, or fluid to a sterile faeces container</td>
</tr>
<tr>
<td>Interuterine contraceptive device (IUCD)</td>
<td>Send device in a sterile universal container with no additives.</td>
</tr>
<tr>
<td>Nasopharyngeal aspirate</td>
<td>Sterile universal container</td>
</tr>
<tr>
<td>Non-directed bronchial lavage</td>
<td>Sterile universal container</td>
</tr>
<tr>
<td>Peritoneal fluid</td>
<td>Sterile universal container</td>
</tr>
<tr>
<td>Pleural fluid</td>
<td>Sterile universal container</td>
</tr>
<tr>
<td>Pus/exudate</td>
<td>Sterile universal container</td>
</tr>
<tr>
<td>Pus swab</td>
<td>Unsuitable sample</td>
</tr>
<tr>
<td>Seminal fluid</td>
<td>Sterile universal container</td>
</tr>
<tr>
<td>Skin, nail, hair for mycology</td>
<td>Dermapaks or Sterile universal container</td>
</tr>
<tr>
<td>Sputum</td>
<td>Sterile universal container</td>
</tr>
<tr>
<td>Endocervical swab</td>
<td>For the investigation of gonorrhoea use transport medium with charcoal. For Chlamydia use Chlamydia kit</td>
</tr>
<tr>
<td>Cough swab</td>
<td>Transport medium with charcoal</td>
</tr>
<tr>
<td>Ear swab</td>
<td>Transport medium with charcoal</td>
</tr>
<tr>
<td>Eye swab</td>
<td>Transport medium with charcoal</td>
</tr>
<tr>
<td>High vaginal swab</td>
<td>For the investigation of gonorrhoea, Candida, Trichomonas and vaginosis use a transport swab with charcoal. For Chlamydia use kit</td>
</tr>
<tr>
<td>Mouth swab</td>
<td>Transport medium with charcoal</td>
</tr>
<tr>
<td>Nasal swab</td>
<td>Transport medium with charcoal</td>
</tr>
<tr>
<td>Meningococcal PCR</td>
<td>EDTA Blood, CSF</td>
</tr>
<tr>
<td>HIV viral load</td>
<td>EDTA blood transport to laboratory within 4 hours.</td>
</tr>
<tr>
<td>Per nasal swab (for pertussis)</td>
<td>Use wire shafted swabs, transport to laboratory immediately</td>
</tr>
<tr>
<td>Urethral swabs</td>
<td>For the investigation of gonorrhoea use transport</td>
</tr>
</tbody>
</table>

MICROBIOLOGY HANDBOOK
Specimen investigation | Container and comments
--- | ---
Wound and ulcer swab | Transport medium with charcoal
Viral swabs from skin and mucosal lesions | With a sterile lancet or needle raise the cover of the vesicle; use a swab to collect the vesicle fluid and gently rub the base of the vesicle. Break the swab into sterile container. Contact the Microbiologist if microscopy required.
Throat swab | Transport medium with charcoal
Tissues and biopsies | Sterile universal container. If biopsy is small add 0.5ml of sterile saline to prevent it drying out. Ensure there is no preservative.
Tuberculosis | Best specimens are sputum, urine, pus or tissue. For sputum and urine send 3 consecutive morning specimens taken on consecutive days. Send specimens in sterile universal containers
Urine | Red topped container with Boric acid
Urine (legionella antigen) | Sterile universal container

### 9.3 Laboratory Tests including turn around times

Please note that all turnaround times given are in WORKING days.

Approximate turnaround times are given which describe the time taken from the receipt of the sample into the laboratory to the reporting of the result. The turnaround time may be lengthened if extra work is required to identify an isolate, or if a bacterium is slow growing.

<table>
<thead>
<tr>
<th>Test</th>
<th>Turnaround times</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood culture</td>
<td>Up to 5 working days (14 days if SBE)</td>
<td>All significant positive results are phoned</td>
</tr>
<tr>
<td>CSF microscopy and culture</td>
<td>2 days</td>
<td>Microscopy and positive 24 hr culture results are phoned</td>
</tr>
<tr>
<td>Joint fluids, microscopy and culture</td>
<td>2 days (7 days for prosthetic joints)</td>
<td>Positive microscopy is phoned</td>
</tr>
<tr>
<td>Faeces microscopy and culture</td>
<td>2 days</td>
<td>Positive results are phoned</td>
</tr>
<tr>
<td>Sputum culture</td>
<td>2 days</td>
<td></td>
</tr>
<tr>
<td>Bronchiolar lavage</td>
<td>2 days</td>
<td></td>
</tr>
<tr>
<td>Pleural effusion/ Chest fluids</td>
<td>2 days</td>
<td></td>
</tr>
<tr>
<td>Urine microscopy</td>
<td>1 day</td>
<td></td>
</tr>
<tr>
<td>Urine culture</td>
<td>2 days</td>
<td></td>
</tr>
<tr>
<td>Genital swab</td>
<td>2 days</td>
<td></td>
</tr>
<tr>
<td>Tissue/bone culture</td>
<td>2 days</td>
<td>Specimens from artificial joints can take up to 10 days</td>
</tr>
<tr>
<td>Wound swab</td>
<td>2 days</td>
<td></td>
</tr>
<tr>
<td>Test</td>
<td>Turnaround times</td>
<td>Comments</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>------------------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td>Ear, nose and throat swabs</td>
<td>2 days</td>
<td></td>
</tr>
<tr>
<td>Fungal specimens</td>
<td>2 weeks</td>
<td>Interim microscopy result sent within 7 days</td>
</tr>
<tr>
<td>MRSA screen</td>
<td>Negative – 1 day</td>
<td>Positive – 2 days</td>
</tr>
<tr>
<td>AFB microscopy and culture</td>
<td>Microscopy – 7</td>
<td>Positive microscopy phoned ASAP</td>
</tr>
<tr>
<td></td>
<td>days (Tested in</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Culture – up to</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 weeks Cardiff</td>
<td></td>
</tr>
<tr>
<td>Per-nasal swabs</td>
<td>Up to 7 days</td>
<td></td>
</tr>
<tr>
<td>Hepatitis A</td>
<td>Up to 14 days (Tested in Cardiff)</td>
<td></td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>Up to 5 days</td>
<td>Positives referred for confirmation – Confirmation can prolong the turnaround time</td>
</tr>
<tr>
<td>Hepatitis C</td>
<td>2 days</td>
<td>Confirmation can prolong the turnaround time</td>
</tr>
<tr>
<td>HIV</td>
<td>2 days</td>
<td>Positives referred for confirmation – Confirmation can prolong the turnaround time</td>
</tr>
<tr>
<td>Antenatal screen</td>
<td>2 days</td>
<td>Positives referred for confirmation – Confirmation can prolong the turnaround time</td>
</tr>
<tr>
<td>Faeces – C.difficile toxin</td>
<td>2 days</td>
<td></td>
</tr>
<tr>
<td>Chlamydia</td>
<td>Up to 7 days (Tested in Swansea)</td>
<td></td>
</tr>
<tr>
<td>Viral culture</td>
<td>Up to 14 days (Tested in Cardiff)</td>
<td>Can be re-referred to other laboratories – this can prolong the turnaround</td>
</tr>
<tr>
<td>Viral serology</td>
<td>Up to 14 days (Tested in Cardiff)</td>
<td>Positives can be further referred for confirmation – Confirmation can prolong the turnaround time</td>
</tr>
<tr>
<td>Varicella immunity</td>
<td>2 days</td>
<td>Negative may be referred this can prolong the turnaround times</td>
</tr>
<tr>
<td>Syphilis</td>
<td>2 days</td>
<td>Positives referred for confirmation – Confirmation can prolong the turnaround time</td>
</tr>
</tbody>
</table>

In cases of exceptional urgent need, some investigations can be performed more quickly, if specific arrangements are made.
9.4 Time Limits for requesting additional tests (add-ons)
Samples are retained for a limited period only. If add-on tests are required for any sample, please contact the Consultant Microbiologist or senior laboratory staff to discuss.

10 Referral Laboratories
Below is a list of laboratories used by the Microbiology department for assays/tests not offered at Withybush. Please do not contact these laboratories/hospitals directly for results as all results will be returned to the Microbiology department at Withybush upon completion.

Regional Mycology Laboratory
Manchester (RMLM)
Education and Research Centre
Withenshawe Hospital
Southmore Road
Manchester
M23 9LT

Meningococcal reference Unit
Manchester Medical Microbiology Partnership
PO Box 209
Clinical Science Building
Manchester Royal Infirmary
Oxford Road
Manchester
M13 9WZ

PHW
University Hospital of Wales
Heath Park
Cardiff
CF14 4XW

PHW
Singleton Hospital
Sketi
Swansea
SA2 8QA

Health Protection Agency
Specialist and Reference Microbiology Division
61 Colindale Avenue
London
NW9 5HT

London School of Tropical Medicine
Department of Clinical Parasitology
Hospital for tropical Diseases
Mortimer Market, Capper Street
Off Tottenham Court Road
London
APPENDIX 2  Post Vasectomy Semen Analysis

(This is also available as a stand alone document on the intranet site, see PIMIC001).

Sample collection information

The following guidelines apply to POST VASECTOMY semen analysis samples only

1. The British Andrology Society guidelines for the assessment of post vasectomy semen samples (2002) recommend that initial assessment is undertaken 16 weeks post vasectomy and after the patient has produced at least 24 ejaculates.

2. Semen samples should be collected after an abstinence period of no less than 48 hours and no more than 7 days and maintained at body temperature before delivery to the laboratory.

3. The men should be asked to collect their entire ejaculate by masturbation into the non-toxic sample container provided by the clinic or the doctor.

4. Request forms should contain the following additional information.
   a. Sample number
   b. Date and time of production
   c. Name of person dropping off specimen
   d. Days abstained
   e. Whether or not it is a complete ejaculate

5. The sample should be delivered to the Pathology reception at Withybush Hospital, ideally within 1 hour of production (in line with World Health Organisation protocols). If this is not possible the period elapsing between production and delivery to the laboratory must also be stated on the form. Postal delivery is unsatisfactory because sperm motility declines rapidly with time.

6. Samples should be delivered to the laboratory between 08.30am and 12.00 noon Monday – Friday (excluding Bank Holidays)

Results and Enquiries

The result of the test will be sent to the doctor who requested it. If you have any queries about the purpose of the test or the results, you must ask the doctor.

If you have any queries about specimen collection please contact the Microbiology Department 01437 773318.

<table>
<thead>
<tr>
<th>Review Date</th>
<th>Reviewed By</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>22/06/10</td>
<td>Hannah Albery</td>
<td></td>
</tr>
<tr>
<td>03/07/12</td>
<td>Hannah Albery</td>
<td></td>
</tr>
<tr>
<td>28/08/12</td>
<td>Hannah Albery</td>
<td></td>
</tr>
<tr>
<td>05/10/12</td>
<td>Hannah Albery</td>
<td></td>
</tr>
<tr>
<td>05/10/14</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>