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Microbiology Division

Microbiology Cardiff

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Microbiology User Handbook

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1 Introduction

Diagnostic medical microbiology for Cardiff Hospitals is provided by Microbiology Cardiff, which is part of the Public Health Wales Laboratory Network.

Regional Lab Manager Lisa Chichester Lisa.Chichester@wales.nhs.uk

Clinical Lead Dr Lim Jones Lim.Jones@wales.nhs.uk

Public Health Wales Microbiology Cardiff is largely based within pathology at University Hospital of Wales and provides:

- Extensive clinical microbiology diagnostic service, including Bacteriology, Mycology, Virology, Serology/Molecular, and Parasitology to hospitals and General Practitioners across Cardiff and the Vale.
- Clinical infection management service including antibiotic stewardship.
- Infection control services and advice to Cardiff and Vale University Health Board and Velindre NHS Trust.
- Welsh reference services for mycobacteriology, virology, serology/molecular, mycology, Pathogen Genomics and antimicrobial chemotherapy: User information available via Public Health Wales website: [Reference Laboratories and Specialist Services - Public Health Wales \(nhs.wales\)](#)
[Includes link to specific *WCM User Manual*]
- A UK national reference service for anaerobic microbiology (UKARU). User information available via Public Health Wales website: <http://www.wales.nhs.uk/sites3/page.cfm?orgid=457&pid=25285>*
- Epidemiological data for the Communicable Disease Surveillance Centre (CDSC) and support to Consultants in Communicable Disease Control (CCDC) in the investigation of outbreaks of infectious disease.
- Environmental microbiology services (including food, milk and water) to local environmental health departments.
- Rapid access to all national reference laboratory facilities through Public Health England.

Microbiology Cardiff has United Kingdom Accreditation Service (UKAS) for its clinical diagnostic services and for Food, Water and Environmental microbiology services.

***Please note: the PHW internet site is currently under development. If the information you require is not available, please contact the laboratory directly.**

2 Location of Laboratories

The laboratory operates over multiple sites, with routine services for bacteriology, virology, pathogen genomics and mycology, urgent and emergency on-call work, provided by the laboratory at University Hospital of Wales and specialist services for Mycobacteriology and Environmental microbiology provided at the Llandough site. Some services are currently in the process of being relocated to the Imperial Park laboratory in Newport. Please contact the Virology laboratory if more information is needed. Please see Appendix 5 for information relating to the UHL Hot Lab.

The Pathogen Genomics Unit are due to relocate to the Cardiff Edge Business Park in November 2023. Please contact the department directly or consult their webpages for up-to-date information.

Rapid diagnostic services are available for specific patient cohorts in UHW, Llandough and Prince Charles Hospital.

2.1 Public Health Wales Microbiology Cardiff, University Hospital of Wales, Heath Park, Cardiff CF14 4XW

1st Floor Tower Block 2, accessible from pathology staff entrance Academic Avenue or via corridor leading from B block or C block lift areas.

2.2 Public Health Wales Microbiology Cardiff, Llandough Hospital, Penlan Road, Llandough, Penarth CF64 2XX

To the rear of hospital site within a separate block next to the Children's Assessment Unit.

Clinical advice is available at UHW for both UHW and Llandough sites, for contact numbers see section 4.

For arrangements relating to transport of samples between laboratory sites see section 9.

The Hot Lab in Llandough is located within the Blood Sciences laboratory area (opposite ward E2).

2.3 Public Health Wales Microbiology Cardiff, Unit IP5, Celtic Way, Imperial Park, Newport, NP10 8BE

This site is only accessible by designated PHW staff unless by arrangement with the appropriate team, and directions will be provided as needed.

2.4 Public Health Wales Microbiology Hot Lab, Prince Charles Hospital, Gurnos Road, Merthyr Tydfil CF47 9DT

This hot lab is situated within the Cwm Taf Morgannwg Pathology department, providing rapid diagnostic services for patients in Prince Charles Hospital. Operationally, it sits within Cardiff Microbiology.

3 Laboratory Operational Times

Please note: the Hot Labs in Llandough and Prince Charles are currently operating from 08.00-22.00, 7 days a week.

Rapid testing for SARS-CoV-2 is available after 10pm at UHW. Please follow guidance below for transport arrangements for urgent samples from UHL to UHW. Please do not send urgent samples to the Hot Lab after 10pm.

3.1 Routine Service

Both the UHW and Llandough laboratories provide a routine service between Monday and Friday 08.30 – 17.00 (excluding Bank Holidays). UHW provide a full routine diagnostic testing repertoire as indicated in Appendix 3 during this time.

Note: For urgent requests during normal laboratory hours, please telephone the laboratory to ensure priority processing.

UHW Hot Lab:

Rapid COVID samples are processed in the UHW hot lab 24/7. Please POD samples directly to POD station number 415 for timely reporting of results. Note there is a 4-hour turnaround time for these tests and results will be available on the clinical portal when completed. Please do not contact the laboratory for results unless the 4-hour turnaround time has been exceeded or to notify the laboratory that samples are being sent for as all samples will be processed immediately upon receipt in the laboratory.

3.2 Weekends and Bank Holidays

A limited service is available on Saturdays, Sundays and Bank Holidays as follows:

Bacteriology:

Saturday: Urgent work only 08:30 -17:00hrs – Use on-call service after 12:00 to contact the lab

Sunday: Urgent work only 08:30 -17:00hrs – Use on-call service to contact the lab

Bank Holidays: Urgent work only 08:30 – 14:00 hrs – Use on-call service to contact the lab

Virology:

Saturday (09.00 – 17.00) – urgent work only, emergency on-call outside of these hours.

Sundays and Bank Holidays: emergency on-call service only (see below)

Mycobacterium Reference Lab. Llandough Hospital

Saturday: 09:00 – 12:30 hrs – urgent work only

Mycology Regional Reference Unit

MRRU now provides a limited service on weekends, providing (1-3) β – D – Glucan testing.

No other Reference facilities are available on weekends/bank holidays.

3.3 Emergency on-call service

Microbiology services are provided via the emergency on-call system during the following hours:

Bacteriology

Monday to Friday: 17:00 – 08:30hrs

Saturdays: After 12:00hrs

Sunday and Bank Holidays: on-call service only all day

Virology

Monday to Friday: 17:30 – 8:30 hrs

Saturdays: After 12:30hrs

Sunday and Bank Holidays: on-call service only all day

Note: During these times a reduced service protocol is available as indicated in 4.2.

Reference facilities do not offer an emergency on-call service.

4 Access to Clinical and Technical Advice

4.1 During normal working hours (Monday to Friday 08.30-17.00)

4.1.1 Clinical advice

Clinical advice is available at UHW for both UHW and Llandough sites and consultation about the investigation and management of infection are welcomed.

For advice on diagnosis and interpretation of microbiology results, antimicrobial use, infection control including the use of isolation facilities, contact the duty Consultant Microbiologist, Consultant Virologist, or Specialist Registrar, via the admin team on (029 218) 44515/42177.

Microbiology Medical Staff (029 218) 44515

(University Hospital of Wales/ University Hospital Llandough/ Cardiff Royal Infirmary/ Barry Hospital/ Velindre Hospital services)

Professional Lead and Consultant Microbiologist

Dr Robin Howe

Clinical Lead Cardiff

Dr Lim Jones

Consultant Microbiologists

Dr Harriet Hughes

Dr Rishi Dhillon

Dr Federica Faggian

Dr Jaisi Sinha

Dr Brendan Healy*

Dr Gavin Forbes

Dr Lim Jones

Dr Bazga Ali

Dr Matthijs Backx

Dr Owen Seddon

Dr Gwennan Jones

*Please note, Dr Brendan Healy is currently based in Swansea

Virology Medical Staff**(029 218) 42178**Dr Susannah Froude **(Virology Clinical Lead)**

Dr Jaisi Sinha

Dr Catherine Moore

Samantha Ray (Advanced Nurse Practitioner)

Dr Donall Forde**Mycology Clinical Consultants**Dr Matthijs Backx (029 218) **42161**

Dr Lewis White (029 218) 46581

Pathogen Genomics Unit Clinical Advice (HIV/WCM)Dr Matthijs Backx (029 218) **42161****Wales Centre for Mycobacteria Consultant**Dr Matthijs Backx (029 218) **42161****UK Anaerobe Reference Unit Clinical Advice**

Dr Harriet Hughes (029 218) 44515

Infection Control adviceUHW site:

Dr Rishi Dhillon (Llandough infection control) (029 218) 47394

Dr Gavin Forbes (UHW infection control) (029 218) 48896

Victoria Daniel Infection Scientist (029 218) 47394

Hanora "Yvonne" Hyde (Senior Infection Control Nurse)
(029 218) 46703Infection Control (PA to Senior Nurse-Administrator-Data officer and
Nurses contact) (029 218) 46703Llandough site:

Infection Control Nurses (029 218) 16261 / 15512
(If calling internally 26261 / 25512)

4.1.2 Technical enquiries (including urgent results)

UHW site:

UK Anaerobe Reference Laboratory (029 218) 42171
Bacteriology (029 218) 42043 / 42044
Pathogen Genomics Unit (PenGU) (029 218) 44175
Mycology (029 218) 42043 / 42044
Specialist Antimicrobial Chemotherapy Unit (029 218) 42170
Virology (029 218) 42178

Llandough site:

Wales Centre for Mycobacteriology (029 218) 16408
Food Water and Environmental Service (029 218) 45296/ 45297

Hot Labs:

Llandough (029 218) 24351

Prince Charles (01685) 728 728

4.2 Outside of normal working hours

Contact UHW switchboard (029 218) 47747 for:

Clinical Bacteriology/Virology/Mycology advice (SpR or Consultant)

Infection control (SpR or Consultant)

Biomedical Scientist staff for specimen processing

Please note medical and technical staff, are not generally on-site outside of normal working hours and only a limited range of analyses are available through the emergency service (see section 6.0) Technical staff are not authorised to provide an out-of-hours results enquiry service.

5 Results and Reporting

- Reports on completed work, if printed are dispatched every normal working day. These reports are available electronically on the hospital results reporting and GP links computer systems.
- Hospital reports are distributed through the internal postal system and reports to external sources are dispatched via second class post.
- Most bacteriology culture results are reported after 2-5 days, depending on the investigation.
- Serology/immunology and virology reporting depends on the frequency of testing and the urgency of the request.
- Mycology Results can vary from same day reporting up to 21 days dependent on investigation
- Results of urgent requests and results that may aid immediate patient management will be electronically reported by the laboratory. This includes all positive blood cultures and cerebrospinal fluids.
- Results of a highly confidential nature such as HIV/Hepatitis B will not normally be issued over the telephone.
- Requests for urgent results should be made using the contact numbers identified in section 4.1.2

Please note the microbiology department will not transmit reports by FAX due to the sensitive nature of the information and limitations of data protection regulations.

6 Emergency On-call Service Protocols

6.1 Emergency specimens – Bacteriology

- Bacteriology on-call Biomedical Scientist (BMS) must be contacted through the hospital switchboard to initiate the processing of any on-call specimen.
- Specimens will only be processed outside normal laboratory hours following contact with the laboratory staff and only if the request meets the agreed criteria for bacteriology as indicated below.

Arrangements should be made for the emergency samples to be delivered to the Microbiology laboratory reception (usually through portering services), on the First floor. Arrangements for transport of emergency samples from Llandough site are outlined in section 9.0. Please note, samples for Bacteriology must not be dropped to the Blood Sciences' specimen reception as they will not accept responsibility for Microbiology samples. Please ensure samples are delivered directly to the Microbiology specimen reception to ensure testing is completed.

The results of any emergency work will only be telephoned directly to the requesting clinician or a nominated location. A provisional electronic report will be issued.

The on-call service should only be used for the processing of emergency work and cannot be used to obtain results from samples sent previously.

Only the following samples will be processed on-call:

- Operative specimens such as biopsies or pus.
- Normally sterile tissues/body fluids e.g., CSF, joint fluids, heart valves.
- Urines under 3 years (2 or less) until midnight
- Bronchoalveolar lavage (BAL) specimens and non-directed bronchoalveolar lavage (NBAL) – up until 10pm Mon – Fri.
- Rapid COVID tests.

The following samples will only be processed after authorisation by Clinical Bacteriology medical staff:

- MSU specimens not included in above categories and only if they will alter clinical management.
- Bronchoalveolar lavage (BAL) specimens and non-directed bronchoalveolar lavage (NBAL) – between the hours of 10pm and 8am Mon – Fri and 5pm – 8am Saturday, Sunday and Bank Holidays.

6.2 Emergency specimens – Virology

- Requests for emergency virology work, initiated after 23.00, require contact with the Consultant Virologist on-call for advice in the first instance. Exceptions: Transplant Coordinators, or Medico-legal specimens with Chain of Evidence.
- Specimens will only be processed outside normal laboratory hours following contact with the laboratory staff and if the request meets the agreed criteria for virology.

Arrangements should be made for the emergency samples to be delivered to the Microbiology laboratory reception (usually through portering services), or BMS on-call may arrange to collect directly from ward. Arrangements for transport of emergency samples from Llandough site are outlined in section 9. Please note, samples for Virology/ Molecular must not be dropped to the Blood Sciences' specimen reception as they will not accept responsibility for Microbiology samples. Please ensure samples are delivered directly to the Microbiology specimen reception to ensure testing is completed.

The results of any emergency work will only be telephoned directly to the clinician who requested the work or a nominated clinical colleague.

- **Note: The on-call service should only be used for the processing of emergency work and cannot be used to obtain results from samples sent previously.**
- Only the following samples will be accepted for processing on-call:
 - Blood for virology screening from organ donors.
 - Medico-legal specimens with chain-of-evidence documentation.
- For other investigations and for all calls after 23.00 the Consultant Virologist on-call must be contacted for advice in the first instance prior to any request.

Note: No routine out of hour's service is provided by the reference units.

7 Sample Collection

7.1 General guidelines

Specimens should be placed in the appropriate container (see appendix 1), which must be securely fastened. This primary container must be placed into a clear plastic bag attached to the request form and sealed.

The following notes will help to ensure that the best quality sample is received for testing by the laboratory.

- Blood cultures need to be processed in the laboratory within 4 hours of being taken, so please do not delay in sending these once taken.
- Do not send specimens in non-sterile containers.
- Only use red-top primary urine tubes (test tube) for urine samples for M, C & S. Please do not use these containers for any other Microbiology specimen types. All other specimens should be sent using the appropriate container, as specified in Appendix 1.
- Whenever possible, specimens should be obtained before antimicrobial agents have been administered.
- Always send pus for culture rather than a swab of the pus.
- The specimen taken should be representative of the disease process. For example, material swabbed from the opening of a sinus tract is more likely to yield commensal micro-organisms on the skin than would material obtained by curettage or biopsy of the base of the tract.
- Care must be taken to avoid contamination of the specimen by micro-organisms normally found on the skin and mucus membranes. Sterile equipment and aseptic technique must be used for collecting specimens, particularly for those from normally sterile sites.

- **Please dispose of collection equipment with care – sharps should be disposed of in appropriate containers as per the local sharps policy and infective material should be disposed of as per local waste disposal/infection control policy.**
- Always send isolates on transport swabs or appropriate slopes.
- Material must be transported promptly to the laboratory. Fastidious organisms may not survive prolonged storage or may be overgrown by less fastidious organisms before culturing.
- Please ensure samples such as blood or urine are sent in containers with the appropriate additives for the tests required and that minimum/maximum fill lines are adhered to.
- A list of specimens with advice on appropriate collection procedures is given in Appendix 1.
- Please check expiry dates on specimen containers.

Please contact the laboratory for advice if there is any doubt about the best specimen to take or concerning the availability of a test (see contact details section 4.0).

Samples are retained for a limited period for further tests and retrospective checks. Please see CDQMS 004 or contact the laboratory for relevant specimen retention times.

COMPLIANCE WITH THE HUMAN TISSUE ACT - Submitting tissue samples from deceased patients:

WSVC is not licensed by the Human Tissue Authority (HTA) to store tissues from deceased patients. Post-mortem samples are submitted to the laboratory by coroners or pathologists for examination to help them determine the cause of death. Obtaining consent to remove, store and use human tissues for a scheduled purpose is one of the underlying principles of the Human Tissue Act.

Unless the laboratory is informed that consent has been obtained or the coroner has requested that samples are retained for further testing, any residual sample will be disposed of on completion of testing and after the final report has been issued. Please note blood samples are exempt from this and will be stored according to normal laboratory protocols.

7.2 Request forms

- Where available, electronic test requesting via Welsh Clinical Portal is preferable over paper request forms. Please consult the online guidance document or contact the local ETR implementation team or the laboratory for assistance.
- Paper laboratory request forms are available through the hospital supplies department.

- SACU, PenGU, ARU & Mycology request forms can be obtained from the website.
- **All** sections of the request form should be completed legibly, preferably using a ball-point pen to ensure that all parts of the form and attached copies are readable. Addressograph labels may be used when available, but one must be attached to both copies of the form.

A request form must accompany all specimens sent to the laboratory and should state the following information as a **minimum**:

- Patient's first name and surname.
- Date of Birth/Unit number/NHS number if available.
- Patient/senders location (ward/GP name and number).
- Contact number of requester for urgent results.
- Specimen type.
- Date and time specimen taken.
- Tests required.
- All relevant clinical details including any anti-microbial treatment (recent, current and intended), foreign travel, food and occupational history if applicable.
- Date of onset and duration of illness (particularly for virology investigations).
- For antimicrobial assays, the name, date/time of last dose of antimicrobial and the current dosing regimen.

Note: Specimens may not be suitable for testing if they are so inadequately labelled that the patient's identification is in doubt, or if they have leaked or been contaminated. In these circumstances every effort will be made to inform the requesting doctor prior to disposal.

8 High Risk Samples

Where a patient is known or believed to be high risk there is a **requirement on the sender** to identify specimens as such according to Health and Safety and Trust policy for general protection of staff and patients.

PLEASE NOTE:

If there is clinical suspicion that a patient may have viral haemorrhagic fever (VHF), Creutzfeldt-Jacob disease, SARS or smallpox i.e. persons from areas of high rates of endemic infection e.g. West Africa for VHF, China for SARS/ Avian Flu the medical officer(s) MUST contact the laboratory direct, prior to the collection of samples, to ensure appropriate material is collected and the laboratory is forewarned and can give additional advice as necessary. (See contact details Section 4.0).

8.1 Labelling and Transport

Samples from these patients MUST be discussed before being taken to ensure that labelling and transport is appropriate.

9 Transport and Receipt of Samples

9.1 Specimen transport

Generally, specimens will be transported around the hospital in a rigid plastic toolbox or similar transport carrier designed specifically for the purpose. Specimens transported between sites and from other external sources must meet the health and safety regulations, minimum standards set for transport of pathological specimens.

9.1.1 Transport arrangements for specimens within University Hospital of Wales

Specimens are usually collected and transported to the laboratory by the hospital portering services, however it may be necessary to make specific requests or alternate arrangements for delivery of urgent samples.

Blood culture specimens should be processed in the laboratory within 4 hours of being taken, so please do not delay in sending these once taken.

Hospital samples (including plastic blood cultures) can be transported via the pneumatic tube (POD) system.

Microbiology POD number: 415

If the POD system is unavailable, please deliver directly to Microbiology Specimen Reception, 1st floor tower block 2 (at the end of the C1 link corridor).

Do not deliver any urgent samples to Pathology Specimen Reception (located on the upper ground floor, B block) either directly or via POD as this will delay patient results.

Note: The Bacteriology or Virology BMS on-call must be contacted prior to sending emergency specimens, to clarify transport and reception details and ensure staff are available to process the work.

9.1.2 Transport arrangements for specimens from Llandough Hospital

Specimens are generally collected and transported to Microbiology Llandough by the hospital portering services, however it may be necessary to make specific requests or alternative arrangements for delivery of urgent

samples. Specimens are regularly collected (hourly from 09.30 to 17.00) from Llandough by courier and delivered to Microbiology reception UHW.

At weekends and bank holidays, specific collections have been arranged for routine work and specimens are collected from the Microbiology Dept reception desk. The collection times are 09.30 on Saturdays and 10.30 on Sundays and bank holidays.

Emergency Specimens Llandough (including rapid SARS-CoV-2 testing after 10pm)

Specific transport arrangements are in place to ensure prompt receipt and processing of emergency specimens from Llandough site. Contact the on-call BMS to initiate the service to avoid confusion and delay in handling the emergency.

The guidelines require the following:

- Ward to contact Llandough portering services for specific specimen packaging materials.
- Ward to contact the BMS on-call, who will be alerted to the requirement for emergency investigation and will arrange specimen transport from Llandough to UHW.
- Ward to organise transport of emergency specimen to porters' desk/main reception
- Collection of specimens from Llandough by medical courier and delivery to UHW.
- Processing of specimen at UHW by microbiology on-call staff

Note: It is essential that the ward or medical staff do not arrange specimen transport directly as this will lead to inappropriate transport arrangements and inevitable delays in receipt and processing of specimens, which may compromise emergency service delivery.

Please do not send urgent bacteriology specimens to the Hot Lab.

9.1.3 Transport arrangements for specimens from outside the hospital

Transport for specimens from GP surgeries and clinics within the hospitals' catchment area are arranged by the pathology department University Hospital of Wales in conjunction with district transport services and Ambulance Services (C&V UHB).

Specimens may also be received by post provided that the packaging meets the Post Office regulations for transport of pathological material. Patients may also deliver specimens directly to the laboratory reception areas (For

advice contact Public Health Wales Laboratory Manager, Microbiology, Cardiff, UHW, via 029 218 44515).

9.1.4 Referral of samples from other Welsh laboratories to the Wales Specialist Virology Centre (WSVC)

For patient safety and quality assurance purposes, samples referred to WSVC for Virology/Serology/Molecular testing, from other laboratories in Wales must have certain pre-analytical stages completed in the requesting laboratories. As a minimum, this should include assessment of sample suitability (e.g. correct patient details, appropriate sample types and volumes), labelling of the request form and sample with an episode number and registration of the sample and tests required on the Laboratory Information Management System (LIMS). Test requests must also be electronically transmitted via the Send Tests module in LIMS.

9.2 Receipt of samples University Hospital of Wales

Microbiology Cardiff reception area is located in the centre of the laboratory close to first floor C block link corridor, adjacent to the pathology staff entrance stairwell.

Please note: these guidelines are for non-COVID-19 samples only. Please check with the laboratory for the current arrangements for delivery of COVID-19 screening samples.

9.2.1 Normal Working Hours

During normal working hours (Section 3.0), **all** specimens should be taken to the Microbiology specimen reception area.

9.2.2 Outside Normal Working Hours

All non-urgent specimens may be left in the outer area of the microbiology specimen reception.

- Blood cultures must be placed in the identified cupboard in the outer reception area.
- Other blood samples, urines and other specimens should be placed in the identified refrigerator in the outer reception area.
- For urgent specimens, contact the Bacteriology or Virology BMS on-call through the hospital switchboard (See section 4.2)

9.3 Receipt of samples Llandough Hospital

9.3.1 Normal Working Hours

During normal working hours (Section 3.0), **all** specimens should be taken to the Microbiology Dept.

9.3.2 Outside Normal Working Hours

- All non-urgent specimens may be left for collection by the porter's at Llandough who must transport them to Microbiology UHW the next morning
- For urgent specimens, contact the Bacteriology or Virology BMS on-call through the hospital switchboard. (See section 4.2)

Outside normal working hours arrangements will need to be made for emergency specimens to be delivered to the porter's lodge for collection by a medical courier organised by the laboratory on-call staff (see section 9.1.2)

For receipt of samples from outside the hospital see general transport arrangements (Section 9.1)

10 General Practitioner Services

10.1 Requests

All bacteriology requests should be made using the specific bacteriology request form. Virology samples should be accompanied by a specific virology request form. Please ensure all the information as indicated in section 7.0 is included on all parts of the form. Separate samples are required for each test requested. The identity of the person collecting primary sample must be stated on the request form.

10.2 Sample collection

Most GP surgeries and clinics within the hospitals' catchment area receive a daily collection service, supplemented by phlebotomy services and these arrangements are organised by the pathology department University Hospital of Wales in conjunction with district transport and Ambulance Services. Contact via Cardiff and Vale UHB.

10.3 Results and reports

Completed reports are printed and dispatched by second class mail on each working day. Results are also available to most surgeries through computer links.

Please note the microbiology department will not transmit reports by FAX due to the sensitive nature of the information and limitations of data protection regulations.

10.4 Enquiries

For results, clinical or technical advice, please use contact numbers as indicated in Section 4.

For enquiries on Microbiology Service provision, contract arrangements, special requirements, complaints or general laboratory matters, please contact the Laboratory Manager, Mrs Lisa Chichester via 029 2074 4515.

11 Limitations of Microbiological Investigations

It is important to understand the limitations of Microbiological investigations and particularly the factors that can affect a test result.

- **Appropriate and relevant clinical information**

Please include any relevant clinical information in the 'clinical details' section of the form. Please include the date of onset, the type of rash present, any antibiotics that have been prescribed in the last 48 hours, any antibiotic allergy, D&V, recent travel abroad (state country) – all of these factors influence the way in which we process specimens and interpret the significance of microorganisms detected. Please write legibly.

Cross reference:

CDQMS 009 - Specimen acceptance policy

CDBQMS 018 - Specimen reception Bacteriology

- **Transport times**

All specimens should reach the laboratory as soon as is possible. It may be detrimental to the specimen if it is stored overnight, it is for this reason routine samples should not be collected out-of-hours.

In some circumstances, refrigerating specimens until the next day may be more detrimental than leaving them at room temperature. Please seek advice if you are unsure.

- **Serological/ Molecular Tests**

All commercial assays used are CE-marked and fully validated. In-house assays are validated locally. However, no test is 100% sensitive or 100% specific. To compensate for this, we may use duplicate testing strategies, confirmatory tests or reference laboratory tests to confirm our findings.

If the clinical presentation does not fit with our findings, please repeat the test and/or speak to one of our Consultant Microbiologists/Virologist for further advice.

12 Protection of Personal information

The laboratory acts in compliance with the Caldicott and Data Protection Act Principles in respect of personal identifiable information and the protection of other sensitive material where disclosure may be inappropriate. For further information please contact the laboratory.

13 Complaints procedure

Should you have any concerns about our service, please raise them in the first instance with the individual department and ask to speak with a senior member of staff who will be able to further advise you.

Our consequent actions will be guided by NHS Wales policy, 'Putting Things Right'.

14 Requirement for patient consent

The laboratory considers patient consent is implicit when it receives a signed request form or an electronic request from an appropriate healthcare professional, and this includes sharing of same details should the sample require processing at a reference laboratory.

Under the Human Tissue Act patient consent is not required for storage of material for diagnostic purposes for the benefit of the person from whom the tissue was removed during life.

For further information see:

- The Retention and Storage of Pathological Records and Archives. The Royal College of Pathologists and the Institute of Biomedical Science. (5th edition April 2015)
- Human Tissue Act 2004

Appendix 1 Specimen collection

Statement re Accredited Tests.

A UKAS accredited medical laboratory No 9510. Our current schedule of accreditation can be found here: [9510 Medical Multiple \(ukas.com\)](https://www.ukas.com)

The following local tests are currently outside of our accredited scope due to service improvement projects and will be considered for assessment by UKAS at a later date. Please contact the laboratory for further information.

Whilst these tests are not currently on our UKAS accredited scope for compliance with ISO 15189:2012, ongoing assurance of quality is provided by internal and external quality assurance procedures, quality control and training. This is all evidenced and contained within our Quality Management System.

Bacteriology

- Fluids other than blood for MC&S using automated continuous monitoring system (BD Bactec)
- Cepheid GeneXpert 4-Plex (SARS-CoV-2, Flu A, Flu B, & RSV) norovirus, MRSA, CPO and C.difficile (Note: these tests may also be run in the hot labs)

Virology

- Rotavirus/Adenovirus rapid test
- BinaxNow Str.pneumoniae Urinary Antigen rapid test
- Antistreptolysin-O titre in serology
- Testing of Dried Blood Spot Specimens
- Roche 6800/8800 CT/NG NAAT
- Roche 6800/8800 Influenza A/B/RSV/SARS-CoV-2 PCR
- Perkin Elmer SARS-CoV-2 PCR
- Monkeypox PCR
- Seegene Genital Ulcer panel
- Vela Sentosa Quantitative CMV PCR
- Serion VZV IgG

Syphilis TPHA/RPR confirmatory serology assays were confirmed to be compliant with ISO 15189:2012 as part of an extension to scope assessment in early 2023. These tests will be added to our schedule of accreditation when next published by UKAS.

Mycology Regional Reference Unit (MRRU)

- *Aspergillus fumigatus* Resistance PCR
- Tissue PCR
- Pan-fungal PCR
- SNP Analysis

Candida PCR was confirmed to be compliant with ISO 15189:2012 as part of an extension to scope assessment in early 2023. This test will be added to our schedule of accreditation when next published by UKAS.

Please refer to website for further information.

UK Anaerobe Reference Unit (UKARU)

Please refer to website for further information.

Specialist Antimicrobial Chemotherapy Unit (SACU)

Please refer to website for further information.

Wales Centre for Mycobacteria (WCM)

- All veterinary samples.
- Environmental water sampling.
- Direct detection of mycobacterial and MTBC DNA using PCR.
- QuantiFeron testing at University Hospital Llandough.

Pathogen Genomics Unit

The Pathogen Genomics Unit are due to relocate to the Cardiff Edge Business Park in November 2023. Following the move, all tests will be required to undergo reassessment for compliance with ISO 15189:2012 so will be temporarily removed from our scope of accreditation until this reassessment has taken place.

Please contact the department directly or consult their webpages for further information about their current accreditation status.

Point of Care Tests

- Cephid, GeneXpert HCV VL fingerstick PCR
- OraSure, OraQuick HCV Rapid Antibody Test
- Abbott, determine HIV AB/Ag Combo

Ongoing assurance of quality in the meantime is maintained by internal and external quality assurance, quality control and training.

Welsh reference services for mycobacteriology, virology, molecular diagnostics, mycology and antimicrobial chemotherapy: User information available via Public Health Wales website: [Reference Laboratories and Specialist Services - Public Health Wales \(nhs.wales\)](https://www.nhs.uk/public-health-wales/reference-laboratories-and-specialist-services)

A UK national reference service for anaerobic microbiology. User information available via Public Health Wales website: [UK Anaerobe Reference Unit \(UKARU\) - Public Health Wales \(nhs.wales\)](https://www.nhs.uk/public-health-wales/uk-anaerobe-reference-unit)

Specimen investigation	Container and comments
BACTERIOLOGY:	
Antimicrobial assays Processed in Biochemistry	Specimen of clotted blood (5-10 ml each); for paediatric samples use heparin capillary collection

Specimen investigation	Container and comments
	tubes (x2), a minimum sample of 50µl of plasma is required. Details on dosing and timing of levels available in Cardiff and Vale Good Prescribing Guide or other local policies
Antrum washings	White top sterile universal container, up to 20 mL
Aspirates, fluids from sterile sites	White top sterile universal container, up to 20 mL
Blood cultures	Bactec bottles (Use specific bottles for infants). 8-10 mL required for adult blood culture bottles and 1-4 mL required for paediatric blood cultures. Blood cultures need to be processed in the laboratory within 4 hours of being taken.
Bronchoalveolar lavage	White top sterile containers eg: 120-140 ml distributed in 3-4 sterile universal containers. Send for MC&S, virology, PCP, mycology, and TB as appropriate. Please send a separate sample for each request wherever possible. Only use Sterilin containers for these samples, as alternative brands have been known to leak. Ensure the dedicated lids are used and secured to prevent leaks.
Cerebrospinal fluid (CSF)	For cell count, Gram staining and culture send 2-3ml in each of 3 white top sterile universal containers. Send separate specimens for glucose and protein analysis to the appropriate departments, and a separate sample for Virology.
Cannulae/Tips	Send in a white top sterile universal container, should be no more than 5cm in length.
Faeces	With the spatula provided transfer a grape (0.5ml) minimum, sized portion of faeces, into a blue top sterile faeces container. Ideally three stool specimens collected over no more than a ten-day period. It is usually recommended that specimens are collected every other day.
Intrauterine contraceptive device (IUCD)	Send the device in a white top sterile universal container
Nasopharyngeal aspirate	Sealed traps containing specimen, up to 20 mL
Non-directed bronchial lavage	White top sterile universal container, up to 20 mL
Peritoneal fluid	White top sterile universal container, 10-20 mL
Pleural fluid	White top sterile universal container, up to 20 mL
Pus/ exudate	Aspirate into white top sterile universal container, up to 20 mL
Pus swab	Unsuitable specimen. Pus sample should be submitted where possible, as this is preferred to pus swabs.
Screening Swabs	MRSA/MSSA screen - Nose and groin swab, plus umbilical for neonates on an amies charcoal swab.

Specimen investigation	Container and comments
	<p>Throat and axilla swabs are not routinely processed.</p> <p>CPO screen - Rectal swab in amies charcoal swab or faeces in blue top universal container. (Rapid molecular result available by prior agreement only. COPAN Transystem dual swabs must be used).</p> <p>ESBL Screen - Rectal swab in amies charcoal swab or faeces in blue top universal container.</p>
Seminal fluid	White top sterile universal container, up to 20 mL
Skin, nail and hair for mycology	Use black card or Dermapak
Sputum	White top sterile universal container, up to 20 mL
Endocervical swab	For the investigation of gonorrhoea use a bacteriology swab in Amies transport medium. For the investigation of Chlamydia please use dedicated collection containers for NAAT testing.
Cough swab	Plain transport swab
Ear swab	Plain transport swab
Eye swab	Plain transport swab (for Chlamydia see below)
High vaginal swab (HVS)	For the investigation of Candida, trichomonas and bacterial vaginosis use a bacteriology swab in Amies transport medium. NB. Not suitable specimens for Gonorrhoea culture. For the investigation of Chlamydia use dedicated ROCHE collection containers for NAAT testing.
Mouth swab	Plain transport swab
Nasal swab	Plain transport swab
Pernasal swab (for pertussis)	Use wire-shafted swabs. Transport IMMEDIATELY. Other sample types for ?pertussis will be rejected.
Urethral swab	For the investigation of gonorrhoea use a bacteriology swab in Amies transport medium. For the investigation of Chlamydia use dedicated ROCHE collection containers for NAAT testing.
Wound and ulcer swab	Plain transport swab
Throat swab	Plain transport swab.
Tissues and biopsies	White top sterile universal container. If biopsy is small (smaller than a grain of rice) add 0.5ml of Ringers or sterile saline to prevent it from drying out. Ensure there is NO preservative
Tuberculosis	Usual specimens are sputum, urine, pus or tissue. For sputum and urine send 3 early morning specimens taken on consecutive days. Send specimen in a white top sterile universal container. Tissue samples should be sent dry without additives.
Urine for tuberculosis	White top sterile universal container Two 25ml volumes of urine on three consecutive days. Do NOT use Boric Acid universal container.

Specimen investigation	Container and comments
Urine for MC&S	Must be in a <u>boric acid primary tube</u> , to fill line (11ml) Do not underfill the primary tube. Note: boric acid may be inhibitory to some organisms and may inhibit tests for leucocyte esterase.
Urine for <i>S.haematobium</i>	It is preferable to obtain total urine collected over the time period below as it has been shown that a maximum concentration of eggs are excreted at this time. The LSHTM Diagnostic Parasitology Lab handbook states for the diagnosis of <i>S. haematobium</i> : Urine in a plain, sterile container - either a midday urine specimen (between noon and 3 pm) or a 24-hour collection of terminal urine. If a single urine specimen is to be submitted there should ideally be a minimum volume of 10 ml. White top sterile universal container to be used. Please do not use primary urine tubes (test tube) for these investigations.
MYCOLOGY	
Antifungal assays Processed in Toxicology Llandough and Mycology Ref lab Bristol	Specimen of clotted blood (5-10 ml each); for paediatric samples use heparin capillary collection tubes (x2), a minimum sample of 50µl of plasma is required. Details on dosing and timing of levels available in Cardiff and Vale Good Prescribing Guide or other local policies. Please DO NOT sent SST vacutainers (Gold/Yellow Top), the gel plug has been known to interfere with the antifungal level results.
Antrum washings	White top sterile universal container
Aspirates and fluids from sterile sites	White top sterile universal container
Avian Precipitins	Specimen of Clotted (red top) blood (5 – 10ml) – Gold top vacutainers will be rejected as the gel is known to react with the assays, causing false results.
Blood for <i>Aspergillus</i> PCR	5-10ml EDTA blood sample must arrive within 2 hours of being taken. Dedicated samples are required.
Blood for <i>Aspergillus</i> Antibody	5-10ml Clotted sample or EDTA blood
Blood for <i>Aspergillus</i> Antigen-Galactomannan	5-10ml Clotted sample or EDTA blood
Blood for <i>Beta D Glucan</i>	5-10ml Clotted sample (Lysed sample cannot be processed) Dedicated samples are required due to contamination concerns
Blood for <i>Candida</i> PCR	EDTA blood sample must arrive within 2 hours of being taken. Dedicated samples are required. Please refer to website if further information is required.
Blood for <i>Cryptococcal</i> Antigen	5-10ml Clotted sample

Specimen investigation	Container and comments
Blood cultures	Bactec bottles (Use specific Myco/Lytic bottles available on request from microbiology, or bottles for infants. Please clearly specify fungal cultures required)
Bronchoalveolar lavage	White top sterile containers e.g.: 120-140 ml distributed in 3-4 sterile universal containers. Send for MC&S, Asp. PCR or Asp Ag PCP, mycology, virology, and TB as appropriate
Cerebrospinal fluid (CSF) For <i>Cryptococcal</i> Antigen testing	1ml of CSF please send in white top sterile universal container
Cough swab	Plain transport swab
Ear swab	Plain transport swab
Eye swab	Plain transport swab (for Chlamydia see below)
Fungal Isolates for Identification	Pure isolate cultures on sabouraud dextrose (sab) media, Sab slope or transport swab.
Yeast isolates for Antifungal susceptibility	Pure isolate cultures on sabouraud dextrose (sab) media, Sab slope or transport swab. For correct interpretation of the MIC values each isolate with be identified using appropriate techniques.
High vaginal swab (HVS) Endocervical swab Urethral swab	For the investigation of Candida use a bacteriology swab in Amies transport medium. For Chlamydia & Gonorrhoea investigation send NAAT sample (see below) For Gonorrhoea culture use a bacteriology swab in Amies transport medium.
Mouth swab	Plain transport swab
Nail and hair	Use black card or Dermapaks® or universal containers
Nasal swab	Plain transport swab
Non-directed bronchial lavage	White top sterile universal container
Peritoneal fluid	White top sterile universal container
Pleural fluid	White top sterile universal container
Pneumocystis jirovecii PCR	White top sterile universal container. Bronchial lavage, non-direct bronchial lavage, Bronchial washings. Plain red-top dry throat swab. If a charcoal swab is received for PCP PCR it will be rejected due to the charcoal media causing assay inhibition.
Pus/ exudates	Aspirate into white top sterile universal container
Pus swab	Unsuitable specimen (see above)
Seminal fluid	White top sterile universal container
Skin	Use black card or Dermapaks® (available on request from Microbiology)
Sputum for fungal culture, Ag ELISA testing	White top sterile universal container. Please note this is a sub-optimal specimen type, consider sending a NBAL/BAL or Bronchial wash.
Throat swab	Plain transport swab.
Tissues and biopsies	White top sterile universal container. If biopsy is small add 0.5ml of Ringers or sterile saline to

Specimen investigation	Container and comments
	prevent it from drying out. Ensure there is NO preservative
Wound and ulcer swab	Plain transport swab
VIROLOGY/VIROLOGY MOLECULAR DIAGNOSTICS	
Serological investigations for diagnostic/screening/immunity purposes for viral/bacterial/parasitic markers	Clotted blood samples preferred (red/yellow top vacutainer). Plasma from EDTA/Heparin samples may be acceptable for some tests, but not all. Required volume will depend on the number of investigations requested. Please contact the laboratory for more information.
Antenatal screening (Syphilis, Hepatitis B and HIV)	Clotted blood sample (1 x 6ml). If sending paper request, specific antenatal request form should be used and all relevant boxes ticked to confirm testing required and consent obtained. If no boxes are ticked, samples will be stored without testing. Samples requested electronically imply testing has been discussed and consent obtained.
Respiratory viruses	Sterile plain cotton dry swab (red top) in its container. Throat swabs are the preferred swab site. Lower respiratory tract samples should be sent in a white top sterile universal container. Routine respiratory screening includes enterovirus testing and screening for SARS-CoV-2. Extended screening performed for GP Sentinel Surveillance and Post-mortem samples. Individual testing for enteroviruses or SARS-CoV-2 also available.
Viral swabs for HSV, VZV, Enterovirus, or Measles testing	Swabs of mucosal lesions should be sent for HSV or VZV testing. With a sterile lancet or needle raise the cover of the vesicle, use a swab to collect the vesicle fluid and then gently rub the base of the lesion with a dry (red top) swab and send in its container. Dry (red top) swabs can be used to collect throat or rectal samples for enterovirus testing. Dry (red top) swabs can be used to collect throat samples for measles testing.
Molecular diagnostic testing for bacterial/viral meningitis/encephalitis (CSF)	Minimum of 0.5ml CSF sample in white top sterile universal container (no additives). Dedicated sample required for meningococcal, pneumococcal, HSV, VZV and enterovirus PCR. For other investigations, please contact the Duty Virologist.
Meningococcal/pneumococcal PCR (Blood)	1x 5ml EDTA <u>whole</u> blood sample (or 1x 1ml for paediatric samples). Dedicated samples are required. Minimum volume 0.5ml.
Viral Load quantification for monitoring of known HIV, HBV, HCV patients (including HCV genotyping)	2-3x 5ml EDTA blood samples, must arrive within 4 –6 hours of being taken. Dedicated samples are required. Required volume will depend on the type and number of investigations requested. Please contact the laboratory for more information.

Specimen investigation	Container and comments
CMV/EBV quantitative PCR	1x 5ml EDTA <u>whole</u> blood sample (or 1x 1ml for paediatric samples). Plasma samples are not suitable for this assay. Other sample types may be acceptable, but have not been validated using the Whole Blood extraction method. Please contact the laboratory for more information. CMV & EBV dual testing can be performed on a single sample. If requesting electronically, please use the dual testing option to avoid creating 2 separate requests.
Urine for molecular testing (CMV/HSV/Enterovirus as appropriate)	Only samples received in white top sterile universal containers (NO additives) are suitable for molecular testing. Please send a minimum of 0.5ml of sample, but take care not to overfill the container, as this can cause leakage and the sample may no longer be suitable to test.
Urine for Legionella or Pneumococcal antigen testing	White top sterile universal container or Boric Acid container with a minimum of 1ml of sample. Take care not to overfill the container, as this can cause leakage and the sample may no longer be suitable to test. Samples must be sent to the lab within 24 hours if stored at room temperature. If delayed the samples must be stored in the fridge.
Chlamydia/Gonorrhoea DNA detection (NAAT)	Urine samples: use dedicated ROCHE collection containers for NAAT testing. Ensure correct sample volume is added to collection tubes, following instructions with the collection kit. Volumes outside of the minimum/maximum fill lines will be rejected. Please do not send urines in universal containers. Genital/Rectal/Throat/Eye Swabs: use dedicated ROCHE collection containers for NAAT testing. Follow the instructions with the collection kit, ensuring only ONE swab is deposited in the container and it is snapped off at the marked height. Samples in expired collection kits will be rejected. Rectal swabs containing faecal material may return an invalid result.
Faeces (Rotavirus/Adenovirus/Enterovirus as appropriate)	With the spatula provided transfer a pea-sized portion of faeces, or equivalent volume of fluid, into a blue top sterile faeces pot/universal container.
PCR testing for other viruses is available from external reference laboratories. Please contact the Duty Virologist/Microbiology SpR for more information.	
PATHOGEN GENOMICS UNIT (PenGU)	
HIV Resistance (Amplicon Sequencing)	10ml of EDTA Blood or 3ml Plasma, referred via Microbiology Departments.
Characterisation of Mycobacteria (Whole genome sequencing)	Extracts referred by WCM only.
Characterisation of <i>C. difficile</i> (Whole genome sequencing)	Extracts referred by UKARU only – contact UKARU for advice

Specimen investigation	Container and comments
Typing of <i>Influenza</i> and <i>Enterovirus</i> for epidemiological purposes and for the investigation of clusters / outbreaks (Whole genome sequencing)	Specimens referred from Virology by <i>prior arrangement</i> .
Latent TB Infection Detection using Interferon-Gamma Release (IGRA) Assays	
QuantiFERON-TB Gold Plus	1 ml of blood in each of the four Qiagen Blood tubes. The black mark on the side of the tubes indicates the validated range of 0.8 to 1.2 ml. Samples need to arrive in the Microbiology Cardiff laboratory on the same day of collection and within 16 hours of collection.
T-SPOT. <i>TB</i>	<p>Whole blood samples collected in lithium heparin, sodium heparin, or sodium citrate tubes with the following volumes of blood:</p> <ul style="list-style-type: none"> • Adults and children ≥ 10 years of age: 6 mL. • Children ≥2 to <10 years of age: 4 mL. • Children <2 years of age: 2 mL. <p>Samples must arrive in the Microbiology Cardiff laboratory by 2.00 pm on the day of collection.</p>

Appendix 2 Laboratory Turnaround Times

Turnaround times quoted refer to routine work. Please contact the laboratory to arrange for urgent investigations.

User information is also available via the Public Health Wales internet site: <https://phw.nhs.wales/services-and-teams/microbiology-services/>

Target: 95% of samples must be processed and authorised within the stated turnaround time. For tests referred from other laboratories, please add on an extra day to the stated turnaround time, to allow for transportation times.

Turnaround Times - Working Days – Bacteriology				
Test	Processed locally	Send away test	Comments	Transport Conditions
Blood Culture	5 days		All positive results are phoned as soon as result is available. Transport time should be as short as possible. NB. Some blood cultures will be incubated for longer depending on certain clinical criteria.	Ambient temperature – to be received as soon as possible
CSF microscopy and culture	3 days		Microscopy and positive 24hr culture results are phoned immediately. Transport time should be as short as possible.	Ambient temperature – to be received within 2 hours or as soon as possible
PD fluids, microscopy and culture	4 days		Positive microscopy and positive 24hr culture results are phoned immediately. Collect specimens before antimicrobial therapy where possible.	If processing is delayed, refrigeration is preferable to storage at ambient temperature.
Joint fluids, microscopy and culture	4 days		5 days if extended culture required. Transport time should be as short as possible.	If processing is delayed, refrigeration is preferable to storage at ambient temperature – if acute infection is

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Turnaround Times - Working Days – Bacteriology				
Test	Processed locally	Send away test	Comments	Transport Conditions
				suspected and the result may affect medical management of the patient, the sample should be received within 4 hours of collection.
Faeces, molecular detection of Salmonella, Shigella, VTEC, Campylobacter, Cryptosporidium, Giardia, C. difficile and Norovirus	1 day	4 days	All positive results are phoned as soon as result is available	If processing is delayed, refrigeration is preferable to storage at ambient temperature.
Faeces, ova, cysts and parasites (other than Cryptosporidium & Giardia) by microscopy If examination for threadworm only is required, please send a moist plain perianal swab.	7 days		Longer for positive results referred to reference laboratories for confirmation.	If processing is delayed, refrigeration is preferable to storage at ambient temperature.
Sputum culture	3 days		Longer for CF samples	If processing is delayed, refrigeration is preferable to storage at ambient temperature.
Bronchoalveolar lavage	3 days		5 days for extended culture. Transport time should be as short as possible.	If processing is delayed, refrigeration is preferable to storage at ambient temperature.
Pleural effusion/Chest fluids	4 days		Transport time should be as short as possible.	If processing is delayed, refrigeration is preferable to storage at ambient temperature – samples should be

Turnaround Times - Working Days – Bacteriology				
Test	Processed locally	Send away test	Comments	Transport Conditions
				sent to the laboratory as soon as possible.
Urine, microscopy and culture	3 days		Collect specimens before antimicrobial therapy where possible.	If processing is delayed, refrigeration is preferable to storage at ambient temperature.
Genital swab (GC only)	4 days		Collect specimens before antimicrobial therapy where possible. Transport time should be as short as possible.	If processing is delayed, refrigeration is preferable to storage at ambient temperature.
Genital swab microscopy and culture	3 days		Collect specimens before antimicrobial therapy where possible. Transport time should be as short as possible.	If processing is delayed, refrigeration is preferable to storage at ambient temperature.
Tissue/Bone microscopy and culture	4 days		5 days if extended culture required. Transport time should be as short as possible.	If processing is delayed, refrigeration is preferable to storage at ambient temperature – samples should be sent to the laboratory as soon as possible.
Wound swab	3 days		Collect specimens before antimicrobial therapy where possible.	If processing is delayed, refrigeration is preferable to storage at ambient temperature.
Cannulae/tips	3 days			If processing is delayed, refrigeration is preferable to storage at ambient temperature.

Turnaround Times - Working Days – Bacteriology				
Test	Processed locally	Send away test	Comments	Transport Conditions
Ear/Nose and Throat swab	3 days		Collect specimens before antimicrobial therapy where possible.	If processing is delayed, refrigeration is preferable to storage at ambient temperature.
Pernasal swabs for the investigation of <i>Bordetella pertussis</i>	8 days		Positive results phoned.	Ambient temperature - Note that culture can be affected by a number of factors, as the target organism is delicate including delays in processing and specimen quality.
IUCD for Actinomyces	11 days		Collect specimens before antimicrobial therapy where possible.	Transport time should be as short as possible. If processing is delayed, refrigeration is preferable to storage at ambient temperature.
Screening swabs for MSSA/MRSA, CPO, ESBL	3 days			

Turnaround Times - Working Days – Mycology			
Test	Processed locally	Send away test	Comments
Blood Culture	21 days		All positive results are phoned as soon as result is available
CSF/ Blood – Cryptococcal Antigen test	2 days		Dependant on sample receipt performed as required.
PD fluids, microscopy and culture	14 days		Microscopy results are reported as soon as available
Joint fluids, microscopy and culture	14 days		Microscopy results are reported as soon as available
Sputum culture	14 days		

Turnaround Times - Working Days – Mycology			
Test	Processed locally	Send away test	Comments
Blood / Respiratory samples for Aspergillus screening (Aspergillus PCR and Galactomannan) (excluding IgG)	2-5 days		Antigen/PCR testing carried out at least three times per week. Processing time is dependent on when samples arrive.
Blood for Aspergillus IgG screening	1-7 days		Dependent on sample receipt performed x1 weekly
Blood for Beta D Glucan testing	2-3 days		Dependent on sample receipt performed at least three times per week.
Blood for antifungal assay		1-7 days	Sent to national Mycology reference laboratory for testing
Avian Precipitins		21 days	Sent to Leeds Mycology reference laboratory for testing
Blood for Candida screening	1-5 days		
Bronchiolar lavage (BAL)	14-21 days		Microscopy results are reported as soon as available.
BAL for PCP/PJP PCR	2-3 days		PCP/PJP PCR is performed at least three times per week, dependant on sample receipt
Cultures & isolates received for antifungal susceptibility testing	7-10 days		As required
Pleural effusion/Chest fluids	14 days		Microscopy results are reported as soon as available
Urine culture	2 days		
Superficial swab for culture	3-10 days		
Skin/Nail/Hair for fungi	7 - 21 days		Microscopy results are reported as soon as available, this can depend on the length of time taken for isolates to grow.
Tissue/Bone microscopy and culture	14-21 days		Microscopy results are reported as soon as available, this can depend on the length of time taken for isolates to grow.
Fungal Isolates for Identification	21 days		Delays can occur – this depends on the recovery and necessity to purify plate isolates for accurate identification

Turnaround Times - Working Days – Mycology			
Test	Processed locally	Send away test	Comments
Yeast isolates for Antifungal susceptibility	14 days		Delays can occur – this depends on the recovery and necessity to purify plate isolates for accurate identification and MIC analysis

Turnaround Times - Working Days – Virology			
Test	Processed locally	Send away test	Comments
ANC serological screen	5 days		
ASO serology	Up to 7 days	8-10 days	Anti-DNAse B requests sent to Reference Lab.
Borrelia burgdorferi (Lyme)	3 days	6 days	Non-negatives sent to Reference Lab to confirm. Interim report issued.
Chlamydia/GC NAAT	4 days		
CMV serology	Up to 7 days	Up to 10 days	IgG Avidity requests sent to Reference Lab
CMV/EBV PCR	4 days	7 days	Tested daily Mon-Fri, if numbers permit - specimens are batch tested. New positive results and increased viral loads are phoned.
EBV serology	3 days		Confirmation 1 week - 10 days
Enterovirus PCR	2 days	5 days	Tested daily Mon-Fri. If sample rec'd by 4.30pm on previous day 24hr turnaround.
Hepatitis A (immunity)	3 days		
Hepatitis A (diagnostic)	3 days	6 days	
Hepatitis B markers (including immunity)	3 days	6 days	Second sample required to confirm positives
Hepatitis B DNA	7 days	8 days	
Hepatitis C antibody screen.	3 days	6 days	Second sample required to confirm positives
Hepatitis C PCR	4 days	7 days	
Hepatitis C Genotyping	3 weeks	Up to 4 weeks	
Hepatitis E Serology	7 days	10 days	
HIV Serology	3 days	6 days	Second sample required to confirm positives
HIV Viral Load	4 days	8 days	
HIV Whole Genome Sequencing (Resistance)	14 days		Referred to Pathogen Genomics Unit

Turnaround Times - Working Days – Virology			
Test	Processed locally	Send away test	Comments
Confirmatory testing: HBV, HCV, HIV	4 days	7 days	
HSV 1&2 PCR (Swabs)	2 days		
HSV 1&2/Adenovirus PCR (Eye Swabs)	2 days		
HTLV	3 days	6 days	
Legionella Urinary Antigen	3 days	6 days	Non-negatives sent to Reference Lab to confirm. Interim report issued.
Measles (immunity)	4 days	7 days	Available urgently by arrangement.
Measles (diagnostic)	Up to 7 days	Up to 10 days	For IgM, sample at least 5 days after onset.
Measles PCR	5 days		Tested daily Mon-Fri. If sample rec'd by 4.30pm on previous day 24hr turnaround.
Meningococcal/ Pneumococcal PCR	2 days	5 days	Tested daily Mon-Fri. If sample rec'd by 4.30pm on previous day 24hr turnaround.
Mumps (immunity)	4 days	7 days	Available urgently by arrangement.
Mumps (diagnostic)	7 days	7 days	For IgM, sample at least 5 days after onset.
Respiratory samples	4 days		Arrangements change at different times of the year. Contact lab for details
Parvovirus	Up to 7 days	Up to 10 days	Parvovirus DNA sent to Reference Lab
Pneumococcal Urinary Antigen	2 days		
Rotavirus ELISA	4 days	7 days	
Rubella (immunity)	3 days	6 days	
Rubella (diagnostic)	3 days	6 days	
Syphilis	3 days	8 days	Full markers may incur an extra day
Toxoplasma IgG screen	3 days		
Toxoplasma confirmation		10 days	IgM/PCR testing sent to Reference Lab
Varicella Zoster (immunity)	3 days		Available urgently by arrangement.
Varicella Zoster (diagnostic)	5 days	8 days	For IgM, sample at least 5 days after onset. IgM testing is no longer offered in UHW; therefore, TAT may be longer if sample requires referral to external laboratory. Please contact the lab to discuss if applicable.
Varicella Zoster PCR	2 days		Tested daily Mon-Fri. If sample rec'd by 4.30pm on previous day 24hr turnaround.

Turnaround Times - Working Days - Molecular Diagnostics for TB			
Test	Processed locally	Send away test	Comments
Direct PCR for Mycobacteria	5 days		Tested daily, results available same day if sample received in the morning.

Appendix 3 Specimen containers and request forms

Specimen Containers

The following specimen containers are available directly from the Microbiology laboratory at University Hospital of Wales:

- Blood culture bottles - are obtained from Clinical Bacteriology. (Contact 029 2074 2044 Monday - Friday 09.00 to 17.00). Store at room temperature in the dark. Keep bottles of each set together and return any unused bottles. Ensure the stock is used in turn and always within expiry date.
- Dermopaks for fungal specimens – obtainable from Mycology (contact extn 2044 UHW), store at room temperature.
- Corneal scrape kits and media for Acanthamoeba
- Qiagen QuantiFERON-TB Gold Plus blood tube sets.

Note: A small stock of blood culture bottles is held in the porters lodge at Llandough Hospital (contact Llandough extn 5212)

All other specimen containers are obtained from the supplies department University Hospital of Wales:

- Boric acid primary tubes for urines
- Faeces pots with spoon
- Plain swabs, pernasal swabs and swabs with bacteriological transport medium - store at room temperature
- Universal containers (sterile)
- Dedicated ROCHE collection containers for CT/NG NAAT testing

Request forms

Referral forms for SACU, PenGU, ARU & Mycology can be obtained directly from the reference laboratories or are available on the PHW Intranet and Internet.

The following forms are available from the hospital supplies department:

- Microbiology request forms
- General Virology request forms
- Blood-borne Virus request forms

- Ante-natal request forms

Electronic Test Requesting is available for a large selection of Microbiology tests and should be used where possible. Colour-coded bags will be available from the hospital supplies department: blue bags should be used for all Microbiology samples, with the exception of Virology (including COVID-19) samples, which should be placed in purple bags.

Appendix 4 List of Referral Laboratories

Specialist tests might require referral to other laboratories. The following is a list of laboratories to whom we currently send samples. Please note: this list is not exhaustive.

LIST OF REFERRAL LABORATORIES

UK Anaerobe Reference Unit Public Health Wales Cardiff
Antimicrobial Reference Lab-Southmead Bristol
RIPL, Porton Down
Clinical Immunology Lab, LEEDS General Infirmary
Delphi Labs, Liverpool
Department of Parasitology-Hospital for Tropical Diseases
Dept Virology, Royal Free Hospital, London
Diagnostic Parasitology Laboratory-London School of Hygiene and Tropical Medicine
Oxford Immunotec Ltd
UKHSA Birmingham
UKHSA Bristol
UKHSA Centre for Infections: Gastrointestinal Bacteria Reference Unit (GBRU)
UKHSA Colindale: Food Pathogens Reference Unit (FPRU)
UKHSA Colindale: UKHSA Respiratory and Vaccine Preventable Bacteria Reference Unit (RVPBRU)
UKHSA Colindale: Bacteriology Reference Department (AMRHAI)
UKHSA Laboratory of Healthcare Associated Infection-(SRMD) (LHCAI)
UKHSA Colindale: Sexually Transmitted Bacteria Ref Lab (STBRL)
UKHSA Colindale: Virus Reference Department
UKHSA Meningococcal Reference Unit Manchester
UKHSA National Mycobacterial Reference Service South
UKHSA Mycobacterium Reference Unit London
UKHSA Newcastle
UKHSA Southampton
Liverpool Public Health & HPA Collaborating Laboratory, Univ. Hosp Microbiology Dept, Great Ormond Street Hospital for Children
Molecular Pathology, St James Hospital, Leeds
Mycology Reference Lab Bristol
Mycology Reference Lab, LEEDS General Infirmary
Public Health Wales Microbiology Bangor
Public Health Wales Microbiology Swansea – CRU
Public Health Wales Microbiology Swansea – Toxoplasma Reference Unit
Preston Microbiology Services, Royal Preston Hospital
Specialist Antimicrobial Chemotherapy Unit (SACU), Public Health Wales Cardiff
Welsh Regional Mycology Reference Laboratory Cardiff
Wales Centre for Mycobacteria (WCM)

Appendix 5 Provision of SARS-CoV-2 (COVID-19) testing

We have introduced a number of testing platforms in our laboratories to detect SARS-CoV-2 (COVID 19). The following platforms are currently in use:

- Biofire
- Cepheid
- ePlex
- Luminex Magpix
- Perkin Elmer/Chemagic
- Roche 6800/8800

Some of these platforms also offer multiplex testing for other respiratory pathogens. Platforms will be selected in the laboratory depending on current testing algorithms and test availability.

Cepheid, ePlex and Biofire platforms are operational in the PHW Microbiology Hot Labs, in Llandough Hospital and Prince Charles Hospital.

Please refer to Appendix 1 for tests that are not currently on our UKAS accredited scope for compliance with ISO 15189:2012.

Sample Information:

A dry (red-top) swab of the back of the patient's throat should be sent to the laboratory, with a request form detailing the patient's clinical symptoms.

Electronic test requesting is available via the Welsh Clinical Portal and is preferable over paper requesting.

Results will be available to view on the Welsh Clinical Portal within 24-48 hours of receipt by the laboratory.

Rapid testing is available by prior arrangement only.

Please note repeat testing on confirmed previously positive patients should be directed to the main laboratory in UHW.