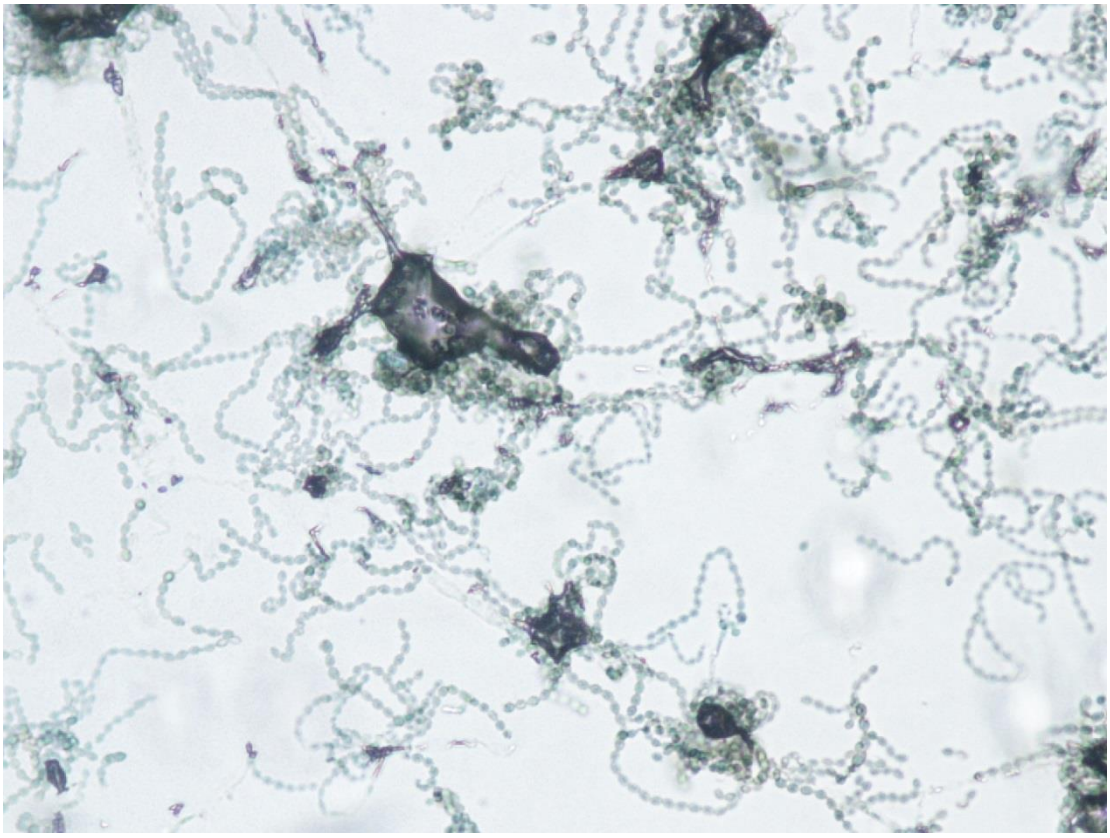
Microbiology Services User Handbook



UKAS MEDICAL
8801

A – Z of tests

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

0 Contents

1 INTRODUCTION

The Clinical Microbiology Service is provided by the laboratories at the Great Western Hospital NHS Foundation Trust, Swindon, providing a formulary of tests reflecting the usual demands of a District General hospital service. Specialist and Reference test services are used where necessary.

Microbiology services are provided on a 24-hour basis, with a routine service available between 09:00 and 17:00 Monday to Friday, 08:00 and 13:00 on Saturday and 08:45 and 12:30 on Sunday and bank holidays (see Laboratory Opening Hours). The laboratory provides an on-call bacteriology service outside of these hours. Virology services are provided Monday to Friday 09:00 to 17:00.

Consultant advice is available during routine service hours and on an on-call basis outside of routine hours.

We provide an analytical and interpretative service on a wide range of clinical samples, processing over 270,000 requests each year. The efficiency of the service we provide is reliant on the cooperation of our users with the necessary policies relating to safety, sample transport and sample identification.

In its pursuit of excellence and as part of its continuous quality improvement programme the Microbiology department participates in all relevant internal and external quality assurance schemes.
All laboratory work is carried out on up-to-date equipment in a modern laboratory which meets with all statutory requirements of a quality management system.

The repertoire of tests provided by Microbiology support the Trust in its diagnostic and screening programmes.

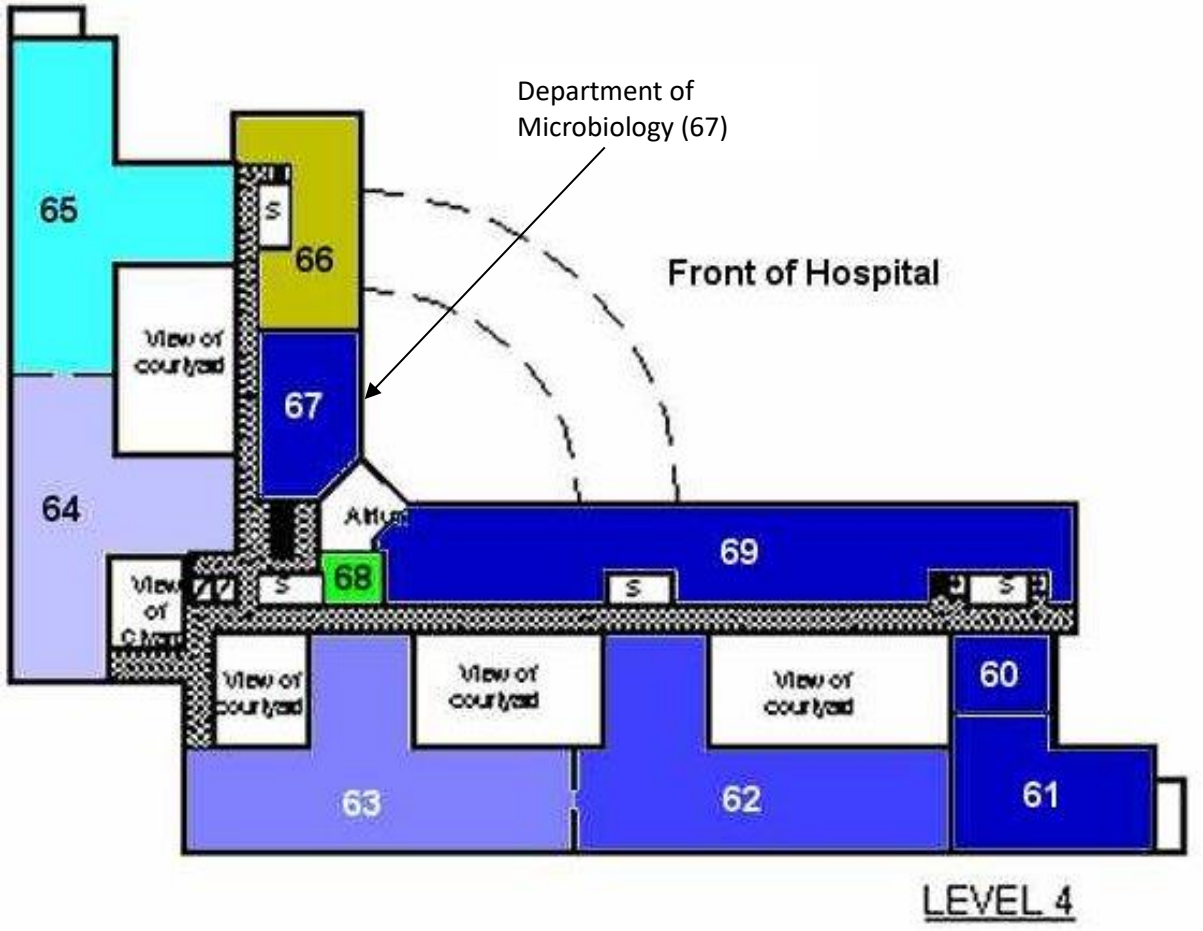
The laboratory is accredited by the Institute of Biomedical Science (IBMS) for Biomedical Scientist training and Biomedical Scientist Specialist training. We also support the University of Bristol in the provision of clinical undergraduate training and the development of junior doctors at Great Western Hospital.

The Pathology services are fully computerised with all laboratories using Clinisys WinPath laboratory information system. Pathology results are available electronically via the Trust network at ward level or via the GP electronics links. Hard copies can be made available on request.

We hope that this handbook contains all the information you require to use our service. However, please feel free to contact us to discuss any problems or issues you may have. Any comments or suggestions about the User Handbook should be addressed to GWH.Microbiology@nhs.net.

2 LABORATORY LOCATION

The Microbiology Department is part of the Clinical Support and Specialist Services Division, within the Great Western Hospitals NHS Foundation Trust. The department is sited on the fourth floor of the main hospital building (see diagram).



The postal address is as follows:

Department of Microbiology
Great Western Hospitals NHS Foundation Trust
The Great Western Hospital
Marlborough Road
Swindon
Wiltshire
SN3 6BB

The DX address is as follows:

The Great Western Hospital
Department of Microbiology
DX6130100
Swindon 90 SN

3 PATHOLOGY QUALITY POLICY

The management of the Pathology Department is committed to delivering a service that is compliant with the requirements for Medical Laboratories set by the International Standard Organisation (UKAS ISO 15189:2012), Health and Safety Executive (HSE), UK Health Security Agency (UKHSA) - including the ANNB antenatal and new-born screening programmes for the participation in sickle cell and thalassaemia screening (SCT) and infectious diseases in pregnancy screening programme (IDPS), Medicines and Healthcare Products Regulatory Agency (MHRA) and the Human Tissue Authority (HTA).

The Pathology management team is fully committed to the on-going development and improvement of laboratory services through the continual assessment of the Pathology Quality Management System and the establishment by means of regular meetings, internal and external audits, annual review of quality objectives during the Pathology Annual Management Review, participation in the Trust Improving Together programme and collaborative work with network partners within the South 4 Pathology Network

The full Quality Policy (PAT-P-012) can be found in the Pathology Quality Manual (PAT-Q-003) on the Intranet and on the Quality Board within the department. A copy may be requested from the Pathology Quality Manager on a case-by-case basis.

4 OPENING HOURS, CLINICAL ADVICE AND RESULTS

4.1 Laboratory Opening Hours

The laboratory is open:

Monday to Friday: 0900 – 1700
Saturday: 0800 – 1300
Sunday: 0845 – 1230
Bank Holidays: 0845 – 1230

4.2 Clinical advice

Consultation about investigation and management of infections is welcomed. For advice on diagnosis and the interpretation of Microbiology results, use of antimicrobials or infection control (including the use of containment facilities) consultant advice is available during normal working hours and on an on-call basis at all other times.

4.2.1 For advice during normal working hours:

Please fill out the template below and email to GWH.Microbiology@nhs.net.

Clinician Name Extension/Bleep number (or email if preferred)	
Ward Location/GP practice	
Patient Full Name	
Patient hospital/NHS number	
Clinical Details/Nature of call	

Clinical advice is given verbally on a call back basis, in which the urgency of calls is triaged by the Microbiology Consultant.

4.2.2 For advice out of hours:

Telephone 01793 604020 (switchboard) and ask for the duty Consultant Medical Microbiologist.

PLEASE NOTE: Out-of-hours email requests will not be picked up until the next working day (Monday-Friday)

- Internal users, please refer to the antibiotic guidelines, in the first instance, for the commoner microbiology enquiries. These are available on the intranet at the Antibiotic Home Page.
- New or junior doctors should discuss queries with their own clinical team, before calling the Medical Microbiologist.
- For Infection Control advice alone, the Infection Control Nurses can be contacted on 01793 604554, or via switchboard.

4.3 Urgent samples

If a result is required urgently and the sample will arrive during normal working hours the laboratory **MUST** be notified by telephone so that we can prioritise the request.

Please ensure that the requesting clinician contact details are provided as part of the request to enable the result to be telephoned if required.

4.4 Testing out of hours

The on-call service is available outside of normal Laboratory opening hours.

The Microbiology out of hours service is an urgent service. The Biomedical Scientists carry out on-call off site and will travel in for urgent specimens only. On-call Biomedical Scientists are not able to look up results or inform you whether samples have been received.

Please ensure you call the on-call Biomedical Scientist upon taking the following urgent specimens:

- Cerebrospinal fluid (CSF)
- Peritoneal dialysis (PD) fluid
- Fluids from sterile sites (joint fluids, pleural fluids, ascitic fluids etc.)
- Pus
- Tissue samples
- Corneal Scrapes
- Urines (only paediatric samples after 12am)

The use of the service should be restricted to those samples where it is essential to have a result before the next routine session.

Samples that have not been called ahead are at risk of not being processed within the appropriate time frame.

To contact the on-call Biomedical Scientist telephone 01793 604020 (switchboard) and ask for the on-call Biomedical Scientist for Microbiology.

4.5 Additional tests

All tests should be requested at the time of submitting the sample to the laboratory. However, amendments to requests, or the need for additional tests, can still be discussed with the laboratory after processing has started.

In general, additional tests must be requested within 48 hours of sample receipt within the laboratory. In some cases, additional tests may not be possible, and a fresh sample will be required. Further advice can be obtained from the laboratory.

4.6 Results

Pathology results are available electronically immediately after authorisation via Careflow PAS at ward level or via the GP electronic links. Hard copies of reports are available on request.

All laboratory results are returned to the requesting clinician who has ultimate responsibility for ensuring that all results are actioned and communicated to the patient as appropriate.

In cases of difficulty or further clarification, the laboratory enquiry telephone number is 01793 604798.

Please note that we need to establish the caller's identity before giving results over the telephone. We are unable to give results directly to patients or their relatives.

General culture results are available 24 hours after sample receipt (at the earliest), and antibiotic susceptibility results after a further 24 hours. For samples such as blood cultures and CSF, the Medical Microbiologist will usually inform the clinicians of initial significant results as soon as they are known.

In general, results are not available until they have been authorised. In exceptional circumstances, preliminary results may be available direct from the relevant laboratory. However, please bear in mind that this may delay the testing of other samples.

4.7 Telephone and emailed results

Results of urgent requests and results which may aid the immediate patient management will be telephoned. This includes all positive blood cultures, positive CSFs, significant *C. difficile* results on inpatients and significant results processed on-call.

The laboratory will endeavor to call or email the following results:

- Growth of group B streptococcus from pregnant women
- Growth of group A streptococcus on all patients
- Growth of Campylobacter species, Salmonella species and Shigella species on pediatric patients <2 years of age
- Significant infection control results (MRSA, CRE)
- Significant C. difficile results on GP patients

All other results will only be telephoned or emailed on request.

4.8 Turnaround times

The laboratory continually monitors its turnaround times to ensure that it complies with its responsibilities within the patient pathway. The laboratory measures its turnaround times as the time from receipt until the point at which the result is authorised (at this point the result is available through direct enquiry and is available for transmission via GP links).

The expected turnaround times for each test are indicated as part of the Test Repertoire. For detailed turnaround times for each test and actual performance, please contact the laboratory.

Interrogation of the electronic systems allows for full audit of the reception, testing and reporting process, including time of report viewing and report printing.

4.9 Tests currently in scope of UKAS accreditation

The laboratory is a UKAS certified as a medical laboratory, and we seek UKAS accreditation for all our tests. Our current schedule of accreditation can be found on the UKAS website.

However, some tests are currently provided outside the scope of our current UKAS certificate. These are:

Test outside current UKAS accreditation	Additional
Urine analysis (microscopy) by UF5000	UKAS accreditation being sought
Blood culture incubation by BD BACTEC	UKAS accreditation being sought
Helicobacter Pylori antibody (by manual EIA)	UKAS accreditation being sought
Pneumococcal Antigen (TruPneumo)	UKAS accreditation being sought
Legionella Antigen (TruLegionella)	UKAS accreditation being sought
Faecal Calprotectin (Diasorin Liaison)	UKAS accreditation being sought
Mumps (Diasorin Liaison)	UKAS accreditation being sought
Measles (Diasorin Liaison)	UKAS accreditation being sought
Varicella Zoster (Diasorin Liaison)	UKAS accreditation being sought
SARS COV2 (Hologic Panther)	UKAS accreditation being sought
Xpress SARS COV2 (Cepheid GeneXpert)	UKAS accreditation being sought
CMV Serology (Abbott Architect)	UKAS accreditation being sought
HIV Viral Load (Cepheid GeneXpert)	UKAS accreditation being sought

All unaccredited test results are provided with an indicator comment reflecting unaccredited status:
'***Please be aware this procedure is not within the laboratory scope of UKAS accreditation***'

When referring samples off site to external providers we endeavor to ensure reference laboratories are UKAS accredited. For details on our external laboratories and their accreditation status please see Reference Laboratories.

5 CONTACT DETAILS

Position	External Number	Internal Number	Email Address
Bacteriology Enquiries	01793 604798	4798	GWH.Microbiology@nhs.net
Virology Enquiries	01793 604799	4799	GWH.Serology@nhs.net
Laboratory	01793 604798	4798	GWH.Microbiology@nhs.net
Hospital switchboard	01793 604020	0	

If you require to speak to a specific member of the team, please call the appropriate number listed above and you will be redirected.

6 SAMPLE COLLECTION

6.1 Preparation of patient

Adequate privacy during reception and sampling should be available as appropriate to the type of information being requested and primary sample being collected. Before taking any samples, verification of the patient's identity must be carried out and where relevant it should be recorded that the patient meets any pre-examination requirements (see Test Repertoire).

Information for patients regarding tests performed, including instruction for preparation of the patient and instructions for patient-collected samples, can be accessed at the 'Lab Tests Online UK' website.

For details of the Laboratory Policy on protection of personal information, patient consent, medico-legal samples and the Human Tissue Act refer to Patient Consent Disclosure.

6.2 Optimum time of and conditions for collection

Samples for bacterial culture, wherever possible, should be collected prior to commencement of antibiotic treatment. Actual pus or tissue samples are always preferable to a swab. For specific sampling guidance, refer to the Test Repertoire.

To avoid inadvertent contamination of a specimen during collection, an aseptic technique must be used; always use universal precautions, wash hands and wear appropriate personal protective clothing.

Decontamination of the sampling site or equipment may be necessary e.g. skin antisepsis before taking blood cultures or Cerebrospinal fluid (CSF), or catheter port antisepsis before collecting a specimen of urine via a catheter (CSU).

Specimens must be collected into sterile containers with close fitting lids (refer to Selection of appropriate container). The specimen must be clearly labelled (refer to Labelling of Specimen Containers).

Please send separate samples when tests are needed across different departments or sections. For example, submit individual urine samples for both culture and osmolarity or protein-creatinine ratio or separate CSF samples for culture and protein/glucose analysis. Similarly, within the Microbiology department, provide distinct samples when requesting multiple tests, such as separate specimens for faecal culture and faecal calprotectin, or for urine culture and urine CMV PCR. This approach helps ensure accurate testing and faster processing. Ensure all samples labelled and unequivocally linked to a patient and request (refer to Labelling of Specimen Containers).

6.3 Health and safety issues pertaining to sample collection

Every clinical specimen sent for microbiology examination should be treated as potentially infectious. Standard precautions must be always observed. Use aseptic technique.

With patients known to be infected, or if there is a strong suspicion that they may be infected with a high-risk organism (e.g. tuberculosis), then procedures likely to produce aerosols must be conducted whilst wearing face masks, goggles or full facial visors as appropriate. Such investigations include cough inducing procedures and lancing of an abscess.

Once collected, place the specimen into a plastic specimen bag and seal the bag. Wash your hands and dispose of clinical waste into a yellow clinical waste collection bag. Sharps must be disposed of safely. Used sharps must be disposed of according to Trust policy (see Safe Handling and Disposal of Sharps Policy & Guidelines). This is the responsibility of the individual(s) who generates them.

It is the responsibility of the person collecting the specimen to ensure that it is properly labelled and safe for transportation (see Transportation of Samples).

Refer to appropriate Trust policies for further information:

- Hand Hygiene and Skin Care Policy (including scrubbing gowning and gloving)
- Standard Infection Control Precautions Policy
- Safe Handling and Disposal of Sharps Policy & Guidelines
- TRANSPORTATION OF SAMPLES

7 SAMPLE CONTAINERS

7.1 Supply of specimen containers

The following Microbiology consumables can be obtained from the following locations:

Consumable	Description	Issue from
	Green form (non-blood Microbiology requests, excluding Blood Cultures) For locations that do not have access to ICE only	Materials Management Team
	Ref form (blood Microbiology requests) For locations that do not have access to ICE only	Materials Management Team
	Yellow form (MRSA admission screen requests) For locations that do not have access to ICE only	Materials Management Team
	Universal containers (with boric acid) - for urine bacteriology specimens from GP locations	Materials Management Team
	Bacteriology swabs in Amies transport swab	Materials Management Team
	Pernasal swab for whooping cough	Microbiology Department
	Charcoal urethral swab for *N. gonorrhoeae* culture	Materials Management Team
	Virus swabs in virus transport medium	Materials Management Team Microbiology Department
	Faeces container	Materials Management Team
	Universal containers (sterile and empty)	Materials Management Team
	Sputum container	Materials Management Team
	Collection kits for HSV, *C. trachomatis*, *N. gonorrhoeae* NAATs	Materials Management Team
	Collection kits for *C. trachomatis*, *N. gonorrhoeae* NAATs	Materials Management Team
	Vacutainer tubes for blood samples (Serology)	Materials Management Team
	Vacutainer tubes for blood samples (Lithium Heparin – 6ml)	Materials Management Team
	Vacutainer tubes for blood samples (PCR)	Materials Management Team
	Blood culture bottles Pink = paediatric (single bottle) Grey (aerobic) and purple (anaerobic) = adult set	Pathology Reception
	Pin worm collection kits	Microbiology Department

7.2 Selection of appropriate container

Please see Repertoire Index for the selection of appropriate container for test.

Sample containers must be CE or UKCA marked. Specimen containers must be leak proof and sufficiently robust to withstand stresses during transit. Only containers approved by the Microbiology Department may be used to ensure sample integrity during transit to the Laboratory. Samples that are sent in non-approved containers may not be processed by the Laboratory. It is the responsibility of the person sending the sample to the Laboratory to ensure that the container used for transportation is appropriate.

The container must be adequately closed to avoid leakage. Samples that have leaked in transit may not be processed by the Laboratory.

7.3 Labeling of sample containers

Clinical governance requires that where paper request forms are used the sample container must be labelled with sufficient information to provide an unequivocal link with the request form and the patient from whom they are collected. Clinicians using electronic requesting must ensure that test(s) are correctly requested on the appropriate system and generated label(s) are affixed to sample container(s) to provide an unequivocal link between the sample(s) and the patient from whom they are collected. When making multiple electronic requests, make sure to put the **correct label** on each of the samples.

Pre-printed addressograph labels are acceptable on sample containers for Microbiology investigations if they are accompanied by a paper request form.

Minimum Data Set for Identification:

- Patient's surname
- Patient's forename (initial is acceptable)
- Date of birth and /or district number / NHS number

Additional requirements:

- Identity of the person collecting the primary sample
- Sample collection date and time
- Sample type/site of collection

For antibiotic assay levels, for example Teicoplanin, the following information must be given where appropriate:

- Whether dose is Pre/Post/Random
- mg of last dose given
- Date and time of last dose
- Date and time that sample was taken

Failure to comply with correct guidance may result in the sample being rejected by the Microbiology department (refer to Sample Acceptance Criteria).

Multiple samples taken at different times on a patient MUST be labelled on the sample container with the time (24 hr clock) when the sample is taken. The request form should be labelled accordingly.

8 REQUESTING TESTS

All samples must be accompanied by a properly completed paper request form or electronic request. The Microbiology Department encourages the use of electronic requesting in the hospital. Failure to comply with correct guidance may result in the sample being rejected (refer to Sample Acceptance Criteria).

Please ensure that all relevant clinical details, including antibiotic therapy, are included so informed clinical and technical advice can be given if required. The absence of this information may result in inability to give informed clinical interpretation of results.

Acceptance of a testing request by the laboratory acts as an agreement with the requestor. This means that a contract is established between the laboratory and the requester when the laboratory accepts a request. This will apply whether the request is written or electronic.

8.1 Handwritten request forms

Minimum Data Set for Identification:

- District number and/or NHS number
- Patient surname and forename (in full, not initials)
- Date of birth (DOB)
- Patient address if district number/NHS number not supplied

In addition to the minimum data set for patient identification please ensure all other relevant fields are completed:

- Ward/ Practice, Consultant/GP
- Patient address
- Patient gender
- Date and time of collection
- Specimen type
- Investigation(s) required
- Name of requesting clinician and bleep number
- Relevant clinical details *
- Current drug therapy
- Copy reports, if required
- Patient category (PP/AQP/NHS)

* To ensure samples can be safely and appropriately tested in the laboratory, information including details of foreign travel, symptoms and known or suspected contact with other patients known to have communicable disease is important. For example, samples likely to contain high risk pathogens as described by the Advisory Committee for Dangerous Pathogens (refer to ACDP guidance) are handled at a higher containment level to safeguard both laboratory staff and other downstream workers (refer to High Risk Samples). The information is also of benefit to the patient ensuring that appropriate testing is performed.

Unnecessary confidential patient information, for example HIV, Hepatitis B or C status, should not be disclosed on the request form unless pertinent to the investigations required.

It is essential to use a ballpoint pen when completing request forms. Use of felt tip and fountain pens can lead to delay in processing samples, or requests being missed altogether, as carbon copies are often incomplete. When addressograph labels are used, please ensure that a label is fixed to EACH part of the request form.

8.2 Electronic requesting (ICE)

Please use electronic requesting (ICE) order-comms where available.

When using the electronic requesting system please ensure that you order the correct test and select the correct sample type as failure to do so may lead to incorrect testing. The ICE requesting system will show those tests most requested for the Microbiology Service; should the test you require not be visible please contact the laboratory to check that the test is available.

The information required is the same as that required on a handwritten request form and should include clinical details and symptoms, as well as information on antibiotic use, foreign travel, outbreaks, date of onset, etc.

Where ICE requesting is not available handwritten request forms must be used.

8.3 Anonymous/uniquely identified samples

In certain circumstances patient identification details are intentionally hidden or substituted with particular ID numbers (for example, Sexual Health, donor samples, samples from unconscious or incoherent patients). In such instances, a properly coded identifier must be used in place of the patient last name and first name.

Unidentified Patients

Samples from unconscious or incoherent patients should be labelled with “UNKNOWN MALE OR FEMALE” and the emergency unit number.

All request forms must be signed.

GUM Patients

Where Patient name is not appropriate, then GUM number, patient gender and DOB is acceptable.

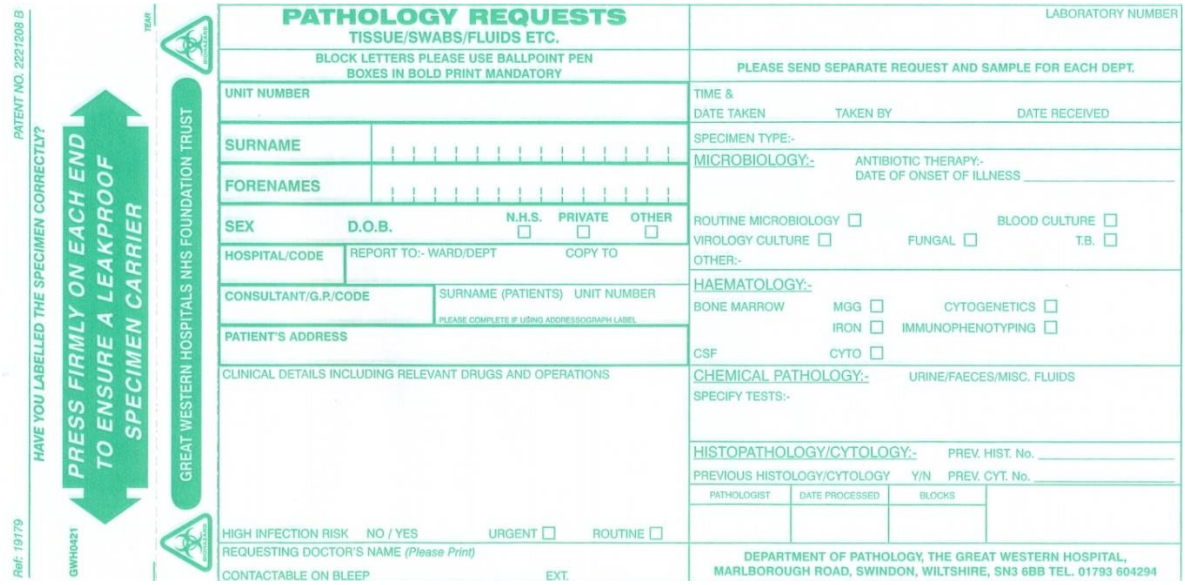
8.4 Verbal requests

Verbal requests are not accepted by the Microbiology Department except for urgent samples and additional tests for samples already received within the laboratory. This is to ensure that all samples are accompanied by a properly completed request form and be unequivocally traceable by request and labelling to an identified patient or site.

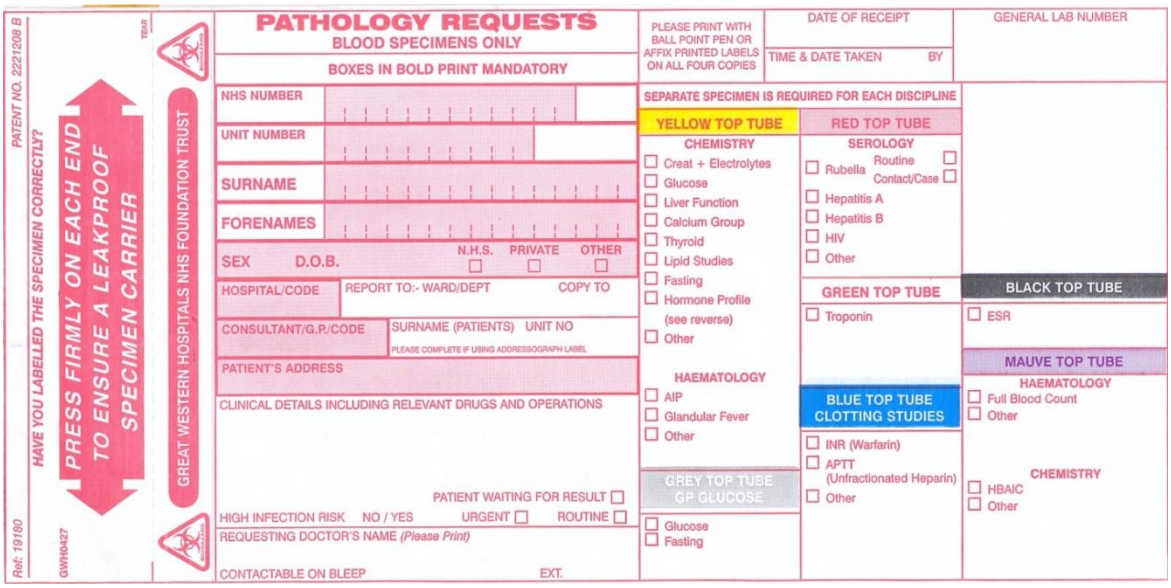
8.5 Microbiology department request forms

The following request forms are used by the Microbiology department (please do not mix with samples for other departments):

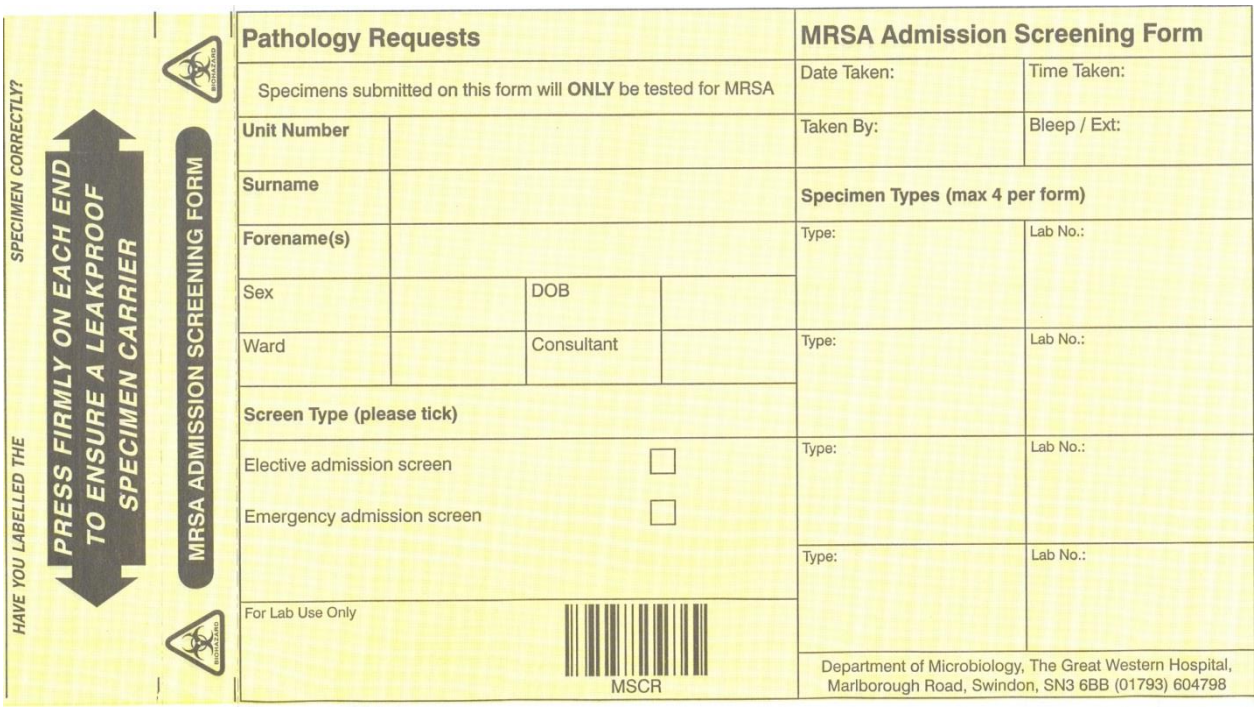
GREEN FORM (NON-BLOOD MICROBIOLOGY REQUESTS, EXCLUDING BLOOD CULTURES)



RED FORM (BLOOD MICROBIOLOGY REQUESTS)



YELLOW FORM (MRSA ADMISSION SCREEN REQUESTS)



SPECIMEN CORRECTLY?
HAVE YOU LABELLED THE
PRESS FIRMLY ON EACH END TO ENSURE A LEAKPROOF SPECIMEN CARRIER
MRSA ADMISSION SCREENING FORM

Pathology Requests

Specimens submitted on this form will **ONLY** be tested for MRSA

Unit Number			
Surname			
Forename(s)			
Sex		DOB	
Ward		Consultant	

Screen Type (please tick)

Elective admission screen ☐

Emergency admission screen ☐

For Lab Use Only

MSCR

MRSA Admission Screening Form

Date Taken:	Time Taken:
Taken By:	Bleep / Ext:
Specimen Types (max 4 per form)	
Type:	Lab No.:
Type:	Lab No.:
Type:	Lab No.:
Type:	Lab No.:

Department of Microbiology, The Great Western Hospital, Marlborough Road, Swindon, SN3 6BB (01793) 604798

9 TRANSPORTATION OF SAMPLES

Please refer to the Trust Specimen Transportation Policy for the correct procedures for submitting samples to the laboratory.

9.1 Transportation of routine samples to the laboratory

All sample containers for transport to the Laboratory must be sealed in a plastic bag attached to the request form.

Samples for microbiological investigation should be examined as soon as possible after collection to avoid compromising results. Samples may be transported via normal portering rounds during the normal working day.

Where this is not practicable due to delays in transportation samples should be kept refrigerated. Samples may be kept in a refrigerator at a temperature of 4-8^{o}C for a maximum of 24 hours prior to transportation. There is a refrigerator in Pathology Reception for non-urgent samples that arrive outside the normal opening hours.

Samples taken for blood culture examination MUST NOT be refrigerated. These must be transported to the Laboratory as soon as possible for incubation at 37°C.

Certain samples may be sent direct to the laboratories using the pneumatic chute system:

Pathology address: 104
Microbiology address: 102

For transportation of samples to the laboratory from external sites or by post, and use of the pneumatic chute system, please refer to the Trust Specimen Transportation Policy.

In cases of difficulty or further clarification, the laboratory enquiry telephone number is 01793 604798.

9.2 Transportation of urgent samples

Urgent samples must be sent to the laboratory immediately and arrangements made with the portering service.

To discuss an urgent sample with the duty Biomedical Scientist: telephone 01793 604020 (switchboard) and ask for the duty Biomedical Scientist.

10 HIGH RISK SAMPLES

All samples should be regarded as potentially infectious.

Certain samples from patients who are known or suspected to have the following diseases/conditions constitute a potential higher risk of infection to persons handling the samples:

- Typhoid/paratyphoid fever (faecal samples only)
- Dysentery (faecal samples only)
- Tuberculosis (samples from sites where tuberculosis infection is likely)
- Anthrax
- Brucellosis
- Transmissible Spongiform Encephalopathy (including CJD)
- Viral haemorrhagic fever
- Avian Flu
- MERS/SARS respiratory syndrome, including SARS-CoV2

To minimise the risks ensure that such samples are packaged as follows:

- Attach a "Danger of Infection" label to the sample container and request form for all qualifying samples (available from Phlebotomy Department, GWH)
- Specify the nature of the risk on the request form
- Use unambiguous and commonly recognised terminology
- Place the sample in a sealable plastic bag and close the seal

This is a necessary procedure to safeguard both laboratory staff and other downstream workers. The labels must be used in accordance with the Trust Specimen Transportation Policy

Samples thought to constitute a risk to laboratory staff because of inadequate packaging or warning may be rejected.

The Consultant Microbiologist must be contacted **BEFORE** collecting samples from a patient suspected of having a viral haemorrhagic fever, human avian influenza, MERS/SARS or CJD. These organisms require special transport arrangements and specialist laboratories designed for containment during manipulation of samples and cultures.

These lists are not exhaustive and rarely other biological agents that can cause severe human disease, and present a serious hazard to employees, may be present in samples. If there is any suspicion of a high risk atypical organism advice on sample collection and transport should be sought from the Consultant Microbiologist.

11 Samples from patients categorised as 'high possibility of vhf' and samples from patients with confirmed vhf

Instructions for sample transportation of suspected VHF samples are defined in the Trust Specimen Transportation Policy and are formulated in line with current ACDP guidance.
The laboratory MUST be notified prior to receipt of all samples. In cases of difficulty or further clarification, the laboratory enquiry telephone number is 01793 604798.

12 SAMPLE ACCEPTANCE CRITERIA

Sample acceptance criteria ensure adequate identification for Microbiology samples and their requests for them to be accepted by the laboratory for analysis.

The laboratory will make every effort to ensure requests are processed in a safe and timely manner, but it is essential that requests and samples are labelled appropriately and legibly in compliance with this policy. It is also important to clearly identify the investigations required with relevant supporting information. Inadequate or inaccurate labelling may cause delays in producing Microbiology results and hence impact patient care. If you have any doubts regarding this policy, please ring the relevant department for further information.

The requesting clinician is responsible for the correct completion of the request (whether this be electronic or paper) and the correct labelling of the sample. It is recommended that patient collected samples (e.g. urine, stools) are labelled first by the requesting clinician to minimise the risk of labelling errors.

It is the requester's responsibility to ensure that all details are correct, clearly written and that the sample details match those on the form and patient wrist band (if applicable).

Any labelling discrepancy will be included on the Microbiology report.

Samples will **not** be accepted for analysis if:

- There is no unique identification of the patient i.e. they do not meet the minimum data set for identification
- There is an incorrect sample type or tube
- Incorrect transportation conditions
- Sample is received in a hazardous condition e.g. leaking or sharps attached
- Sample or request form is unlabelled or incorrectly labelled with less than the minimum data sets for patient identification
- Mismatch of details between the form and sample(s)
- The information provided is illegible

Inadequately or inaccurately labelled samples or forms will not be accepted unless they are unrepeatable or reproducible. A classification of unrepeatable or unreproducible will be made by the Consultant Microbiologist and/or Microbiology Management staff on an individual basis. The risk to the patient of rejection of the sample will be weighed against the risk of acceptance of a wrongly labelled sample. Microbiology will accept no responsibility for samples analysed which initially failed to meet the acceptance criteria and will issue a disclaimer on such reports.

Where the sample is repeatable/ reproducible, no analysis will be performed, and an appropriate comment will be included on the Microbiology report. The event may be reported as an incident on the Trust incident report system.

13 REPERTOIRE OF TESTS (A – Z)

This section covers the tests that the Microbiology department offers according to the service repertoire agreed with our users. Costs of tests may be made available on request to the Laboratory Manager.

Find a test or clinical condition using the A – Z list. With each test we provide the following information where appropriate:

- Name of test
- Examinations offered
  - Which sample containers are required
  - What specimen type is required
  - What sample volume is required
  - Which request form should be used
- Sample instructions
  - Collection of the specimen
  - Specimen transportation requirements
  - Specimen storage requirements
  - Special requirements for performing this examination
- Laboratory information
  - What test will be performed
  - Measurement units of examination performed
  - Biological reference intervals of examination performed
  - Turnaround time of examination performed
  - When the test is available
- Clinical information
  - Factors known to significantly affect the results

For more information on any of these tests see the 'Lab Tests Online' UK website. Almost all examinations are based on NICE accredited UK Standards for Microbiology Investigations (SMI) hosted by Royal College of Pathologists.

13.1 Reference Intervals

Reference intervals for any test are specific to that test and laboratory methodology. Reference intervals will be displayed with the patient results taking these factors into account.

These will be available, whether the result is sent via paper, through ward/web enquiries or via the electronic links to General Practice.

13.2 Referred Tests

The laboratory provides a range of specialist testing which is undertaken at reference centres. These tests are indicated within this section. Please contact the laboratory on Telephone 01793 604798 for details of the tests offered, name and location of the testing laboratory and information regarding any special sample requirements.

The parameters analysed in referred tests and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.

13.3 Repertoire index

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

A

Abscesses and deep-seated wound infections
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Antenatal serology
Antibiotic levels
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Aspergillus PCR
Aspergillus serology
Astrovirus
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Avian influenza
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B

Bacteraemia
Bacteriuria
Bartonella serology
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Burns
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C

Candidosis
Carbapenemase-producing Enterobacteriaceae (CPE) screen
Cellulitis
Chicken pox (diagnostic)
Chicken pox IgG (immunity)
Chicken pox PCR
Chikunguna, Murray, Ross River, O.Tsusu, Sandfly
Chlamydia trachomatis antibody

Chlamydia trachomatis PCR
Chlamydia trachomatis PCR – collection of urine sample
Chlamydia trachomatis PCR – collection of vaginal sample
Chlamydia LGV PCR
Clostridium difficile toxin
Clostridium difficile toxin ribotyping
Conjunctivitis
Contact lens
Continuous ambulatory peritoneal dialysis (CAPD) fluid
Corneal scrape
Cough swab
COVID-19 PCR
CPE screen
Cryptococcal antigen
CSF (Cerebrospinal fluid) microscopy and culture
CSF (Cerebrospinal fluid) oligoclonal bands
CSF (Cerebrospinal fluid) virology PCR
Culture
Culture: Wounds (deep-seated)
Culture: Wounds (skin, superficial, non-surgical)
Cystic fibrosis
Cytomegalovirus (CMV) serology
Cytomegalovirus (CMV) PCR

D

Dermatological specimens – hair, skin, nails
Dengue and West Nile virus
Diphtheria serology
Dysuria

E

Ear swab culture
Ebola
Enteric virus PCR
Enterovirus PCR
Epstein Barr virus (EBV) serology
Epstein Barr virus (EBV) PCR
Eye and canalicular pus culture

F

Faeces culture
Faeces: Calprotectin
Faeces: Clostridium difficile
Faeces: Enteric virus panel
Faeces: Norovirus
Faeces: Parasitology

Faeces: Rotavirus
Fluids from normally sterile sites
Folliculitis

G

Genital swab culture (female)
Genital specimens (excluding female genital swabs)
Glucan (Mycology)

H

Haematuria
Haemophilus influenzae PCR
Haemophilus influenzae type b IgG
Helicobacter pylori IgG
Hepatitis A virus (HAV) IgG
Hepatitis A virus (HAV) IgM
Hepatitis B virus (HBV) confirmation
Hepatitis B virus (HBV) core IgG antibody
Hepatitis B virus (HBV) core IgM antibody
Hepatitis B virus (HBV) surface antibody
Hepatitis B virus (HBV) surface antigen
Hepatitis B virus (HBV) viral load (PCR)
Hepatitis C virus (HCV) antibody
Hepatitis C virus (HCV) confirmation
Hepatitis C virus (HCV) genotype
Hepatitis C virus (HCV) qualitative PCR
Hepatitis C virus (HCV) viral load
Hepatitis D (delta) virus antibody
Hepatitis E (HEV) IgM & IgG
Hepatitis E (HEV) PCR
Herpes simplex virus (HSV) antibody
Herpes simplex virus (HSV) type 1 and 2 PCR
HIV-1 and 2 antigen/antibodies and p24 antigen
HIV confirmation
HIV resistance, integrase, tropism
HIV vertical transmission (neonates)
HIV viral load (PCR)
Human Herpes 6 (HHV) PCR
Human T lymphotrophic virus (HTLV) 1 and 2 serology
Hydatid serology

I

Impetigo
Infective endocarditis
Influenza A
Influenza B

Intravascular cannulae

J

JC virus PCR
Joint fluid

K

L

Legionella urinary antigen
Leptospira serology
Lyme disease

M

Measles (diagnostic)
Measles IgG (immunity)
Meningitis
Meningococcal antibody
Meningococcal PCR
Metapneumonvirus
Mouth swab
MPox
MRSA
Mumps (diagnostic)
Mumps IgG (immunity)
Mycobacteria
Mycobacteria PCR
Mycology
Mycology PCR
Mycology serology
Mycoplasma genitalium
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N

Neisseria gonorrhoeae PCR
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O

Otitis externa
Otitis media
Ova, cysts and parasites

P

Panfungal PCR (18S)
Pan-valentine leukocidin (PVL) toxin detection
Parainfluenza virus
Parasitology (Bilharzia/*Schistosoma haematobium*)
Parasitology (Pinworm)
Parasitology (serology)
Parasitology (Stool)
Parasitology (Worm identification)
Paronychia
Parotitis
Parvovirus PCR
Parvovirus serology
Pericardial fluid
Peritoneal dialysis fluid (PDF)
Peritoneal fluid
Pharyngitis
Pleural fluid
Pneumococcal PCR
Pneumococcal serology
Pneumococcal urinary antigen
Pneumocystis (IF)
Polyoma viruses (BK)
Polyoma viruses (JC)
Prosthetic valve endocarditis
Pseudomonas serology
Pus
Pyuria

Q

Q fever serology

R

Respiratory samples for culture
Respiratory syncytial virus (RSV)
Respiratory virus PCR
Rhinovirus
Rotavirus
Rubella (diagnostic)
Rubella IgG (immunity)

S

Sapovirus
Sepsis
Skin, superficial, non-surgical wounds
Sputum
Sterile fluid

Streptococcal serology (ASO)
Streptococcus pneumonia serology
Syphilis antibody
Syphilis confirmation

T

TB examination
TSPOT.TB (latent TB testing)
Tetanus antibody
Throat swab
Tips/intravascular cannulae
Tissues and biopsies
Toxoplasma (diagnostic)
Toxoplasma IgG (immunity)
Treponema pallidum antibody
Treponema palldium confirmation
Treponema pallidum PCR

U

Ulcers
Urinary tract infection
Urines (microscopy and culture)

V

Varizella zoster virus (VZV) IgG (immunity)
Varicella zoster virus (VZV) PCR
Viral haemorrhagic fever (VHF)
Virus isolation

W

West Nile virus
Whooping cough
Wounds (skin, superficial, non-surgical)
Wounds (deep-seated)

X

Y

Z

Zika virus

Abscesses and deep-seated wound infections

Abscesses are accumulations of pus in the tissues and any organism isolated from them may be of significance. They occur in many parts of the body as superficial infections or as deep-seated infections associated with any internal organ.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Collection of pus or exudate	Minimum volume 1ml of pus	
	Amies transport swab	Swabs should be well soaked in pus	
Sample instructions			
Collection	Optimally collected before antimicrobial therapy started. Collection of pus or exudate is always preferable to swabs, except when in tiny amounts, then sample the deepest part of the wound avoiding superficial microflora.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.		
Special requirements	Important to indicate site and nature of lesion.		
Laboratory information			
Tests	Microscopy for detection of gram positive and negative bacteria (semi-quantitative) (pus). General isolation and characterisation of aerobic, microaerophilic and anaerobic micro-organisms (qualitative).		
Measurement units	Growth detected or not detected.		
Biological reference units			
Turnaround time	4 days, plus 2 days for enrichment culture (pus).		
Availability	Routine hours and on-call (pus).		
Clinical information			
Factors known to significantly affect the results	The recovery of anaerobes is compromised if transport time exceeds 3 hours. Delays in transportation may affect the recovery of pathogens.		

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Adenovirus PCR

Diagnosis of acute disease.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	EDTA blood	Minimum volume 500µl	
	Eye swab (virus transport medium)		
	Stool sample	<20ml	
Sample instructions			
Collection	Send a viral (green top) swab of vesicle fluid or affected mucous membranes. Faeces specimen may be passed into a clean, dry, disposable bedpan or similar container and transferred to an appropriate collection container.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Amoebic serology

Used to determine past or current infection.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	

Sample instructions	
Collection	No special requirements.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	Clinical details and date of onset are essential for processing.
Laboratory information	
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.
Measurement units	
Biological reference units	
Turnaround time	14 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	Haemolysis.

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Antenatal serology

Infectious Disease in Pregnancy (IDP) screening.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	Use an antenatal screening department approved request form

Sample instructions	
Collection	No special requirements.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	Requests for blood borne virus testing must be clearly indicated as accepted by the patient and signed by the requesting clinician. Remaining serum sample stored for 2 years.
Laboratory information	
Tests	Detection of Hepatitis B surface antigen (qualitative) Detection of HIV-1 and 2 antibodies and HIV antigen (qualitative) Detection of Treponema pallidum antibody (qualitative)
Measurement units	
Biological reference units	
Turnaround time	7 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	Haemolysis.

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Antibiotic levels

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	

Sample instructions	
Collection	No special requirements.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	Urgent requests and out of hours requests must be discussed with the Microbiology Consultant. Please state: • Whether pre-dose, post-dose or random dose. • mg of last dose given • Date and time of last dose • Date and time that sample was taken **Gentamicin and Vancomycin assays:** These are performed by the Biochemistry department at GWH.

Laboratory information	
Tests	Other Antibiotic Level tests are processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.
Measurement units	
Biological reference units	
Turnaround time	48 hours.
Availability	Routine hours.

Clinical information	
Factors known to significantly affect the results	Haemolysis.

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Anti-streptolysin (ASO) titres

Used to determine past or current infection.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	

Sample instructions	
Collection	No special requirements.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	Clinical details and date of onset are essential for processing.
Laboratory information	
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.
Measurement units	
Biological reference units	
Turnaround time	14 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	Haemolysis.

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Aspergillus PCR

Diagnosis of acute disease.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	EDTA blood	Minimum volume 5ml	
	Sputum/BAL	Minimum volume 1ml	
	CSF	Minimum volume 0.5ml	
Sample instructions			
Collection	**Sputum specimens/ bronchoalveolar lavage/bronchial washings** Refer to Respiratory samples for culture. **Cerebrospinal fluid (CSF)** Refer to CSF microscopy and culture.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Aspergillus serology

Used to determine past or current infection.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Avian precipitins

Used to investigate bird breeders lung. This test covers budgie and hen antibody.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Bartonella

Antibody testing for *B. henselae* and *B. quintana*, previously available, has been withdrawn as a UKHSA service and is not currently available.

UKHSA does offer a developmental Bartonella PCR service, which may be offered in some circumstances. For information about testing, please contact RIPL on 01980 612348. The laboratory is happy to discuss and advise on diagnosis and clinical cases.

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Beta Glucan test

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	One whole red top is required for this test i.e. if Beta Glucan is requested along with other tests, one separate red top will be needed just for this test.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units	pg/mL		
Biological reference units			
Turnaround time	48-96 hours		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysed samples. Lipemic samples Icteric samples		

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BK virus PCR

Diagnosis of acute disease.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	EDTA blood	Minimum volume 5ml	
	CSF	Minimum volume 0.5ml	
	Urine	Minimum volume 5ml	
Sample instructions			
Collection	**Cerebrospinal fluid (CSF)** Refer to CSF microscopy and culture. **Urine** Refer to Urine (microscopy and culture).		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Blood cultures

Bacteria are not normally found in the blood - any growth is usually significant *however* contamination from normal skin flora can easily take place. A strict aseptic technique is essential.

Blood cultures are not a 'routine' investigation. Take only when active clinical infection is suspected and where possible before antibiotics have been given. Take during or as soon as possible after a spike of temperature. Do not remove or cover up barcode labels as these are required in the laboratory.

The following list serves as a guide for when blood cultures should be considered:

- Fever ≥ 38ºC (suspected bacterial or fungal cause)
- Pyrexia of unknown origin (PUO)
- Rigors
- Febrile convulsion (paediatrics)
- Sepsis, septicaemia or septic shock
- Febrile neutropenia
- Pneumonia
- Meningitis
- Meningococcaemia/petechial, purpuric or non-blanching rash
- Enteric fever (typhoid)
- Infective endocarditis or other endovascular infection
- Pyelonephritis
- Pancreatitis
- Septic arthritis
- Intravascular catheter/cannula infection
- Enteric fever (e.g. typhoid)

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
Children – yellow top bottle.  Adults – grey top and purple top bottle. 	Venous blood, arterial blood, blood via IV line. Ascetic fluid, pleural fluid.	Children – Recommended volume is 1–3 mL. Adults – Recommended specimen volume is 8–10 mL.	

Sample instructions	
Collection	A blood culture set is defined as one aerobic and one anaerobic bottle. For infants and neonates a single aerobic bottle may be requested. For patients with suspected endocarditis collect 2 sets from separate venepunctures at different times. Refer to Blood Culture Method Options.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours. *Do not use pneumatic chute system.*
Storage requirements	Inoculated bottles should be incubated as soon as possible. Outside of normal working hours samples must be stored at ambient temperature in Pathology Reception. DO NOT refrigerate blood cultures.
Special requirements	Collect specimens before antimicrobial therapy where possible. Samples should be taken as soon as possible after a spike of fever.
Laboratory information	
Tests	Detection of gram positive and negative bacteria (semi-quantitative). General isolation and characterisation of aerobic, microaerophilic and anaerobic micro-organisms (qualitative).
Measurement units	Growth detected or not detected.
Biological reference units	
Turnaround time	1 – 5 days, depending on positivity. Significant positive results are communicated to clinicians as and when they arise.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	Any recent antimicrobial therapy can have a significant effect on blood culture results by decreasing the sensitivity of the test. This may be of particular importance in those patients receiving prophylactic antibiotics and who are at high risk of bloodstream infections. If patients have received previous antimicrobial treatment, bacteraemia should be considered even if blood culture results are negative. There is a direct relationship between blood volume and yield, with approximately a 3% increase in yield per ml of blood cultured. False negatives may occur if inadequate blood culture volumes are submitted.

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Blood culture collection

1. BD BACTEC™ bottle and skin preparation

i)

Mark bottle label corresponding to the recommended fill level indicated on the bottle label.

ii)

Remove plastic flip-off cap from the bottle. Disinfect the rubber septum with a 70% isopropyl alcohol swab and allow to dry.

iii)

Disinfect the venepuncture site with 70% isopropyl alcohol and allow to dry (> 60 seconds).

2a. Collecting blood sample using BD Vacutainer® Push Button Blood Collection Set

i)

Hold the wings together using your thumb and index finger. Access the vein using standard needle insertion technique.

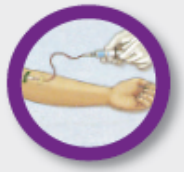
If your institution prefers, hold the body of the blood collection set instead of the wings during insertion.

Correct venous access is indicated by a "flash" that appears directly behind and below the push button.

ii)

When collecting blood using a wingset, it is recommended that you use a discard tube to prime the wingset tubing first. Then collect blood into blood culture bottles. Push and hold the BD Vacutainer® holder over the top of the bottle. Fill aerobic bottle first, then anaerobic bottle, holding them upright. Collect blood to indicated fill level.

iii)



If required, BD Vacutainer® blood collection tubes may be drawn at this time by inserting them into the BD Vacutainer® holder.

iv)

For maximum safety, the device is designed to be activated while still in the patient's vein. Place a gauze pad on the venepuncture site. Allow it to cover the front barrel. After collection, grasp the body of the device with thumb and middle finger, and activate the push button using your index finger. Do not impede device retraction.

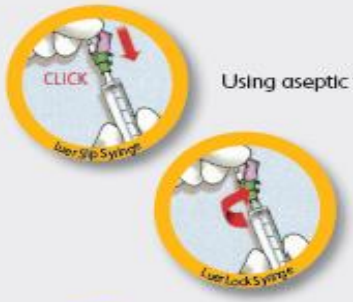
v)

Apply pressure to the venepuncture site in accordance with your institution's protocol.

vi)

Make sure that the needle is fully retracted and is in the shielded position.

2b. Collecting blood samples using needle and syringe in specific cases

i) 

Using aseptic technique, attach needle to the syringe.

ii) 

Insert the needle into prepared vein and collect 10 to 20 mL of blood in syringe.

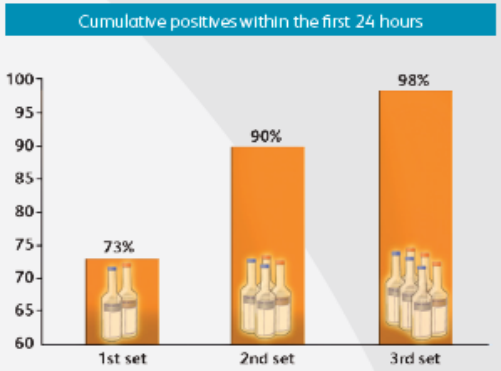
iii) 

Withdraw needle and activate the safety shield.

iv) 

Distribute blood with BD Vacutainer® Blood Transfer Device into anaerobic then aerobic bottles.

5. Additional Cultures



It is generally recommended to collect 2-3 blood culture sets for children (> 36 kg body weight) and adult patients. Additional cultures may be collected in a similar way. Ideally, a different venepuncture site should be used for each culture set collected. The clinical status of the patient should be the primary guide to the timing of blood cultures.[1]

Repeat steps 1-4 for additional cultures.

For BD Customer Service, please call 01865 781666, Option 1

Reminder - order of draw

When collecting blood samples using BD Vacutainer® Push Button or BD Safety-Lok™ Blood Collection sets:

First collect blood into the BD BACTEC™ aerobic bottle, then the anaerobic bottle

When collecting blood samples using needle and syringe:

First collect blood into the BD BACTEC™ anaerobic bottle, then the aerobic bottle

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Bordetella pertussis

Suspect pertussis in patients with a cough illness lasting 14 days or more without an apparent cause plus one of the following: (a) paroxysms of coughing; (b) inspiratory 'whoop'; (c) post-tussive vomiting.

Recommended tests for pertussis testing vary according to the length of time since cough onset:

Less than 2 weeks from cough onset:	PCR and culture
Between 2 and 3 weeks from cough onset:	PCR and culture and either oral fluid kit (if aged 2 to <17)
More than 3 weeks from cough onset:	Either oral fluid kit (if aged 2 - <17 yrs) or serology

Requesting an oral fluid kit:
For cases aged 2 years to less than 17 years, notify the case to your local HPT and they will post an oral fluid kit (OFK) directly to the case. Note that oral fluid testing is not recommended if the case has been immunised against pertussis in the previous year as a positive result cannot be interpreted.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Pernasal swab (culture)		
	Green viral swab (PCR)		
	Venous blood (serology)		

Sample instructions	
Collection	A pernasal swab is inserted through a nostril and advanced along the floor of the nose until it reaches the nasopharynx. Optimally collected before antimicrobial therapy started.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.
Special requirements	No special requirements.
Laboratory information	
Tests	General isolation and characterisation of Bordetella species.
Measurement units	
Biological reference units	
Turnaround time	7- 14 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	Delays in transportation may affect the recovery of pathogens.

Borrelia burgdorferi (Lyme) antibody

Used to determine past or current infection.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	

Sample instructions	
Collection	No special requirements.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	Clinical details, date of onset and bite/travel history are essential for processing.
Laboratory information	
Tests	Detection of Lymes IgM antibody (qualitative). Detection of Lymes IgG antibody (qualitative). Equivocal and positive results will be referred for Borrelia burgdorferi immunoblot.
Measurement units	
Biological reference units	
Turnaround time	7 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	Haemolysis.

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Brucella serology

Used to determine past or current infection. PCR may be carried out at reference laboratory's discretion.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details and any history of travel or occupational exposure are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Carbapenemase-producing Enterobacteriaceae (CPE) screen

In response to the increasing numbers of CPE producing clinical isolates of Enterobacteriaceae the Infection Control Team and Microbiology department have produced a protocol for CPE screening and detection. The isolation of a clinical CPE isolate prompts the Infection Control Team to screen all possible patient contacts to reduce the transmission of resistance enzymes within the Trust.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Rectal swab (Amies transport swab)		
	Stool sample	<20ml	
Sample instructions			
Collection	Optimally collected before antimicrobial therapy started. Faeces specimen may be passed into a clean, dry, disposable bedpan or similar container and transferred to an appropriate collection container. Rectal swabs must have evidence of stool on swab for optimal sensitivity.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.		
Special requirements	Rectal swabs with no visible faecal material present will be rejected.		
Laboratory information			
Tests	General isolation and characterisation of carbapenemase producing Enterobacteriaceae (qualitative).		
Measurement units	Growth detected or not detected.		
Biological reference units			
Turnaround time	Negative screen 24 hours. Positive result 4 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results			

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Chikungunya, Murray, Ross River, O.Tsusu, Sandfly

Used to determine past or current infection.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details, date of onset and travel history are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Chlamydia trachomatis antibody

Used to determine past infection during investigations for infertility in women.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Testing can only be carried out on female patients.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Chlamydia trachomatis PCR

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Eye, cervical, urethral, throat, rectal swab (Chlamydia transport medium)		
	Urine (first void) (Chlamydia transport medium)	Minimum volume 2ml	
	Urine (first void)	Minimum volume 2ml	

Sample instructions

Collection

Specimens should be collected and handled following the recommended guidelines on the collection packs.
Refer to Chlamydia PCR – collection of vaginal sample and Chlamydia PCR – collection of urine sample.

Urine specimens submitted from non-Sexual Health Clinic locations can be submitted in white topped universal containers for transfer into Chlamydia transport medium in the laboratory.

Endocervical or self-taken vaginal swab
An endocervical swab is the specimen of choice for diagnosing Chlamydia trachomatis as it has a higher sensitivity than a urine sample or a self-taken vaginal swab. White cells and blood can produce either an invalid or false negative result and thus excess mucus/pus should be removed from the endocervix with the accompanying swab prior to taking the sample.
NB. Only one swab is required for a self-taken vaginal swab; the cleaning swab must not be used and should be discarded.

Men
The patient should not have urinated for at least one hour. Collect approximately 10-20 mls of first voided urine into a sterile white capped universal container.

Eye swabs
Do not use fluorescein as this can interfere with the test.
Apply a local anaesthetic. Remove excess exudate using one of the swabs from a female PCR sample kit; discard the cleaning swab. Using the remaining swab, firmly swab the inner surface of upper and lower eyelids to collect epithelial cells. Do NOT pre-moisten the swab in the transport medium. Place swab in sample tube, snap off at the score line and replace cap.

Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	Urine – patient should not have urinated for 2 hours prior to sample collection.
Laboratory information	
Tests	Detection of Chlamydia trachomatis nucleic acid (qualitative).
Measurement units	Presence detected or not detected.
Biological reference units	
Turnaround time	4 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. White cells and blood can produce either an invalid or false negative result. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.

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Chlamydia trachomatis PCR – collection of urine sample

Aptima® urine collection kit
Collection procedure guide

Collection for male and female urine specimens

Patient should not have urinated for at least 1 hour prior to specimen collection.

Urine specimen collection guide for:

- *Chlamydia trachomatis (CT)*
- *Neisseria gonorrhoeae (GC)*
- *Trichomonas vaginalis (TV)* for female only

Direct patient to provide **first-catch** urine (approximately 20 to 30 mL of initial urine stream) into urine collection cup free of any preservatives. Collection of larger volumes of urine may result in specimen dilution that may reduce test sensitivity. Female patients should not cleanse labial area prior to providing specimen.

Remove cap from urine specimen transport tube and transfer 2 mL of urine into urine specimen transport tube using the disposable pipette provided. The correct volume of urine has been added when the fluid level is between the black fill lines on urine specimen transport tube label.

Re-cap urine specimen transport tube tightly.
This is now known as the "processed urine specimen."

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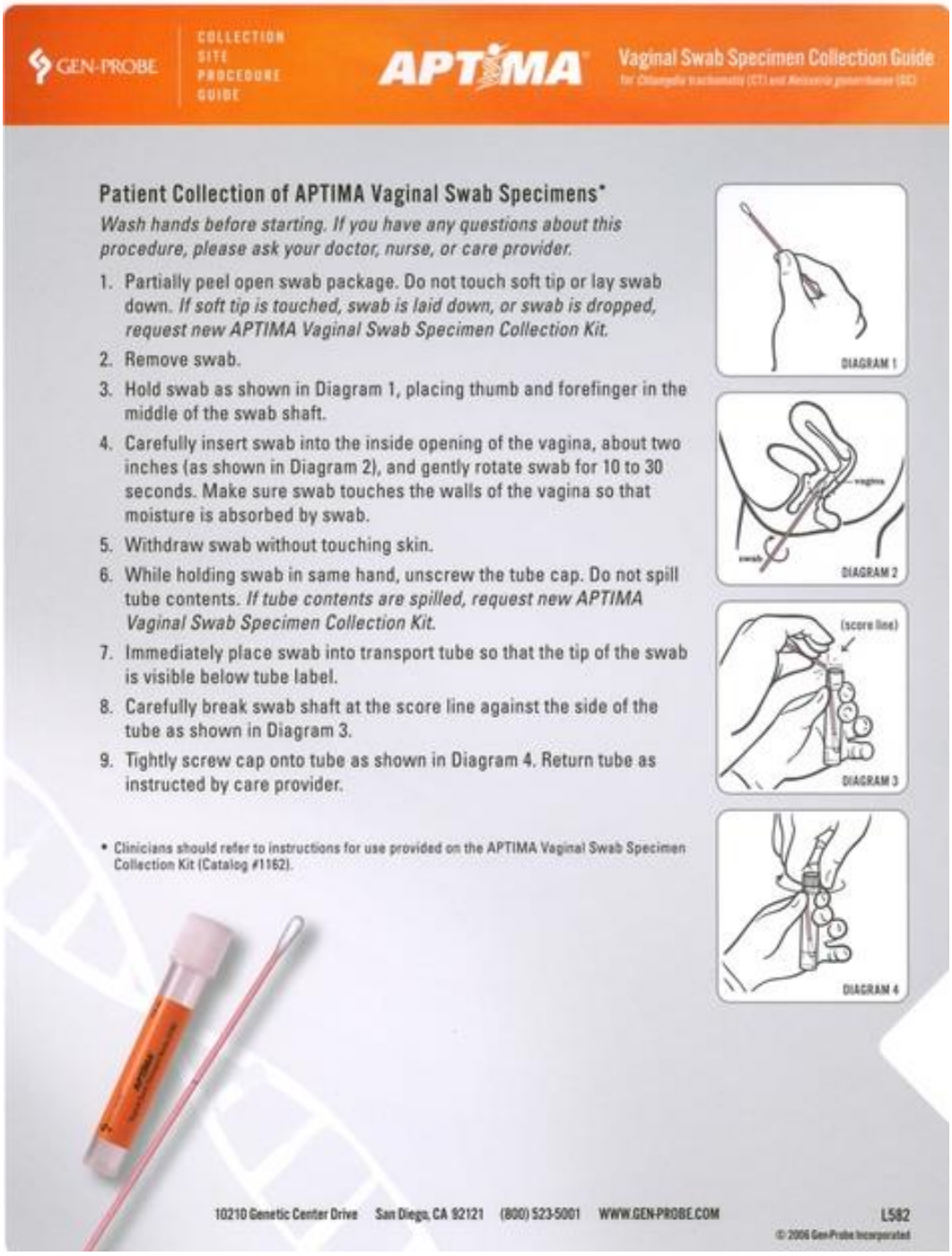
Chlamydia trachomatis PCR – collection of vaginal sample



GEN-PROBE COLLECTION SITE PROCEDURE GUIDE

APTIMA Vaginal Swab Specimen Collection Guide

for *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (GC)

Patient Collection of APTIMA Vaginal Swab Specimens*

Wash hands before starting. If you have any questions about this procedure, please ask your doctor, nurse, or care provider.

1. Partially peel open swab package. Do not touch soft tip or lay swab down. *If soft tip is touched, swab is laid down, or swab is dropped, request new APTIMA Vaginal Swab Specimen Collection Kit.*
2. Remove swab.
3. Hold swab as shown in Diagram 1, placing thumb and forefinger in the middle of the swab shaft.
4. Carefully insert swab into the inside opening of the vagina, about two inches (as shown in Diagram 2), and gently rotate swab for 10 to 30 seconds. Make sure swab touches the walls of the vagina so that moisture is absorbed by swab.
5. Withdraw swab without touching skin.
6. While holding swab in same hand, unscrew the tube cap. Do not spill tube contents. *If tube contents are spilled, request new APTIMA Vaginal Swab Specimen Collection Kit.*
7. Immediately place swab into transport tube so that the tip of the swab is visible below tube label.
8. Carefully break swab shaft at the score line against the side of the tube as shown in Diagram 3.
9. Tightly screw cap onto tube as shown in Diagram 4. Return tube as instructed by care provider.

DIAGRAM 1

DIAGRAM 2

(score line)

DIAGRAM 3

DIAGRAM 4

* Clinicians should refer to instructions for use provided on the APTIMA Vaginal Swab Specimen Collection Kit (Catalog #1162).

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Chlamydia LGV PCR

Chlamydia LGV PCR would only be performed on a Chlamydia positive rectal sample.
To diagnose LGV, different samples from those listed may be indicated; please discuss with Consultant Medical Microbiologist.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Rectal swab (Chlamydia transport medium)		
Sample instructions			
Collection	Specimens should be collected and handled following the recommended guidelines on the collection packs.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	LGV PCR will only be tested on rectal swabs which have tested positive for *C. trachomatis*. Currently only samples from patients' assigned male at birth and whose gender identity is male and ALL trans patients will be applicable for LGV PCR.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Clostridium difficile toxin

C. difficile is a Gram positive, spore forming, strictly anaerobic rod, so named because of the difficulty in original culture and characterisation. Toxigenic strains produce large protein toxins A and B, both being major virulence factors. Most disease associated with *C. difficile* is intestinal though *C. difficile* may be isolated from blood or tissues.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Stool sample	<20ml	

Sample instructions	
Collection	Specimen may be passed into a clean, dry, disposable bedpan or similar container and transferred to an appropriate collection container.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.
Special requirements	Formed stools are unsuitable for investigation for C.difficile. Clostridium difficile toxin test performed on in-patient samples, patients over 65yrs or if history of antibiotic-associated diarrhoea. Children less than 2 years old are unsuitable for investigation for C.difficile. Investigation not performed if a positive result within previous 28 days.
Laboratory information	
Tests	Glutamate dehydrogenase (GDH) detection (qualitative), Clostridium difficile toxin A and B detection (qualitative) and PCR ribotyping of Clostridium difficile (qualitative).
Measurement units	Toxin detected or not detected.
Biological reference units	
Turnaround time	1 day.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	

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Clostridium difficile toxin ribotyping

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Stool sample	<20ml	

Sample instructions	
Collection	Specimen may be passed into a clean, dry, disposable bedpan or similar container and transferred to an appropriate collection container.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.
Special requirements	Investigation performed at request of Infection Control.
Laboratory information	
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.
Measurement units	
Biological reference units	
Turnaround time	14 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	

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Contact lens

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Contact lens case or sterile container with saline		

Sample instructions	
Collection	No special requirements.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.
Special requirements	No special requirements.

Laboratory information	
Tests	Gram stain and culture.
Measurement units	Growth detected or not detected.
Biological reference units	
Turnaround time	5 days.
Availability	Routine hours and on-call.

Clinical information	
Factors known to significantly affect the results	Delays in transportation may affect the recovery of pathogens.

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Corneal scrape

Keratitis is an inflammation of the cornea which is a serious condition requiring prompt and meticulous investigation and may progress to perforation and blindness if treatment is unsuccessful. Predisposing factors include prior ocular disease, wearing contact lenses and use of topical corticosteroids. The condition may be caused by a wide range of bacteria, fungi and parasites.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
Chocolate agar SAB agar FAA agar Acanthamoeba plate Microscope slide	Aqueous and vitreous humour, corneal scrapings. Direct inoculation onto culture plates and microscope slide	Sufficient quantity to make a visible deposit on to a microscope slide and to inoculate agar plates	

Sample instructions	
Collection	Optimally collected before antimicrobial therapy started. Performed by trained staff according to Trust policy: • Performed after instillation of local anaesthetic eye drops • Use sterile needle or loop to scrape base of ulcer • Carefully spread material onto glass slide (circle area with permanent marker) for Gram staining and/or • Carefully smear material onto agar plate If insufficient specimen to make an impression smear and inoculate plates, cultures should be the priority.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours and on-call.
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.
Special requirements	Contact the laboratory (Telephone 01793 604798) if Acanthamoeba plate required for Acanthamoeba culture,24 hours in advance of specimen collection.
Laboratory information	
Tests	Gram stain and culture.
Measurement units	Growth detected or not detected.
Biological reference units	
Turnaround time	5 days.
Availability	Routine hours and on-call.
Clinical information	
Factors known to significantly affect the results	Where media and smears are inoculated at the patient's side they must be transported immediately to the laboratory for processing. Delays in transportation may affect the recovery of pathogens.

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COVID-19 PCR

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Viral swab in transport media	Nose and throat swab	

Sample instructions	
Collection	Nose and Throat swab collected wearing correct PPE. Swabs should be double bagged. Do **not** remove viral transport media from sample container.
Specimen transport	Specimens should be taken directly to Microbiology during working hours where appropriate to prevent delay of results. Outside working hours samples should be taken to Pathology Reception.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	Clinical details are essential for processing. Do **not** ring the laboratory for results. For rapid testing please speak to the Site Managers.
Laboratory information	
Tests	SARS-CoV2 PCR Test
Measurement units	N/A
Biological reference units	N/A
Turnaround time	Rapid: 2 hours* Routine: 6-8 hours* *From receipt in laboratory
Availability	Weekday: Routine hours Weekend: Routine hours with scope for site approved rapid testing at 16:00
Clinical information	
Factors known to significantly affect the results	Results may be affected by improperly collected samples, low or insufficient viral material present in the specimen and/or delays in transport and processing times. Detection of low-level viral RNA may not be of clinical significance. Results produced cannot rule out infections/disease from other viral and bacterial pathogens.

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Cryptococcal antigen

Used to determine past or current infection.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
	CSF	Minimum volume 0.5ml	
Sample instructions			
Collection	**Cerebrospinal fluid (CSF)** Refer to CSF microscopy and culture.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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CSF (Cerebrospinal fluid) microscopy and culture

Meningitis is defined as inflammation of the meninges. This process may be acute or chronic and infective or non-infective. Many infective agents have been shown to cause meningitis, including viruses, bacteria, fungi and parasites.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	CSF	Minimum volume 1ml	

Sample instructions	
Collection	Optimally collected before antimicrobial therapy started. Do not delay antibiotic administration if clinically indicated. Sample taken using a strict aseptic technique by trained medical staff in line with Trust procedure. Dispense CSF (minimum 0.5ml in each bottle) into at least 3 sterile single use containers and label in order of removal, plus a fluoride bottle for the estimation of glucose levels. Bottles should be labelled for departments in the following way: Bottle 1 – Virology Bottle 2 – Chemistry Last bottle - Microbiology Where meningococcal meningitis/septicaemia is suspected (particularly if antibiotics already give in community) also send: • Bacterial throat swab and request meningococcal culture • EDTA blood for meningococcal DNA PCR
Specimen transport	Specimens should be sent to the laboratory without delay during normal hours. Outside of normal hours samples should be placed in the pathology reception fridge and the on-call Microbiology Biomedical Scientist contacted through switchboard (Telephone 01793 604020). *Do not use pneumatic chute system if investigation for Xanthochromia required.*
Storage requirements	See above.
Special requirements	**Always contact the laboratory when sending specimens.** Ideally collect the CSF sample in 3 consecutive universal containers, labelled 1 to 3 accordingly.
Laboratory information	
Tests	Presence of white blood cells and red blood cells (quantitative). Differential of white blood cells (qualitative). Detection of Cryptococcus neoformans capsules (qualitative). Detection of gram positive and negative bacteria (semi-quantitative).

	General isolation and characterisation of aerobic, microaerophilic and anaerobic micro-organisms (qualitative).
Measurement units	Cell count x 10^6/l
Biological reference units	Leucocytes: Neonates 0 – 30 cells x 10^6/l 1 – 12 months 0 – 20 cells x 10^6/l Adults 0 – 5 cells x 10^6/l Erythrocytes: No red cells should be present in normal CSF*
Turnaround time	Microscopy 2 hours. Culture 2 days. Significant positive results are communicated to clinicians as and when they arise.
Availability	Routine hours and on-call.
Clinical information	
Factors known to significantly affect the results	Cells disintegrate. A delay in transportation may produce a cell count that is not reflective of the clinical situation of the patient. Delays in transportation may affect the recovery of pathogens.

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CSF (Cerebrospinal fluid) Oligoclonal bands

The presence of Oligoclonal bands in cerebrospinal fluid combined with their absence in blood serum often indicates that immunoglobulins are produced in central nervous system.

Oligoclonal bands are an important indicator in the diagnosis of multiple sclerosis.

The presence of one band (a monoclonal band) may be considered serious, such as lymphoproliferative disease, or may simply be normal — it must be interpreted in the context of each specific patient. More bands may reflect the presence of a disease. The bands tend to disappear from the cerebrospinal fluid as a person recovers from the neurological disease

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	CSF	Minimum volume 1ml	
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	Refer to CSF microscopy and culture.		
Specimen transport	Refer to CSF microscopy and culture.		
Storage requirements	Refer to CSF microscopy and culture.		
Special requirements	CSF and a paired venous blood sample are required for testing. Refer to CSF microscopy and culture.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units	mg/dL		
Biological reference units	N/A		
Turnaround time	6 weeks.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results			

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CSF (Cerebrospinal fluid) Viral PCR (Molecular Testing)

The standard viral PCR panel includes Enterovirus, Herpes simplex virus and Varicella-Zoster. Please contact the Microbiology Consultant if extended testing is required.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	CSF	Minimum volume 1ml	
Sample instructions			
Collection	Refer to CSF microscopy and culture.		
Specimen transport	Refer to CSF microscopy and culture.		
Storage requirements	Refer to CSF microscopy and culture.		
Special requirements	Refer to CSF microscopy and culture.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor. Detection of Enterovirus nucleic acid, Varizella-Zoster virus nucleic acid, Herpes Simplex Virus (HSV) type 1 (HSV-1) and HSV type 2 (HSV-2) nucleic acid (qualitative).		
Measurement units	N/A		
Biological reference units	N/A		
Turnaround time	4 days Significant positive results are communicated to clinicians as and when they arise.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Culture

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Amies transport swab		
	Collection of pus or exudate		
	Collection of pus or exudate		

Sample instructions	
Collection	Optimally collected before antimicrobial therapy started.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.
Special requirements	Please state anatomical site and nature of lesion on request form
Laboratory information	
Tests	Detection of white blood cells, gram positive and negative bacteria (semi-quantitative) (fluids/pus). General isolation and characterisation of aerobic, microaerophilic and anaerobic micro-organisms (qualitative).
Measurement units	Growth detected or not detected.
Biological reference units	
Turnaround time	4 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	Delays in transportation may affect the recovery of pathogens.

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Cystic fibrosis

Cystic fibrosis (CF) is caused by a defect in the CF transmembrane conductance regulator gene that affects the transport of ions and water across the epithelium. This leads to progressive pulmonary disease associated with pulmonary infections, which are the major cause of morbidity and mortality in CF patients. The major pathogens are *S. aureus*, *H. influenza* (usually non-encapsulated in CF patients), *S. pneumoniae, Burkholderia* and pseudomonads, particularly mucoid *P. aeruginosa* strains. Strains of *P. aeruginosa* with differing antibiotic susceptibilities may be isolated from a single sample.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Cough swab (Amies transport swab)		
	Sputum	Minimum volume 5ml	

Sample instructions	
Collection	Optimally collected before antimicrobial therapy started. **Sputum specimens** Refer to Respiratory samples for culture. **Cough swabs** Younger patients do not usually expectorate and cough swabs may be taken from the upper airway as an alternative to sputum samples.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.
Special requirements	No special requirements.
Laboratory information	
Tests	General isolation and characterisation of aerobic, microaerophilic and anaerobic micro-organisms (qualitative).
Measurement units	Growth detected or not detected.
Biological reference units	
Turnaround time	4 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	Delays in transportation may affect the recovery of pathogens. A positive cough swab is a strong predictor of a positive sputum sample; however, a negative cough swab cannot rule out lower airway infection and persistent symptoms should be further investigated, for example by BAL.

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Cytomegalovirus (CMV) serology

Diagnosis of acute/recent or reactivated disease (IgM) or if evidence of past infection/exposure required (IgG).

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	Detection of CMV IgM and IgG antibody (qualitative). This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	7 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Cytomegalovirus (CMV) PCR

Diagnosis of acute disease.

For diagnosis of congenital CMV send neonatal urine sample within first three weeks of life.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	EDTA blood	Minimum volume 500µl	
	Urine	Minimum volume 5ml	
Sample instructions			
Collection	**Urine** Refer to Urine (microscopy and culture).		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing. CMV DNA PCR is a specialist test – outside of these specialties discuss with the Consultant Microbiologist.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Dengue and West Nile virus

Used to determine past or current infection.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Diphtheria serology

Used to determine past or current infection.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	

Sample instructions	
Collection	No special requirements.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	Clinical details and any history of travel or occupational exposure are essential for processing.
Laboratory information	
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.
Measurement units	
Biological reference units	
Turnaround time	14 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	Haemolysis.

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Ear swab culture

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Ear swab (Amies transport swab)		

Sample instructions	
Collection	Optimally collected before antimicrobial therapy started.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.
Special requirements	For investigation of fungal infection, scrapings of material from the ear canal are preferred, although swabs can also be used.
Laboratory information	
Tests	General isolation and characterisation of aerobic, microaerophilic and anaerobic micro-organisms (qualitative).
Measurement units	Growth detected or not detected.
Biological reference units	
Turnaround time	4 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	Delays in transportation may affect the recovery of pathogens.

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Enteric virus PCR

Diagnosis of acute disease.

Enteric virus screen including:

- Adenovirus
- Astrovirus
- Rotavirus
- Sapovirus
- Norovirus

Rotavirus, sapovirus, astrovirus and adenovirus are major causes of acute gastroenteritis. The majority of infections occur in infants and young children. Infections in the elderly are also reported for these agents, and chronic infections can result in immunocompromised patients. Norovirus is the cause of epidemic gastroenteritis.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Stool sample	Liquid specimen: 1 – 2ml Formed specimen: large pea size sample	
Sample instructions			
Collection	Specimen may be passed into a clean, dry, disposable bedpan or similar container and transferred to an appropriate collection container.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days		
Availability	Routine hours.		

Clinical information	
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.

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Enterovirus PCR

Diagnosis of acute disease.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	EDTA blood	Minimum volume 500µl	
	Green viral swab	1mL	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Epstein Barr virus (EBV) serology

Assay useful in distinguishing individuals who have acquired the infection recently from those who have not (EBV IgM, EBV IgG, EBV confirmation (EBNA)). Detection of EBV IgM is consistent with acute disease, but may also be detectable in chronic or reactivated disease.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	State whether test for diagnosis of acute/recent or reactivated disease (IgM) or if evidence of past exposure required (IgG). Clinical details are essential to allow for interpretation.		
Laboratory information			
Tests			
Measurement units			
Biological reference units			
Turnaround time	7 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Epstein Barr virus (EBV) PCR

Diagnosis of acute disease.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	EDTA blood	Minimum volume 500µl	

Sample instructions	
Collection	No special requirements.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	Clinical details are essential for processing. EBV DNA PCR is a specialist test – outside of these specialties discuss with the Consultant Microbiologist.
Laboratory information	
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.
Measurement units	
Biological reference units	
Turnaround time	14 days
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.

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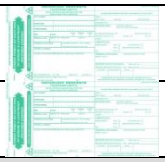
Eye and canalicular pus culture

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Collection of pus or exudate	Minimum volume 1ml of pus	
	Eye swab (Amies transport swab)		

Sample instructions	
Collection	Optimally collected before antimicrobial therapy started. Collection of pus or exudate is always preferable to swabs, except when in tiny amounts, then sample the deepest part of the wound avoiding superficial microflora. Hold the swab parallel to the cornea and gently rub the conjunctiva in the lower eyelid.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.
Special requirements	Separate samples should be collected into appropriate transport media for detection of viruses or C.trachomatis.
Laboratory information	
Tests	Detection of white blood cells, gram positive and negative bacteria (semi-quantitative). General isolation and characterisation of aerobic, microaerophilic and anaerobic micro-organisms (qualitative).
Measurement units	Growth detected or not detected.
Biological reference units	
Turnaround time	4 days, plus 2 days for enrichment culture (pus).
Availability	Routine hours and on-call (pus).
Clinical information	
Factors known to significantly affect the results	Delays in transportation may affect the recovery of pathogens.

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Faeces culture

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Stool sample	Liquid specimen: 1 – 2ml Formed specimen: large pea size sample	

Sample instructions	
Collection	Optimally collected before antimicrobial therapy started. Specimen may be passed into a clean, dry, disposable bedpan or similar container and transferred to an appropriate collection container.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.
Special requirements	Please provide information regarding recent foreign travel and antibiotic use.
Laboratory information	
Tests	Macroscopic assessment of consistency/appearance. Presence and identification Cryptosporidium and Giardia lamblia (qualitative). Detection of Cyclospora sp, Isospora sp and Cryptosporidium sp oocysts (qualitative). General isolation and characterisation of aerobic, microaerophilic and anaerobic micro-organisms (qualitative). Clostridium difficile toxin test performed on in-patient samples, patients over 65yrs or if history of antibiotic-associated diarrhoea. Rotavirus test performed on samples from children <5 years. Norovirus test performed only on instruction by the Infection Control Team in the investigation of outbreaks. Parasitology test performed on samples dependent on travel history and clinical syndrome. Repeat samples for microbiological clearance not usually required – Microbiologists will advise if necessary. Investigations not performed on in-patient stools within 30 days of a previous culture, within the same in-patient episode.
Measurement units	Growth detected or not detected.
Biological reference units	
Turnaround time	4 days. Significant positive results are communicated to clinicians as and when they arise.
Availability	Routine hours.

Clinical information	
Factors known to significantly affect the results	Delays in transportation may affect the recovery of pathogens.

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Faecal Calprotectin

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Stool sample	Liquid specimen: 1 – 2ml Semi-formed: large pea size sample	

Sample instructions	
Collection	Specimen may be passed into a clean, dry, disposable bedpan or similar container and transferred to an appropriate collection container.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated. Samples must be frozen on receipt into the laboratory. Delays of over 48 hours are undesirable.
Special requirements	Faecal Calprotectin is only available for GP patients, Gastroenterology and Childrens Unit.
Laboratory information	
Tests	Faecal Calprotectin
Measurement units	µg/g
Biological reference units	<100 µg/g - No evidence of IBD 100-<250 µg/g - Intermediate (Please repeat) >250 µg/g – IBD likely, refer to Gastroenterology
Turnaround time	7 days
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	Liquid stools are processed by the Immunology Department in Bristol. Formed stools are inappropriate for testing and will be rejected. Patients who are taking non-steroidal anti-inflammatory drugs (NSAIDs) may have elevations in their faecal calprotectin levels. Assay results should be interpreted in conjunction with other clinical and laboratory data to assist clinicians in making patient management decisions.

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Fluids from normally sterile sites

The detection of organisms in fluids that are normally sterile indicates significant infection, which can be life-threatening. Specimens may be taken primarily for culture or this may be incidental to the prime reason for obtaining the specimen.

Blood cultures may be positive with the same infecting organism, and occasionally may be positive when culture of the fluid fails to reveal the organism.

Fluids will be sterile in the absence of infection, as will "sympathetic effusions", and those of immunological or traumatic origin and those due to metabolic disease or heart failure.

Signs of infection may be difficult to detect clinically in patients whose joints are already inflamed due to rheumatological conditions. This is important because these patients are at increased risk of joint sepsis. Do not remove or cover barcodes on bottles as these are required by the laboratory.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Collection of amniotic fluid, bursa pericardial fluid, synovial (joint) fluid, peritoneal fluid (ascites), pleural fluid.	Minimum volume 1ml	
		Inoculate with the recommended volume of 8-10mL in each adult bottle, or 1-3mL for paediatric bottles.	

Sample instructions	
Collection	Optimally collected before antimicrobial therapy started. **Samples include:** Ascitic fluid: ?spontaneous bacterial peritonitis CAPD fluid: ?PD peritonitis Pleural fluid: ?empyema Synovial or bursa fluid: ?septic arthritis or bursitis Vitreous fluid: ?endophthalmitis Samples taken using strict aseptic technique – by trained medical staff in line with Trust procedure. Ideally a minimum volume of 1ml should be collected. Where adequate sample, inoculate also into blood culture bottle set.

	Note: Fluids from existing indwelling drains are not considered to be 'sterile'. As with urinary catheters, drains commonly become colonised and any culture of fluid taken through them may simply reflect colonisation rather than infection. Drain fluid samples should be sent only where there is a high degree of suspicion of infection.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	Clinical details are essential for processing. Total cell counts performed on Ascitic fluid SBP patients only.
Laboratory information	
Tests	Presence of white blood cells (quantitative) (ascitic fluid only). Detection of crystals (qualitative).(synovial fluid only). Detection of white blood cells, gram positive and negative bacteria (semi-quantitative). General isolation and characterisation of aerobic, microaerophilic and anaerobic micro-organisms (qualitative).
Measurement units	Cell count x 10^6/l
Biological reference units	Total white cell count <500 cells x 10^6/l
Turnaround time	Microscopy 2 hours. Culture 5 days.
Availability	Routine hours and on-call.
Clinical information	
Factors known to significantly affect the results	Small volumes – fluids such as synovial fluids may be received inadequate volumes which may impede the recovery of organisms. Large volumes – specimens such as peritoneal fluid and ascetic fluid may contain very low numbers or organisms which are usually received in adequate quantities and require concentration to increase likelihood of successful culture. Cells disintegrate. A delay in transportation may produce a cell count that is not reflective of the clinical situation of the patient. Delays in transportation may affect the recovery of pathogens.

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Genital swab culture (female)

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	HVS, vaginal discharge, vulval swab, labial swab, cervical swab, endocervical swab, urethral swab (Amies transport swab)		

Sample instructions	
Collection	Optimally collected before antimicrobial therapy started. **Genital tract swabs** Cervical and high vaginal swabs should be taken with the aid of a speculum. It is important to avoid vulval contamination of the swab. For Trichomonas, the posterior fornix, including any obvious candidal plaques should be swabbed. If pelvic infection, including gonorrhoea, is suspected, the cervical os should be swabbed. **High vaginal swabs** After the introduction of the speculum, the swab should be rolled firmly over the surface of the vaginal vault. **Cervical swabs** After introduction of the speculum to the vagina, the swab should be rotated inside the endocervix. **Urethral swabs** Contamination with micro-organisms from the vulva should be avoided. Thin swabs are available for collection of specimens. The patient should not have passed urine for at least one hour. Please send endocervical swab if gonococcal culture is required. Separate samples should be collected into appropriate transport media for detection of viruses or C. trachomatis.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.
Special requirements	Clinical details are essential for processing. Female genital swabs for gonococcal investigation should not be refrigerated.

Laboratory information	
Tests	Presence of white blood cells, red blood cells, epithelial cells, candida, Trichomonas vaginialis, clue cells (quantitative). General isolation and characterisation of aerobic, microaerophilic and anaerobic micro-organisms (qualitative).
Measurement units	Growth detected or not detected.

Biological reference units	
Turnaround time	4 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	Delays in transportation may affect the recovery of pathogens. Female genital swabs for gonococcal investigation should not be refrigerated as this significantly reduces the recovery rate. Delays in transportation may reduce the recovery of Neisseria gonorrhoea.

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Genital specimens (excluding female genital swabs)

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Penile swab, urethral swab, screening swabs for Neisseria gonorrhoea (Amies transport swab)		
	Intra-uterine contraceptive device (IUCD)	Entire device should be sent	
	Collection of pus or exudate	Minimum volume 1ml	

Sample instructions	
Collection	Optimally collected before antimicrobial therapy started. **Urethral swabs** Contamination with micro-organisms from the vulva or the foreskin should be avoided. Thin swabs are available for collection of specimens. The patient should not have passed urine for at least one hour. For males, if a discharge is not apparent, attempts should be made to "milk" exudate from the penis. The swab is gently passed through the urethral meatus and rotated. **Intrauterine contraceptive devices (IUCDs)** The entire device should be sent. **Rectal swabs** Rectal swabs are taken via a proctoscope. **Throat swabs** Throat swabs should be taken from the tonsillar area and/or posterior pharynx avoiding the tongue and uvula. **Fluids and pus** These are taken from the fallopian tubes, tubo-ovarian and Bartholin's abscesses, etc, taken during surgery. Separate samples should be collected into appropriate transport media for detection of viruses or C. trachomatis.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.
Special requirements	Clinical details are essential for processing. Genital swabs for gonococcal investigation should not be refrigerated.
Laboratory information	
Tests	Detection of white blood cells, gram positive and negative bacteria (semi-quantitative) (fluids and pus only). General isolation and characterisation of aerobic, microaerophilic and

	anaerobic micro-organisms (qualitative).
Measurement units	Growth detected or not detected.
Biological reference units	
Turnaround time	4 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	Delays in transportation may affect the recovery of pathogens. Genital swabs for gonococcal investigation should not be refrigerated as this significantly reduces the recovery rate. Delays in transportation may reduce the recovery of Neisseria gonorrhoea.

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Haemophilus Antibody

Determination of immunity.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Helicobacter pylori IgG

Infection with *H. pylori* is associated with peptic ulceration. There is evidence that it may play an important role in non-ulcer dyspepsia.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details and date of onset are essential for processing.		
Laboratory information			
Tests	Detection of Helicobacter pylori IgG antibody (qualitative).		
Measurement units			
Biological reference units			
Turnaround time	7 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Hepatitis A virus (HAV) IgG

Used to screen for Hepatitis past infection or immunity. Positive result indicates exposure at some time. Test is performed on the assumption that this is a screening test for immunity. If patient acutely icteric or acute infection suspected then request Hepatitis A IgM.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details and date of onset are essential for processing.		
Laboratory information			
Tests	Detection of Hepatitis A IgG antibody (qualitative)**.**		
Measurement units			
Biological reference units			
Turnaround time	7 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Hepatitis A virus (HAV) IgM

For diagnosis of acute Hepatitis A infection (jaundice in adults). Hepatitis A in adults does NOT present as abnormal liver functions. It invariably presents as an acute icteric disease (jaundice). It does not cause chronic disease.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details and date of onset are essential for processing.		
Laboratory information			
Tests	Detection of Hepatitis A IgM antibody (qualitative).		
Measurement units			
Biological reference units			
Turnaround time	7 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Hepatitis B virus (HBV) confirmation

Routinely performed on sample if newly detected HBV surface Ag, for confirmatory purposes and to help assess timing and infectivity of disease. Also used to monitor response to treatment.

The test consists of HBV surface antigen, HBV surface antigen confirmation, HBV core total antibody, HBV core IgM, HBV e antigen and HBV e antibody.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Hepatitis B virus (HBV) Total Antibody

HBV core antibody serves as a marker of past infection.

Where HBV core antibody is detected, further testing for presence of HBV surface antibody will automatically be performed if sufficient serum.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details and date of onset are essential for processing.		
Laboratory information			
Tests	Detection of Hepatitis B core IgG antibody (qualitative).		
Measurement units			
Biological reference units			
Turnaround time	7 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Hepatitis B virus (HBV) core IgM antibody

HBV core antibody serves as a marker of past infection. Investigation performed during routine infectious disease screening for patients undergoing infertility treatment.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details and date of onset are essential for processing.		
Laboratory information			
Tests	Detection of Hepatitis B core IgM antibody (qualitative).		
Measurement units			
Biological reference units			
Turnaround time	7 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Hepatitis B virus (HBV) surface antibody

Test to determine if protective immunity has been achieved following immunisation.

Low levels HBV surface antibody may be found in patients who have past infection.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Should be tested 6-8 weeks after final dose of Hepatitis B vaccination. Accurate interpretation of this result is reliant upon detailed vaccination history and clinical details.		
Laboratory information			
Tests	Detection of Hepatitis B surface antibody (qualitative)**.**		
Measurement units	IU/L		
Biological reference units	Current national recommendations (as per DOH Green Book) are that a level of ≥10 IU/L indicates adequate immunity, although a post vaccination level of ≥100 IU/L is desirable.		
Turnaround time	7 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Hepatitis B virus (HBV) surface antigen

For diagnosis of acute or recent hepatitis or carrier state.

If first diagnosis of HBV infection a repeat venous blood sample from patient is required to confirm the result.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details and date of onset are essential for processing.		
Laboratory information			
Tests	Detection of Hepatitis B surface antigen (qualitative).		
Measurement units			
Biological reference units			
Turnaround time	7 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Hepatitis B virus (HBV) viral load (PCR)

Indications for testing:

- Detection of viraemia in patients with chronic hepatitis B infection.
- Investigation of possible transmission of hepatitis B e.g. following exposure to blood or body fluids of an infected patient.
- Monitoring effectiveness of anti-viral therapy in patients with chronic hepatitis B infection.
- Measurement of hepatitis B viral load in e antigen negative hepatitis B infected health care workers who perform exposure prone procedures (Health Service Circular 2000/020).

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	EDTA blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Hepatitis C virus (HCV) antibody

Marker of infection at some time.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details and date of onset are essential for processing.		
Laboratory information			
Tests	Detection of Hepatitis C antibody (qualitative).		
Measurement units			
Biological reference units			
Turnaround time	7 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Hepatitis C virus (HCV) genotype

Assay used to determine the HCV genotype of patients known to be HCV positive and who are undergoing treatment.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Hepatitis C virus (HCV) viral load

Quantitative assay used for monitoring patients known to be HCV positive and who are undergoing treatment.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	EDTA blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Hepatitis D (delta) Virus

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	

Sample instructions	
Collection	No special requirements.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	This test is only carried out on individuals with active hepatitis B infection. Clinical details are essential for processing.
Laboratory information	
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.
Measurement units	
Biological reference units	
Turnaround time	14 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	Haemolysis.

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Hepatitis E IgM

Hepatitis E IgG available at request. For immunocompromised and pregnant patients please consider testing for HEV PCR.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Hepatitis E virus (HEV) PCR

Quantitative assay used for monitoring patients known to be HEV positive or for immunocompromised and pregnant patients.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	EDTA blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Herpes simplex virus (HSV) antibody

Used to determine past infection. HSV IgG serology is of limited clinical significance in the diagnosis of active infection. Please refer to HSV DNA.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Herpes simplex virus (HSV) DNA

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Lesion swab (virus transport medium)/effected mucous membranes		
	EDTA	2 – 6 mls	

Sample instructions	
Collection	Swab: Send an orange Aptima swab of vesicle fluid or affected mucous membranes. Blood: EDTA, no special requirements.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	Clinical details are essential for processing. For HSV in CSF refer to CSF (Cerebro-spinal fluid) virology PCR.
Laboratory information	
Tests	Detection of HSV type 1 (HSV-1) and HSV type 2 (HSV-2) nucleic acid. HSV PCR from blood is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.
Measurement units	Qualitative
Biological reference units	
Turnaround time	Swab: 7 days Blood: 14 days
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.

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HIV-1 and 2 antigen/antibodies and p24 antigen

For diagnosis of HIV infection.

If first diagnosis of HIV infection a repeat venous blood sample from patient is required to confirm the result.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details and date of onset are essential for processing. All requests for HIV investigations must include the Doctor's signature on the request form.		
Laboratory information			
Tests	Detection of HIV-1 and 2 antigen/antibodies plus p24 antigen (qualitative).		
Measurement units			
Biological reference units			
Turnaround time	7 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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HIV confirmation

HIV confirmation would only be performed on a HIV positive sample.

The test consists of HIV antigen/antibody confirmation, HIV antigen and HIV antibody, and may include a HIV line immunoassay.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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HIV resistance, integrase, tropism

HIV resistance markers would only be performed on a HIV positive sample. This test is exclusively only available to the Great Western Hospital Sexual Health department.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	EDTA blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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HIV – Maternal Transmission (neonates)

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	EDTA blood	2 – 6 mls	

Sample instructions	
Collection	No special requirements.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	Requires: • a single maternal EDTA at birth • neonatal EDTA samples at birth, 3, 6 and 9 months of age.
Laboratory information	
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.
Measurement units	
Biological reference units	
Turnaround time	14 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	

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HIV viral load

Quantitative assay used for monitoring patients known to be HIV positive. Please liaise with the Sexual Health Department if testing is required.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	EDTA blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	Detection of HIV viral copies (Quantitative)		
Measurement units	Copies / ml		
Biological reference units			
Turnaround time	48 hours		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Human herpes virus 6 (HHV) PCR

For diagnosis of HHV infection.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	EDTA blood	2 – 6 mls	

Sample instructions	
Collection	No special requirements.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	Clinical details are essential for processing.
Laboratory information	
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.
Measurement units	
Biological reference units	
Turnaround time	14 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.

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Human T lymphotrophic virus (HTLV) 1 and 2 serology

Used to determine past or current infection.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	

Sample instructions	
Collection	No special requirements.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	Clinical details are essential for processing.
Laboratory information	
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.
Measurement units	
Biological reference units	
Turnaround time	14 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	Haemolysis.

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Hydatid serology

Used to determine past or current infection.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	

Sample instructions	
Collection	No special requirements.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	Clinical details are essential for processing.
Laboratory information	
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.
Measurement units	
Biological reference units	
Turnaround time	14 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	Haemolysis.

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Influenza A/B rapid PCR

Diagnosis of acute disease.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Virus swab in transport media	Throat swab	

Sample instructions	
Collection	No special requirements.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	Routine flu screening is currently not available. Only the following patient groups will be tested: - Critical Care patients - Paediatric patients - Oncology/Haematology patients Any other requests must be assessed by Infection Control or a Microbiology Consultant. Clinical details are essential for processing.
Laboratory information	
Tests	Influenza A/B rapid PCR test
Measurement units	
Biological reference units	
Turnaround time	2 hours
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	

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JC virus PCR

Diagnosis of acute disease.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	EDTA blood	2 – 6 mls	
	Urine	Minimum volume 5ml	
	CSF	Minimum volume 0.5ml	
Sample instructions			
Collection	**Cerebrospinal fluid (CSF)** Refer to CSF microscopy and culture. **Urine** Refer to Urine (microscopy and culture).		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Legionella urinary antigen

Diagnosis of acute disease.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Urine	Minimum volume 5ml	
	Urine	Minimum volume 1ml	
Sample instructions			
Collection	A minimum of 5ml is required. If less than 5ml of urine is anticipated, or collecting from a child, collect in to a white topped universal container. Refer to Urines (Microscopy and Culture).		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.		
Special requirements	Clinical details are essential for processing. The British Thoracic Society do not recommend testing unless moderate to high severity pneumonia in hospitalised patients. Will be tested only if clinical details indicate severe pneumonia on request form or where epidemiologically indicated (e.g. atypical features or associated with known *Legionella* outbreak).		
Laboratory information			
Tests	Detection of Legionella pneumophila antigen (qualitative). Detects *Legionella pneumophila* serotype 01 only.		
Measurement units	Antigen detected or not detected.		
Biological reference units			
Turnaround time	1 day.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results			

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Leptospira serology

Used to determine past or current infection.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	

Sample instructions	
Collection	No special requirements.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	State date of onset, nature of symptoms and exposure history are essential for processing.
Laboratory information	
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.
Measurement units	
Biological reference units	
Turnaround time	14 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	Antibody detection earliest at 7 days post onset of symptomatic disease. Haemolysis.

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Measles (diagnostic)

To determine recent/acute disease. For patients who present later into the rash phase of illness.

Diagnosis of measles can usually be made clinically. Characteristic 3-5 days prodromal illness of fever, coryzal symptoms, cough and conjunctivitis. Maculo-papular rash then develops starting behind the ears and spreading down to trunk and arms. Viral shedding from upper respiratory tract is highest from 4 days before to 4 days post onset of rash.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
	Green viral swab	1mL	
Sample instructions			
Collection	Send a viral (green top) swab from throat for PCR.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details and date of onset are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Measles IgG (immunity)

To determine serological evidence of past infection/vaccination where history is uncertain.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	No special requirements.		
Laboratory information			
Tests	Detection of Measles IgG antibody (semi-quantitative).		
Measurement units	AU/mL		
Biological reference units	<13.5 – Susceptible 13.5-16.5 – Equivocal, treat as susceptible >16.5 – Immune		
Turnaround time	7 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Meningococcal antibody

Neisseria meningitidis functional antibody to serogroups A, C, W, Y and B.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	4 weeks.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Meningococcal PCR

Meningococcal DNA detection by PCR.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	EDTA blood	2 – 6 mls	
	CSF	Minimum volume 0.5ml	
Sample instructions			
Collection	**Cerebrospinal fluid (CSF)** Refer to CSF microscopy and culture.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Where a CSF sample is available, this should be sent in addition to an EDTA blood sample. Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	The likelihood of a positive result decreases as the interval of sampling after starting antibiotics lengthens. Samples for PCR taken more than 48 hours after commencement of antibiotic therapy are unlikely to give useful results. CSF may remain “positive” for longer periods.		

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Mouth swab

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Mouth swab (Amies transport swab)		

Sample instructions	
Collection	Optimally collected before antimicrobial therapy started. To assure that the preconditions of the sampling for oral infections are comparable it is advised that patients should not: • Eat or drink within 2 hours • Brush their teeth within 2 hours • Use any mouth rinse of disinfectant within 2 hours prior to sampling Sample pus if present otherwise sample any lesions or inflamed areas. A tongue depressor or spatula may be helpful to aid vision and avoid contamination from other parts of the mouth.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.
Special requirements	No special requirements.
Laboratory information	
Tests	General isolation and characterisation of aerobic, microaerophilic and anaerobic micro-organisms (qualitative).
Measurement units	Growth detected or not detected.
Biological reference units	
Turnaround time	4 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	Delays in transportation may affect the recovery of pathogens.

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MPox

Requests should be discussed initially with the Microbiology Consultant, and if considered high risk of the Imported Fever Service at the Rare and Imported Pathogens Laboratory should be contacted to ensure testing is expedited.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Vesicle swab Throat swab	1mL	

Sample instructions	
Collection	Specimens should be collected and handled following the recommended guidelines on the collection packs.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	Urine – patient should not have urinated for 2 hours prior to sample collection.
Laboratory information	
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.
Measurement units	Presence detected or not detected.
Biological reference units	
Turnaround time	14 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay. Please note that even if the throat swab is negative, the individual must continue with monitoring and isolation as instructed by their local health protection team, and should be reassessed and sampled if further symptoms develop.

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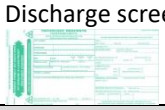
MRSA

Most MRSA infections are healthcare-associated, but an increasing number of infections are community-acquired, with patients having no established risk factors for acquisition of MRSA.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Nose swab, groin swab, perineum swab, manipulated wound site swabs (Amies transport swab)		Admission screen:  Discharge screen: 
	Urine	Recommended optimal volume of 1 -5mL.	
Sample instructions			
Collection	Optimally collected before antimicrobial therapy started. MRSA screen swabs should be obtained from nose, groin/perineum and other wounds, skin lesions or invasive devices. Specimens from other sites will be rejected. Only one request form needs to be sent per patient. Refer to GWH Trust MRSA Policy. **Urine** Refer to Urine (microscopy and culture).		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.		
Special requirements	No special requirements.		
Laboratory information			
Tests	General isolation and characterisation of MRSA (qualitative).		
Measurement units	Growth detected or not detected.		
Biological reference units			
Turnaround time	Negative results 24 hours. Positive results 3 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Delays in transportation may affect the recovery of pathogens.		

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Mumps (diagnostic)

Used to determine disease progression in individuals infected with mumps.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
	Green viral swab	1mL	
Sample instructions			
Collection	Send a viral (green top) swab from throat for PCR.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details and date of onset are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Mumps IgG (immunity)

Used to determine immune status to mumps.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	

Sample instructions	
Collection	No special requirements.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	No special requirements.

Laboratory information	
Tests	Detection of Mumps IgG antibody (semi-quantitative).
Measurement units	AU/mL
Biological reference units	<9.0 – Susceptible 9.0-11.0 – Equivocal, treat as susceptible >11.0 – Immune
Turnaround time	7 days.
Availability	Routine hours.

Clinical information	
Factors known to significantly affect the results	Haemolysis.

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Mycobacteria

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
 	Sputum, gastric washing, sterile site body fluids (CSF, pleural fluids etc), skin or tissue biopsies, bone marrow, bronchoalveolar washings, bone and bone marrow, lymph node and tissue samples	1mL of Sputum 5mL of BAL 6mL of CSF	
	Urine	Early morning urine on three consecutive days, 250ml container	
	Heparin blood	2 – 6 mls	

Sample instructions

Collection

Optimally collected before antimicrobial therapy started.

Sputum specimens
Sputum specimens should be relatively fresh (less than 1 day old) to minimise contamination. Purulent specimens are best. Three samples of ≥5mL should be collected approximately 8-24 hours apart with at least one from early morning.
Samples taken early morning (ie shortly after patient waking) have the greatest yield. When the cough is dry, physiotherapy, postural drainage or inhalation of nebulised saline ('sputum induction') before expectoration may be helpful.

Bronchoalveolar lavage/bronchial washings
These may be sent if spontaneous or induced sputum is unavailable or if such specimens are AFB smear negative. Note: Contamination of the bronchoscope with tap water, which may contain environmental *Mycobacterium* species, should be avoided. Minimum sample size is preferably 5mL.

Urine specimens
Whole urine specimens should be collected in the early morning on three consecutive days in a 250ml CE marked leak proof container (that does not contain boric acid), and placed in a sealed plastic bag. Urine specimens received in 20ml universal containers will be rejected.

Sterile site body fluids
Collect aseptically as much (eg >6mL in adults) CSF sample as possible If only

	a small volume is available after initial lumbar puncture, and the findings of cell counts and protein suggest TB meningitis, a second procedure should be considered to obtain a larger volume to improve chances of achieving positive cultures. It should be noted that pleural or pericardial fluids are not very sensitive samples for the detection of *M. tuberculosis,* and that a concurrent pleural or pericardial biopsy taken with the fluid is more useful. A negative result on these fluids does not rule out the diagnosis. **Lymph node and tissue samples** Send in sterile container. A small amount of sterile water or saline may be added to prevent the sample from dehydrating. **Cerebrospinal fluid (CSF)** For CSF refer to CSF microscopy and culture. **Blood culture** In patients where disseminated mycobacterial disease is suspected (e.g. *Mycobacterium avium intracellulare* complex in HIV infected patients) send a peripheral blood sample in a Lithium heparin tube (green top vacuette). **The following are specialist tests:** Molecular tests (PCR) Gamma Interferon Tests
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours. *Do not use pneumatic chute system if investigation for Mycobacteria required.*
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	For the initial diagnosis of mycobacterial infection all specimens should be fresh and taken, whenever possible, before anti-tubercular treatment is started. 'Other' antimicrobials may also have significant anti-mycobacterial activity, notably the fluoroquinolones such as ciprofloxacin, levofloxacin or moxifloxacin, and the macrolides such as clarithromycin or azithromycin.
Laboratory information	
Tests	No microscopy performed on urine samples for Mycobacteria investigations. If sample volume is insufficient for both microscopy and culture, culture is usually preferred to microscopy due to greater sensitivity. This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.
Measurement units	
Biological reference units	
Turnaround time	6 weeks.

	Significant positive results are communicated to clinicians as and when they arise.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	EDTA, even in trace amounts, inhibits the growth of some *Mycobacterium* species. Some antimicrobials have significant anti-mycobacterial activity, notably the fluoroquinolones such as ciprofloxacin, levofloxacin or moxifloxacin, and the macrolides such as clarithromycin or azithromycin.

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Mycobacteria PCR

May be appropriate under certain circumstances. Usually performed on smear positive samples where drug resistance is strongly suspected. Requests must be discussed with Consultant Microbiologist.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
 	Sputum, gastric washing, sterile site body fluids (CSF, pleural fluids etc), skin or tissue biopsies, bone marrow, bronchoalveolar washings, bone and bone marrow, lymph node and tissue samples	1mL of Sputum 5mL of BAL 6mL of CSF	
	Urine	Early morning urine on three consecutive days, 250ml container	
	Heparin blood	2 – 6 mls	
Sample instructions			
Collection	Refer to Mycobacteria. **Cerebrospinal fluid (CSF)** Refer to CSF microscopy and culture.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours. *Do not use pneumatic chute system if investigation for Mycobacteria required.*		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	No special requirements.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	2 weeks. Significant positive results are communicated to clinicians as and when they arise.		
Availability	Routine hours.		

Clinical information	
Factors known to significantly affect the results	EDTA, even in trace amounts, inhibits the growth of some *Mycobacterium* species. Some antimicrobials have significant anti-mycobacterial activity, notably the fluoroquinolones such as ciprofloxacin, levofloxacin or moxifloxacin, and the macrolides such as clarithromycin or azithromycin.

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Mycology

Infection by dermatophytes is cutaneous and generally restricted to the non-living cornified layers in patients who are immunocompetent. This is because the dermatophyte group of fungi are generally unable to penetrate tissues which are not fully keratinised (ie deeper tissues and organs). However, reactions to such infections can range from mild to severe, depending upon the host's immune response, the virulence of the infecting species, the site of infection and environmental factors.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Skin, hair, nails		
	Skin, hair, nails		

Sample instructions	
Collection	Sterile Universal or commercially available packets e.g. Dermapak, designed specifically for the collection and transport of skin, nail and hair samples. **Skin** Material from skin lesions is collected by gently scraping off material from the outer edges of the lesion, usually with the edge of a glass microscope slide or a scalpel blade. The edge is most likely to contain viable fungus. **Hair** Scalp scrapings are obtained as above but should include hair stubs. Hairs may be plucked from the scalp with forceps, but cut hairs are unsatisfactory as infection is usually below the surface near the scalp. The material should be transported to the laboratory as for skin scrapings. **Nails** Clippings should be taken from the discoloured or brittle parts of the nail and cut back as far as possible from the free edge as some fungi are restricted to the lower parts. Scrapings can also be taken from under the nail to supplement the clippings. Nail clippings often fail to grow fungi even if present. Whole nails can be sent to the Laboratory in a sterile Universal container. **Invasive fungal disease** BAL, tissue biopsy, blood cultures, CSF, urine for culture as clinically indicated. Serological tests may be appropriate – please discuss with the Microbiology Consultant.
Specimen transport	Specimens should be transported and processed as soon as possible.
Storage requirements	Samples should be allowed to dry out and kept at room temperature. Provided the samples are kept dry, the fungus will remain viable for several months.

Special requirements	No special requirements.
Laboratory information	
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.
Measurement units	
Biological reference units	
Turnaround time	Microscopy 1 week. Culture 4 weeks.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	

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Miscellaneous Mycology serology

Used to determine past or current infection.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	

Sample instructions	
Collection	No special requirements.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	Clinical details and any history of travel or occupational exposure are essential for processing.
Laboratory information	
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.
Measurement units	
Biological reference units	
Turnaround time	14 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	Haemolysis.

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Mycoplasma genitalium

Detection of *Mycoplasma genitalium* and macrolide resistance.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Cervical, urethral, throat, rectal swab		
	Urine (first void)	Minimum volume 2ml	
Sample instructions			
Collection	Specimens should be collected and handled following the recommended guidelines on the collection packs.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Urine – patient should not have urinated for 2 hours prior to sample collection.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units	Presence detected or not detected. Positive samples will be tested for Macrolide resistance.		
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Mycoplasma pneumoniae

Detection of *Mycoplasma pneumoniae* and macrolide resistance.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Upper respiratory swab	1mL	
Sample instructions			
Collection	Specimens should be collected and handled following the recommended guidelines on the collection packs.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Urine – patient should not have urinated for 2 hours prior to sample collection.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units	Presence detected or not detected. Positive samples will be tested for Macrolide resistance.		
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Neisseria gonorrhoeae PCR

This test is exclusively only available to the Great Western Hospital Sexual Health department. If NAATs testing is required, please liaise with the Microbiology Department or refer patient to Sexual Health Clinic. Also see GC culture.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Eye, cervical, urethral, throat, rectal swab		
	Urine (first void)	Minimum volume 2ml	
Sample instructions			
Collection	Specimens should be collected and handled following the recommended guidelines on the collection packs. Refer to Chlamydia PCR – collection of vaginal sample and Chlamydia PCR – collection of urine sample.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Urine – patient should not have urinated for 2 hours prior to sample collection.		
Laboratory information			
Tests	Detection of Neisseria gonorrhoeae nucleic acid (qualitative).		
Measurement units	Presence detected or not detected.		
Biological reference units			
Turnaround time	4 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Norovirus PCR

Norovirus test performed only on instruction by the Infection Control Team in the investigation of outbreaks.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Stool sample	Liquid specimen: 1 – 2ml Formed specimen: large pea size sample	
Sample instructions			
Collection	Specimen may be passed into a clean, dry, disposable bedpan or similar container and transferred to an appropriate collection container.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing. Repeat samples for microbiological clearance not usually required – Microbiologists will advise if necessary.		
Laboratory information			
Tests	Detection of Norovirus nucleic acid (qualitative).		
Measurement units			
Biological reference units			
Turnaround time	1 day.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Nose swab

Nasal colonisation with *Staphylococcus aureus* increases the risk of staphylococcal infections at other sites of the body such as postoperative wounds and dialysis access sites.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Nose swab (Amies transport swab)		
Sample instructions			
Collection	Optimally collected before antimicrobial therapy started. Plain sterile cotton wool swab. Sample the anterior nares by gently rotating the swab over the mucosal surface.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.		
Special requirements	Nasal swabs should NOT be taken to investigate the presence of Bordetella pertussis.		
Laboratory information			
Tests	General isolation and characterisation of aerobic, microaerophilic and anaerobic micro-organisms (qualitative).		
Measurement units	Growth detected or not detected.		
Biological reference units			
Turnaround time	4 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Delays in transportation may affect the recovery of pathogens.		

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Pan fungal PCR (18S)

Diagnosis of acute disease.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	EDTA blood	Minimum volume 500µl	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Pan-valentine leukocidin (PVL) toxin detection

Testing for the PVL toxin gene on isolates will be directed by the Consultant Microbiologist, based on clinical presentation and/or antibiotic sensitivity patterns. Generally, PVL toxin testing will be carried out on the following:

- *S. aureus* cultured from individuals with recurrent boils/abscesses
- *S. aureus* cultured from individuals with necrotising skin and soft tissue infections
- *S. aureus* pneumonia
- Ciprofloxacin sensitive MRSA
- Any other *S. aureus* isolate as indicated by the Consultant Microbiologist

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	*S. aureus* isolated by laboratory, as directed by Consultant Microbiologist		
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	No special requirements.		
Laboratory information			
Tests	Detection of PVL toxin nucleic acid (qualitative): This test is processed at an external reference centre.		
Measurement units			
Biological reference units			
Turnaround time	4 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Parasitology (Bilharzia/*Schistosoma haematobium*)

Diagnosis of acute infection.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Urine sample	Sample collected between 10:00 and 14:00. Alternatively, a 24hr collection of terminal samples of urine may be obtained.	

Sample instructions	
Collection	**First 3 months post exposure**, if suspecting schistosomiasis and has freshwater exposure in endemic area, send: • terminal urine – not mid-stream • three stool samples, 2 days apart **3 months or more post exposure**: • terminal urine – not mid-stream • three stool samples, 2 days apart • clotted blood for Schistosoma serology Send also a FBC for detection of eosinophilia. **Urine collection** Collect a urine specimen between 1000 and 1400, as this is when the highest concentration of eggs is found. Ask patient to urinate as normal. Halt the process before bladder completely voided and collect the remaining end-stream urine sample (the last 10 to 20ml of urine) in a sterile container. Send 3 such samples. Alternatively, a 24hr collection of terminal samples of urine may be obtained. It is also recommended that a little light exercise should be taken before the specimen is collected (e.g., 20 rapid knee bends, or running up & down a flight of stairs).
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.
Special requirements	Please provide information regarding recent foreign travel.
Laboratory information	
Tests	Presence of Schistosoma haematobium (qualitative).
Measurement units	

Biological reference units	
Turnaround time	2 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	

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Parasitology (Pinworm)

Diagnosis of acute infection.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
Please contact the laboratory on 01793 604798 for collection kits	Sellotape from perianal region		
Sample instructions			
Collection	Please contact the laboratory on 01793 604798 for collection kits. "Sellotape" slides are used in the diagnosis of threadworm and the procedure should be carried out first thing in the morning. Press the sticky middle 1-2" firmly against the perianal skin.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.		
Special requirements	No special requirements.		
Laboratory information			
Tests	Presence of Enterobius vermicularis ova (qualitative).		
Measurement units			
Biological reference units			
Turnaround time	2 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results			

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Miscellaneous Parasitology serology

Used to determine past or current infection.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	Clotted blood sample – at least 12 weeks post exposure.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Please include relevant clinical details, including reason for investigations and travel history. Send stool sample.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Antibodies may take up to 3 months to develop. Once detectable may persist for several months after successful treatment Haemolysis.		

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Parasitology (Stool)

There is no need to request OCP for Cryptosporidium and Giardia lamblia; all stool samples for culture will be automatically tested for these.

Information required for other parasitic infections:

- Foreign travel history
- Blood eosinophil count
- Duration of diarrhoea
- Presence/absence of abdominal symptoms
- Evidence of malabsorption

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Stool sample	3 stool samples over a period of 10 days. Liquid specimen: 1 – 2ml Formed specimen: large pea size sample.	
Sample instructions			
Collection	Specimen may be passed into a clean, dry, disposable bedpan or similar container and transferred to an appropriate collection container.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.		
Special requirements	For examination of amoebic trophozoites the specimen must reach the laboratory within 1 hour of its production. It is advisable to arrange this examination with the Departments in advance.		
Laboratory information			
Tests	Presence and identification of ova and parasites (qualitative).		
Measurement units			
Biological reference units			
Turnaround time	4 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results			

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Parasitology (Worm identification)

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Worm	Please send actual worm seen	

Sample instructions	
Collection	Please send actual worm seen.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.
Special requirements	No special requirements.
Laboratory information	
Tests	Parasite identification (qualitative).
Measurement units	
Biological reference units	
Turnaround time	2 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	

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Parvovirus PCR

Diagnosis of acute disease. DNA detection may be indicated if significant immuno-suppression (e.g. HIV disease or organ transplant).

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	EDTA blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	No special requirements.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Parvovirus serology

Please state whether test required for acute disease (IgM/DNA) or if evidence of past exposure (immunity) required (IgG).

IgM is usually positive at time of presentation with acute symptoms. May remain detectable for up to 3 months.

DNA detection may be indicated if significant immuno-suppression (e.g. HIV disease or organ transplant).

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details and date of onset are essential for processing. Indicate if patient is pregnant and gestation, and date of contact or exposure.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Peritoneal dialysis fluid (PDF)

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Peritoneal dialysis fluid	Minimum volume 1ml	
		Inoculate with the recommended volume of 8-10mL in each adult bottle, or 1-3mL for paediatric bottles.	

Sample instructions	
Collection	**Blood culture bottles** Refer to Blood Culture Method Options.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	No special requirements.
Laboratory information	
Tests	Presence of white blood cells (quantitative). Detection of gram positive and negative bacteria (semi-quantitative). General isolation and characterisation of aerobic, microaerophilic and anaerobic micro-organisms (qualitative).
Measurement units	Cell count x 10^6/l Growth detected or not detected.
Biological reference units	Total white cell count <500 cells x 10^6/l
Turnaround time	Microscopy 2 hours. Culture 5 days.
Availability	Routine hours and on-call.
Clinical information	
Factors known to significantly affect the results	Large volumes of fluid may contain very low numbers or organisms which are usually received in adequate quantities and require concentration to increase likelihood of successful culture. Cells disintegrate. A delay in transportation may produce a cell count that is not reflective of the clinical situation of the patient. Delays in transportation may affect the recovery of pathogens.

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Pneumococcal PCR

Diagnosis of acute disease such as sepsis and meningitis. If pneumonia is suspected, please send a urine for pneumococcal antigen testing.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	EDTA blood	Minimum volume 5ml	
	CSF	Minimum volume 0.5ml	
Sample instructions			
Collection	**Cerebrospinal fluid (CSF)** Refer to CSF microscopy and culture.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Pneumococcal serology

Used to determine immunity.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing. Pneumococcal serology is not useful in diagnosis of infection. Please send a urine for pneumococcal antigen testing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Pneumococcal urinary antigen

Diagnosis of acute disease.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Urine	Minimum volume 5ml	
	Urine	Minimum volume 1ml	
Sample instructions			
Collection	A minimum of 5ml is required. If less than 5ml of urine is anticipated, or collecting from a child, collect in to a white topped universal container. Refer to Urines (Microscopy and Culture).		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.		
Special requirements	Clinical details are essential for processing. The British Thoracic Society do not recommend testing unless moderate to high severity pneumonia in hospitalised patients. Will be tested only if clinical details indicate severe pneumonia on request form.		
Laboratory information			
Tests	Detection of Pneumococcal antigen (qualitative).		
Measurement units	Antigen detected or not detected.		
Biological reference units			
Turnaround time	1 day.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Pneumococcal vaccination within previous week may give positive result.		

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Pneumocystis jirovecii (PCR)

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	BAL	Minimum volume 1ml	

Sample instructions	
Collection	**Sputum specimens/ bronchoalveolar lavage/bronchial washings** Refer to Respiratory samples for culture.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated.
Special requirements	Clinical details are essential for processing.
Laboratory information	
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.
Measurement units	
Biological reference units	
Turnaround time	14 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.

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Coxiella/Q fever serology

Used to determine past or current infection.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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TSPOT.TB Test

These tests are used primarily for the diagnosis of latent infection in the context of contact tracing. They do not differentiate between latent and active disease.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Lithium Heparin	Adults: 6 ml Children ≥2 to <10 years: 4 ml Infants <2 years: 2 ml	
Sample instructions			
Collection	Tests using T-SPOT technology are functional assays and can be susceptible to introduction of skin and environmental microorganisms during phlebotomy. It is important that puncture site preparation includes the same skin disinfection procedures that you adopt for blood culture samples.		
Specimen transport	Samples must be sent off site within 32 hours of blood draw. Due to this please ensure samples are returned to the laboratory as soon as possible (<2 hours of taking).		
Storage requirements	Room temperature – and never refrigerated.		
Special requirements	If your patient is immunocompromised; Please provide an additional tube to ensure we obtain sufficient PBMCs.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	7 days.		
Availability	Specimens can only be receipted Monday-Friday up to 15:30 (except for public holidays). Samples received outside of these times may be rejected.		
Clinical information			
Factors known to significantly affect the results			

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Respiratory samples for culture

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
 	Bronchial aspirate, transthoracic aspirate, bronchoalveolar lavage, transtracheal aspirate, bronchial brushings, protected catheter specimens, bronchial washings, endotracheal tube specimens, sputum – expectorated	Minimum volume 1ml	

Sample instructions	
Collection	All specimens should be fresh and optimally collected before antimicrobial therapy started. **Sputum specimens** Sputum specimens should be relatively fresh (less than 1 day old) to minimise contamination. Purulent specimens are best. Samples taken early morning (ie shortly after patient waking) have the greatest yield. When the cough is dry, physiotherapy, postural drainage or inhalation of nebulised saline ('sputum induction') before expectoration may be helpful. **Bronchoalveolar lavage/bronchial washings** These may be sent if spontaneous or induced sputum is unavailable. Minimum sample size is preferably 5mL. A BAL is required for microbiological diagnosis of invasive fungal respiratory infection. For Legionella or Pneumococcal antigen is to be excluded, please send a urine sample in a plain universal container. Where *Pneumocystis jirovecii* pneumonia (PCP) is suspected, a broncheo-alveolar lavage (BAL) is required. Induced sputum is acceptable in patients co-infected with HIV. Refer to Mycobacteria.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.
Special requirements	Salivary specimens are not processed on the basis of macroscopic description, with the exception of immunocompromised and ITU patients.

Laboratory information	
Tests	General isolation and characterisation of aerobic, microaerophilic and anaerobic micro-organisms (qualitative). Refer to Cystic fibrosis for cough swab specimens. Extended culture for *Burkholderia cepacia* performed where requests indicate Cystic Fibrosis.
Measurement units	Growth detected or not detected.
Biological reference units	
Turnaround time	4 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend. Delays in transportation may affect the recovery of pathogens. Sputum may be refrigerated for up to 2-3 h without an appreciable loss of pathogens. Any delay beyond this time may allow overgrowth of Gram-negative bacilli, and Haemophilus species and *S. pneumoniae* may be rendered non-viable.

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Respiratory virus PCR

Respiratory screen for at risk patient groups only (ICU/immunocompromised and paediatric patients)
In house testing includes:

- Influenza A
- Influenza B
- RSV

Referred extended panel includes:

- Parainfluenza viruses 1,2,3
- Metapneumovirus
- Adenovirus
- Rhinovirus

For Mycoplasma pneumoniae PCR.
For SARS-CoV2 PCR.
For PCP PCR.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Nose and/or throat swab (virus transport medium)	Minimum volume 1ml	
	NPA	Minimum volume 1ml	
Sample instructions			
Collection	Send a viral (green top) swab from nose and throat (combined) NPA samples will not be accepted if sent with tubing attached.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	In house: 2 hours Referral: 7 days		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence		

	of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.

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Rotavirus

Diagnosis of acute disease.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Stool sample	Liquid specimen: 1 – 2ml Formed specimen: large pea size sample	
Sample instructions			
Collection	Specimen may be passed into a clean, dry, disposable bedpan or similar container and transferred to an appropriate collection container.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.		
Special requirements	Rotavirus test performed on samples from children <5 years.		
Laboratory information			
Tests	Rotavirus antigen detection (qualitative).		
Measurement units	Growth detected or not detected.		
Biological reference units			
Turnaround time	2 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Collect specimens before antimicrobial therapy where possible. Specimens should be transported and processed as soon as possible. A positive rotavirus laboratory result within 15 days of Rotarix vaccination is likely to reflect vaccination status and NOT active infection.		

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Rubella (diagnostic)

Used to determine disease progression in individuals infected with rubella.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Please indicate if patient is pregnant and gestation with contact history.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Rubella IgG (immunity)

Test is for evidence of past exposure or vaccination/immunity (IgG).

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Please indicate if patient is pregnant and gestation with contact history.		
Laboratory information			
Tests	Detection of Rubella IgG antibody (qualitative).		
Measurement units			
Biological reference units			
Turnaround time	7 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Syphilis antibody

For diagnosis of acute or recent Syphilis.

If first diagnosis of Syphilis infection a repeat venous blood sample from patient is required to confirm the result.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details and date of onset are essential for processing. CSF sample if neurosyphilis suspected – discuss with the Consultant Microbiologist.		
Laboratory information			
Tests	Detection of Treponema pallidum antibody (qualitative).		
Measurement units			
Biological reference units			
Turnaround time	7 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Syphilis RPR

Syphilis confirmation would only be performed on a Syphilis positive sample.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Syphilis confirmation would only be performed on a Syphilis positive sample. Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Tetanus antibody

Tetanus IgG antibody determination.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Throat swab

Bacterial throat swabs will be routinely cultured for primary pathogens i.e. Groups A, C and G β-haemolytic streptococci. Where other potential pathogens such as *Staph. aureus* are predominant or pure growth, they will be reported.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Throat swab (Amies transport swab)		
Sample instructions			
Collection	Optimally collected before antimicrobial therapy started. Throat swab taken from the tonsillar area and/or posterior pharynx, should be taken avoiding the tongue and uvula.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.		
Special requirements	Throat swabs should NOT be taken to investigate the presence of Bordetella pertussis. Isolation of Neisseria sp only on request. Ideally, inoculation of specimens for *N. gonorrhoeae* should be made directly on to culture media at the time of collection and these should be incubated without delay. Transport time should be as short as possible. Culture for *Corynebacterium diphtheriae* is only performed where relevant clinical or epidemiological details are provided. Anaerobic infection can present with very severe symptoms – if this is the case please document on request form and specimen will be cultured anaerobically.		
Laboratory information			
Tests	General isolation and characterisation of aerobic, microaerophilic and anaerobic micro-organisms (qualitative).		
Measurement units	Growth detected or not detected.		
Biological reference units			
Turnaround time	4 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Delays in transportation may affect the recovery of pathogens.		

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Tips/intravascular cannulae

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Line tips (eg CVP or Hickman lines)	End of cannulae tip (2 – 5 cm in length)	
	Swab of cannula insertion sites (Amies transport swab)		

Sample instructions	
Collection	Optimally collected before antimicrobial therapy started. Tips are preferable to swabs. Disinfect the skin around the cannula entry site, remove cannula using aseptic technique, and cut off 2 – 5 cm of the tip into an appropriate CE marked leak proof container using sterile scissors.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.
Special requirements	Cannulae should only be sent if there is evidence of infection. Where line related infection/sepsis suspected, send blood cultures (central and peripheral taken simultaneously), prior to line removal. Do NOT send line tips if they are being removed routinely and infection is NOT suspected. Urinary catheter tips and drain tips are not appropriate samples for microbiology investigation and will not be processed.
Laboratory information	
Tests	General isolation and characterisation of aerobic, microaerophilic and anaerobic micro-organisms (qualitative).
Measurement units	Growth detected or not detected.
Biological reference units	
Turnaround time	4 days.
Availability	Routine hours.
Clinical information	
Factors known to significantly affect the results	Delays in transportation may affect the recovery of pathogens.

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Tissues and biopsies

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Tissue and biopsies		

Sample instructions	
Collection	Optimally collected before antimicrobial therapy started.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.
Special requirements	If specimen is small place it in sterile water to prevent desiccation.
Laboratory information	
Tests	Microscopy for detection of Gram positive and negative bacteria (semi-quantitative). General isolation and characterisation of aerobic, microaerophilic and anaerobic micro-organisms (qualitative).
Measurement units	Growth detected or not detected.
Biological reference units	
Turnaround time	4 days, plus 2 days for enrichment culture.
Availability	Routine hours and on-call.
Clinical information	
Factors known to significantly affect the results	Specimens received in formal-saline are not suitable for culture. Delays in transportation may affect the recovery of pathogens.

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Toxoplasma diagnostic

Toxoplasma confirmation would only be performed on a Toxoplasma IgG positive sample. The test consists of Toxoplasma dye test and Toxoplasma IgM.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing. Please indicate if patient is pregnant and gestation with contact history.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Toxoplasma IgG (immunity)

In addition, if congenital infection suspected – amniotic fluid, fetal whole blood, neonatal cord blood can be tested – discuss with Consultant Microbiologist.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details and date of onset are essential for processing. Please indicate if patient is pregnant and gestation, with date of contact and exposure history.		
Laboratory information			
Tests	Detection of Toxoplasma gondii IgG (qualitative).		
Measurement units			
Biological reference units			
Turnaround time	7 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis.		

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Urines (microscopy and culture)

Send sample for microscopy and culture if clinically suspected UTI and any of the following:

- Pregnancy
- Signs of systemic or upper urinary tract infection (e.g.: fever, loin pain, renal angle tenderness)
- Immunocompromised or diabetic patients
- Male patients
- Children
- Female patients ≥ 65 years old
- Anatomically abnormal urinary/renal tract
- Failure to respond to empirical therapy
- History of recurrent UTIs (≥ 3 episodes/year)
- Patients with indwelling catheters ONLY if symptoms or signs of infection.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Urine, MSU, Bladder urine, SPA	Minimum volume 5ml	
	Urine, MSU, Bladder urine, SPA	Minimum volume 1ml	
Sample instructions			
Collection	Optimally collected before antimicrobial therapy started. Fill the container to the marked line (adults approx 20-30 ml). A minimum of 5ml is required. If less than 5ml of urine is anticipated, or collecting from a child, collect in to a white topped universal container. MSU and clean catch urines are the most commonly collected specimens and are recommended for routine use. **Mid-stream specimen (MSU):** Wash the genital area in women with soap and water or sterile saline. In men, retract the foreskin and wash skin surrounding the meatus with soap and water or sterile saline Ask patient to pass a small amount of urine into a bottle, bedpan or toilet. Using a clean container collect a mid-stream specimen of urine Transfer the specimen into a sterile red-topped boric acid container (fill to marked line, minimum of 2ml) and send to the laboratory. **Catheter Specimen of Urine (CSU** Do not use dipsticks for screening for infection, this invariably gives a positive result due to catheter colonisation. Request culture only when there are symptoms of infection – document this		

	clearly on the request form. Collect the specimen from the catheter self-sealing rubber sampling port using an aseptic technique. The sample must not be obtained from the bag Disinfect the port using an alcohol or Chlorhexidine 2% swab, allow to the port to dry then use a sterile needle and syringe withdraw urine. Transfer the specimen into a sterile red-topped boric acid container (fill to marked line, minimum of 2ml) and send to the laboratory. **Suprapubic aspirate (SPA)** SPA is seen as the "gold standard" but is usually reserved for clarification of equivocal results from voided urine in infants and small children. Before SPA is attempted it is preferable to use ultrasound guidance to determine the presence of urine in the bladder. For Mycobacteria; early morning urine on three consecutive days in 3 x 250ml container. For Schistosomiasis; Sample collected between 1000 and 1400. Alternatively a 24hr collection of terminal samples of urine may be obtained. Please note that urinary catheter tips will not be processed as they do not provide helpful microbiological information.
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.
Special requirements	No special requirements.
Laboratory information	
Tests	Presence of white blood cells, red blood cells, epithelial cells and casts (semi-quantitative). General isolation and characterisation of aerobic, microaerophilic and anaerobic micro-organisms (qualitative).
Measurement units	Cell count x 10^6/l
Biological reference units	
Turnaround time	3 days.
Availability	Routine hours and on-call (by arrangement).
Clinical information	
Factors known to significantly affect the results	Bacteria multiply rapidly in urine – delays in transportation may affect the recovery of pathogens. Contaminating bacteria from the external genitalia may give rise to misleading results.

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Varicella zoster virus (VZV) IgG (immunity)

To determine past chickenpox infection (or vaccination); indicates immunity.

Chickenpox/zoster contact in susceptible persons (e.g. pregnant, immunocompromised, neonates): If an urgent VZV IgG is required after exposure, the laboratory must be notified, and information provided on nature of contact and date of exposure.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Venous blood	2 – 6 mls	
Sample instructions			
Collection	No special requirements.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details and date of onset are essential for processing. Please indicate if patient is pregnant and gestation with contact history.		
Laboratory information			
Tests	Detection of VZV IgG (quantitative).		
Measurement units	IU/mL		
Biological reference units	<100 IU/mL - No evidence of immunity 100-150 IU/mL – Evidence of immunity in the immunocompetent >150 IU/mL – Evidence of immunity in the immunocompromised		
Turnaround time	7 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis. The performance characteristics of the test in newborns or in vaccinees have not been established. Results in immunosuppressed subjects should be interpreted with caution		

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Varicella zoster virus (VZV) PCR

Diagnosis of acute disease.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	EDTA blood	2 – 6 mls	
	Lesion swab (virus transport medium)		
Sample instructions			
Collection	Send a viral (green top) swab of vesicle fluid or affected mucous membranes.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Clinical details are essential for processing. For VZV in CSF refer to CSF (Cerebro-spinal fluid) virology PCR.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Viral haemorrhagic fever (VHF)

Used to determine past or current infection.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	EDTA blood	2 – 6 mls	
Sample instructions			
Collection	If VHF other than Dengue fever suspected DO NOT TAKE SAMPLES without first discussing with the Consultant Microbiologist (refer to the GWH Trust VHF Policy). Refer to current ACDP guidance.		
Specimen transport	Instructions for sample transportation of suspected VHF samples are defined in the GWH Trust Specimen Transportation Procedure. Specimens should be sent to the laboratory without delay during normal working hours. *Do not use pneumatic chute system if investigation for VHF required.*		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Samples from a patient suspected of having VHF WILL NOT be processed by the Microbiology Department until a diagnosis VHF risk assessment has been performed by the Consultant Microbiologist, and the Biomedical Scientist has been authorised to proceed with processing the sample by the Consultant Microbiologist.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units			
Biological reference units			
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	False negatives may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of organism below the detectable limit of the assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility. New and emerging variants may also occur which may not be detected by this assay.		

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Wounds (skin, superficial, non-surgical)

Swabs of acute wounds will be routinely cultured for primary pathogens i.e. *Staph aureus*, β-haemolytic streptococci. Where other potential pathogens are isolated in predominant or pure culture they will be reported. Growth of bacteria alone does not indicate the presence of infection, unless other factors such as inflammation, pus, erythema or fever are exhibited.

Chronic wounds are invariably colonised with bacteria. When processed, primary pathogens, potential pathogens in predominant or pure culture are reported as above as well as organisms likely to be simply colonising the wound (e.g. skin flora and faecal flora). This is because chronic wound management is influenced by degree of wound colonisation. Where heavy colonisation is identified this is invariably an indication for enhanced local wound care and not an immediate indication for systemic antibiotics.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
	Collection of pus or exudate	Minimum volume 1ml of pus	
	Amies transport swab	Swabs should be well soaked in pus	
Sample instructions			
Collection	Optimally collected before antimicrobial therapy started. Sample a representative part of the lesion. Swabbing dry crusted areas is unlikely to yield the causative pathogen. If specimens are taken from ulcers, the debris on the ulcer should be removed and the ulcer should be cleaned with saline. A biopsy or, preferably, a needle aspiration of the edge of the wound should then be taken. A less invasive irrigation-aspiration method may be preferred.		
Specimen transport	Specimens should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated. Delays of over 48 hours are undesirable.		
Special requirements	Important to indicate site and nature of lesion.		
Laboratory information			
Tests	Microscopy for detection of gram positive and negative bacteria (semi-quantitative) (pus). General isolation and characterisation of aerobic, microaerophilic and anaerobic micro-organisms (qualitative).		
Measurement units	Growth detected or not detected.		
Biological reference units			
Turnaround time	4 days, plus 2 days for enrichment culture (pus).		
Availability	Routine hours and on-call (pus).		

Clinical information	
Factors known to significantly affect the results	The recovery of anaerobes is compromised if transport time exceeds 3 hours. Delays in transportation may affect the recovery of pathogens.

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Zika Virus

Zika virus testing is only available via PHE's Rare and Imported Pathogens Laboratory (RIPL). Please read PHE's Zika virus sample testing advice (link below) before collecting and sending a specimen to the laboratory.

Examinations offered			
Collection container	**Specimen**	**Sample volume**	**Request form**
 	Venous blood Urine (within 21 days of symptom onset)	2 – 6 mls 1-5 mls	
Sample instructions			
Collection	Please read PHE's Zika virus sample testing advice (link below) before collecting and sending a specimen to the laboratory.		
Specimen transport	Specimens which do meet testing requirements should be sent to the laboratory without delay during normal working hours.		
Storage requirements	Outside of normal working hours samples should be refrigerated.		
Special requirements	Comprehensive clinical details, including travel history, are essential for processing.		
Laboratory information			
Tests	This test is processed at an external reference centre. Contact the laboratory on Telephone 01793 604798 if further details are required. The parameters analysed in this test and any reference ranges for these parameters will be displayed on the report when it is returned to the requestor.		
Measurement units	N/A		
Biological reference units	N/A		
Turnaround time	14 days.		
Availability	Routine hours.		
Clinical information			
Factors known to significantly affect the results	Haemolysis. Urine samples must be taken within 21 days of the onset of symptoms.		

Please refer to PHE's Zika virus: sample testing advice for further information.

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14 REFERENCE LABORATORIES

As part of the testing process, it may be necessary to refer some, or all, of the sample to an external reference laboratory which has the necessary expertise. In some cases there will be only one specialist laboratory in the whole country which performs a particular test, meaning using referral laboratories is essential.

There is a detailed policy in place to govern how we choose these referral laboratories. They are selected for their expertise and their quality standards, and are regularly checked for their accreditation status.

The name of the reference laboratory used will be indicated on the Microbiology report. The reference laboratories currently used are:

Laboratory	Address	UKAS accreditation	Examinations offered
Anaerobe reference unit (ARU	Public Health Wales Microbiology Cardiff University Hospital of Wales Heath Park Cardiff CF14 4XW	UKAS 9510	Anaerobe identification of Bacteroides, Clostridia, Fusobacteria, Actinomyces spp
Animal and Plant Health Agency	Virology Department Woodham Lane New Haw Addleston Surrey KT15 3NB	UKAS 1769 Accredited to ISO/IEC 17025:2005	Diagnostic service for Rabies
Antimicrobial reference unit	North Bristol NHS Trust Southmead Hospital Southmead Road Bristol BS10 5NB	UKAS 8099	Antimicrobial assay service
Clostridium difficile ribotyping network (CDRN)	Leeds General Infirmary Old Medical School Great George Street	UKAS 9862	Clostridium difficile culture and ribotyping

	LS1 3EX		
Cryptosporidium reference unit (CRU)	Public Health Wales Microbiology ABM, Singleton Hospital Sgeti Road Swansea SA2 8QA	UKAS 9510	Cryptosporidium typing and confirmation services
Colindale Sequencing Labaratory (CSL)	UK Health Security Agency 61 Colindale Avenue London NW9 5HT	UKAS 8727	Genome sequencing, transcription and proteogenome analysis, pathogen discovery and metagenomics
Great Ormond Street Hospital for Children NHS Foundation Trust	Bacteriology Laboratory Level 4 Camelia Botnar Laboratories Great Ormond Street London WC1N 3JH	UKAS 8675	Diagnostic service for Whipples disease
Imperial College London	Molecular Diagnostic Unit, Imperial College London, St Mary's College, Norfolk Place, London W2 1PG	UKAS 9003	HIV resistance testing
Insect Research and Development, Cambridge	6 Quy Court Colliers Lane Stow - cum- Quy Cambridge CB25 9AU	No accreditation status Laboratory work recognised in civil litigation and criminal prosecutions, or defence	Identification of insect and animal foreign bodies
Liverpool Clinical Laboratories	Liverpool Clinical Laboratories Royal Liverpool and Broadgreen Univerisity Hospitals NHS Trust Prescot Street Liverpool L7 8XP	UKAS 9755	Brucella Serology
Lab 21	Park House Winship Road Milton	UKAS 9325	Therapeutic drug monitoring for HIV patients

	Cambridge Cambridgeshire CB24 6BQ		
Meningococcal reference unit (MRU)	Clinical Sciences Building 2 Manchester Royal Infirmary Oxford Road Manchester M13 9WL	UKAS 10175	Meningococcal PCR and Serology Pneumococcal PCR
Mycology reference laboratory	Infection Sciences Laboratory Pathology Building Southmead Hospital Southmead Road Westbury on Trym Bristol BS10 5NB United Kingdom	UKAS 8043	Laboratory services for the diagnosis and management of fungal infections
National CJD research and surveillance unit (NCJDRSU)	Western General Hospital Crewe Road Edinburgh EH4 2XU	Laboratory work recognised by WHO, inspected by HSE and perform well in European EQA schemes	Diagnostic service for CJD
Health Service Laboratories Parasitology	The Department of Clinical Parasitology The Hospital for Tropical Diseases 3rd Floor Mortimer Market Centre Mortimer Market London WC1E 6JB	UKAS 9702	Laboratory reference services for parasites and amoeba Various parasitology serology
North Bristol NHS Trust Department of Immunology and Immunogenetics	Department of Immunology and Immunogenetics Southmead Hospital Southmead Road Westbury on Trym Bristol BS10 5NB	UKAS 8067	Faecal Calprotectin (Liquid stools only) CD4 counts

North Bristol NHS Trust Infection Sciences Laboratory	Infection Sciences Laboratory Pathology Building Southmead Hospital Southmead Road Westbury on Trym Bristol BS10 5NB	UKAS 8043	Viral PCR and serology tests (not carried out in house) Helicobacter Ag
Oxford University Hospitals NHS Trust	Immunology Department Churchill Hospital Old Road Headington Oxford OX3 7LJ	UKAS 8782	HIB serology Pneumococcal serology
Oxford University Hospitals NHS Trust	Department of Microbiology Level 6/7, John Radcliffe Hospital Headley Way Headington Oxford OX3 9DU	UKAS	Investigation of Mycobacterium infections.
Rare and imported pathogens laboratory (RIPL)	Public Health England Manor Farm Road Porton Down Salisbury Wiltshire SP4 0JG	UKAS 9304	Diagnosis and management of unusual or hazardous infectious diseases present in the UK or imported into the country, including Lyme and Leptospirosis.
Oxford Diagnostics Laboratories Ltd	UK Oxford Diagnostic Laboratories 143 Park Drive Milton Park Abingdon Oxfordshire OX14 4SE	UKAS 4066	Referral laboratory for analysis based on the T-SPOT technology using a standardised ELISPOT platform.
Toxoplasma reference laboratory (TRL)	Department of Microbiology Singleton Hospital Sgeti Swansea	UKAS 9510	Diagnostic service for toxoplasma infection

	SA2 8QA		
UK Health Security Agency Bacteriology Reference Laboratory	UK Health Security Agency 61 Colindale Avenue London NW9 5HT	UKAS 8197	National reference laboratory for specialist testing, bacterial characterisation and susceptibility testing.
UK Health Security Agency Virology Reference Department	UK Health Security Agency 61 Colindale Avenue London NW9 5EQ	UKAS 8825	Clinical advice and laboratory investigations for a wide range of viral human infections.
University Hospital Southampton NHS Foundation Trust	Microbiology Department Tremona Road Southampton Hampshire SO16 6YD	UKAS 8403	Laboratory services for the diagnosis and management of fungal infections. HSV type specific serology

15 PATIENT CONSENT DISCLOSURE

15.1 Laboratory Policy on protection of personal information

The Microbiology Department regards the lawful and correct treatment of patients' personal information as vital to successful operations and to maintaining the confidence of users of the service. Request form information may additionally be used for billing purposes, financial audit, resource management and utilization reviews.

Our policy is that we will treat personal information lawfully and correctly in adherence to the principles of data protection described in the Data Protection Act 1998.

As part of the Great Western Hospital NHS Foundation Trust we also work to its governance and data protection policies which incorporate the Data Protection Act, the Department of Health Confidentiality NHS Code of Practice, and Department of Health Security Management NHS Code of Practise, as listed below:

- Information Governance Strategy and Policy
- Information Protection and Security Policy
- Information Asset Register Procedure
- Data Protection Policy
- Data Transfer Policy
- Data Quality Policy
- Code of Conduct for Employees in Respect of Confidentiality Policy
- Freedom of Information Requests Procedure

All the above Trust policy documentation is available upon request to the Laboratory.

15.2 Patient consent

Consent to a specimen being taken and analysed is implied by the patient presenting to the point of specimen collection. The responsibility for obtaining informed consent for the tests(s) resides with the individual ordering the test. Informed consent should cover all the tests being done, implications of their results and disclosure of clinical and personal details to personnel (in the requesting organisation and any other healthcare organisations involved in providing the test). Special procedures, including more invasive procedures, or those with an increased risk of complications to the procedure, will need a more detailed explanation and, in some cases, written consent. Patients in a hospital bed should normally be given the opportunity to refuse.

The laboratory procedures the laboratory assumes that patient consent has been obtained for the investigations requested, as the patient has presented themselves and willingly submitted to the usual collecting procedure.

The exception to this being antenatal screening requests, which must be accompanied by a form clearly indicating that blood borne virus testing has been accepted or declined by the patient and signed by the requesting clinician.

In emergency situations consent may not be possible. Under these circumstances the laboratory will carry out the necessary investigations provided they are in the patient's best interest.

15.3 Medico-legal samples

Any specimens submitted for medico – legal purposes should have documentation accompanying these specimens to provide an unbroken chain of evidence.

15.4 The Human Tissue Act

Great Western Hospitals NHS Foundation Trust are licensed by the Human Tissue Act (HTA) to undertake examinations of postmortem samples submitted by clinical consultants and pathologists. Under the license, the samples may be retained until the examination has been completed and in line with the sample retention policies.

It is the obligation of the requesting clinician or pathologist to ensure that examination of samples they submit have been requested by the coroner or appropriate consent has been obtained from the deceased person or their relatives.

Only the specific examinations requested by the sending clinician or pathologist may be performed. It must be assumed that the coroner has not asked for any other examinations to be performed, and consent has not been obtained for any other work and so this would be outside the scope of the licence. If additional work on samples from the deceased is thought necessary by the Medical Microbiologist, they must obtain written confirmation of consent from the sending departments.

All relevant material is stored securely and under conditions which maintain the integrity of the sample if possible and confidentiality is maintained in compliance with Caldicott principles, as are all samples received. Following processing, relevant material is only retained for the period specified by the retention policy.

15.5 Duty of Candor

The Microbiology Department ensures full compliance with the Duty of Candour policy as set out by the Trust. The Department is deeply committed to prioritising transparency, honesty, and accountability in all interactions with patients and healthcare providers. All samples that enter the Microbiology Department are treated with the upmost respect and care. As such our team is dedicated to promptly identifying, addressing, and disclosing any issues that may arise during testing or reporting processes, ensuring that patients and clinical partners receive accurate, timely information. By upholding this commitment, we aim to continually improve our practices, enhance patient safety, and maintain the highest standards of professional integrity.

16 FEEDBACK ON OUR MICROBIOLOGY SERVICE AND COMPLAINTS PROCEDURE

The Microbiology Department ensures full compliance with the Duty of Candour policy, the Incident Management policy and Complaints Policy as set out by the trust. All Trust policy documentation is available upon request to the Laboratory.

All complaints or other feedback received from clinicians, patients or other parties are managed in accordance with the Trust Complaints Policy and Procedure. Feedback (including complaints) can be submitted to the laboratory via the Pathology User Satisfaction Survey (available on the intranet under Pathology), PALS or direct contact with the Microbiology Laboratory Manager, Clinical Lead and/or General Manager of Pathology and Transfusion Services.

Any suggestions from users on how this user guide could be improved would be welcome for inclusion in future editions. Please forward suggestions to the GWH.Microbiology@nhs.net. Please also let us know about new services you would wish to see developed.