UK Health Security Agency

NHS Manchester University NHS Foundation Trust

Manchester Medical Microbiology Partnership (MMMP)

Clinical Microbiology & Public Health Laboratory, Manchester

User Guide

A-Z of tests

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Contact the MMMP

1.0 INTRODUCTION

The Manchester Medical Microbiology Partnership (MMMP) is a collaboration between Manchester University Hospitals NHS Foundation Trust (MFT) and United Kingdom Health Security Agency (UKHSA).

The objective of this partnership is to provide Central and South Manchester with a unified Microbiology Service embracing all aspects of medical and public health microbiology.

The MMMP is made up of the following Departments and Units:

- Microbiology Department, MFT, Oxford Road Campus
- Virology Department (including Serology, Molecular Diagnostics and Genomic Sequencing), MFT, Oxford Road Campus
- UKHSA Meningococcal Reference Unit (MRU), MFT, Oxford Road Campus
- UKHSA Vaccine Evaluation Unit (VEU), MFT, Oxford Road Campus

1.1 Roles and functions

- To provide a clinical and public health microbiology service, including an infection control service, jointly managed by MFT and UKHSA
- Provide microbiology support and advice to the Public Health England Centres (UKHSACs), Local Authorities and Port Health Authorities in the North West
- Provide expert microbiological advice during outbreaks and other incidents of infectious disease
- Contribute to the development of local, regional and national guidelines and policies
- Provide community and health care-associated infection(HCAI) surveillance data
- Host the following UKHSA units:
  - Meningococcal Reference Unit (MRU), which provides national microbiological and surveillance data on meningococcal infections
  - Vaccine Evaluation Unit (VEU), which studies the efficacy of meningococcal, pneumococcal and other vaccines, e.g. human papillomavirus (HPV) vaccines
  - Sero-epidemiology Unit (SEU), which provides serological data on the epidemiology of infection
- Provide a *Clostridium difficile* ribotyping service(CDRN) for the North West
- Provide specialist virology, molecular diagnostic and genomic sequencing services for Greater Manchester, the North West and beyond

2.0 LOCATION OF MMMP AND CONTACT DETAILS

Microbiology services at MFT are based in the Clinical Sciences Centre, marked by the pink dot on the map below. The MFT site is an amalgam of Manchester Royal Infirmary, Wythenshawe Hospital, Manchester Royal Eye Hospital, St Marys Womens & Infants Hospital, Royal Manchester Childrens Hospital, University Dental Hospital and Trafford Hospitals.

The **Microbiology Department at Manchester Foundation Trust (Oxford Road Campus)** is situated on the second and third floors of Clinical Science Buildings (CSB 1,2,3). The Meningococcal Reference Unit and Vaccine Evaluation Unit are also situated within the 2nd and 3rd floors of CSB1 and CSB 2.

The **Virology Department at Manchester Foundation Trust (Oxford Road Campus)** is situated on the third floor of Clinical Science Buildings (CSB1 & CSB2). Specimen reception &serology are based in CSB1 and Molecular Diagnostics is based in CSB2. The clinical sciences buildings can be accessed from The Boulevard during normal working hours. Visitors should report to reception on arrival.

The postal and DX addresses are as follows:
Manchester Medical Microbiology Partnership

Clinical Sciences Centre
Manchester Royal Infirmary
Oxford Road
Manchester M13 9WL

Manchester Medical Microbiology Partnership
DX6962410
Manchester 90 M

The Microbiology department at Wythenshawe Hospital has transferred to Oxford Road Campus. All specimens should be transported to the the pathology specimen reception as rapidly as possible after collection to avoid compromising results. Specimens may be transported via normal portering rounds/transport arrangements during the normal working day. When bacteriology and virology tests are to be performed, on the same specimen, a separate specimen for each laboratory is preferred to ensure timely receipt and processing in each laboratory. Specimens are then transported six times a day (weekday) and three times a day at the weekend to the microbiology and virology laboratories at the Oxford Road Campus.

All specimens are tracked to the microbiology department at Oxford Road Campus. Specimens are transported at 08:30, 9:00, 11.00, 13:00, 15:30 and 18:30 Monday – Friday. At the weekend specimens are tracked and transported to Oxford Road Campus at 9:00, 11:00 and 16:00.

For any urgent requests outside of working hours contact the on call Biomedical Scientist through Oxford Road Campus Switchboard (0161 276 1234). Wythenshawe specimen reception will arrange for the specimens to be transported to the Oxford Road Campus by courier.

A team of Clinical Microbiologists remain onsite at Wythenshawe Hospital to provide microbiological clinical advice to service users. See here for contact details

Turnaround Times

All specimens must be delivered to the laboratory as soon as possible in order to provide the best possible service and keep turnaround times to a minimum. Each laboratory monitors laboratory turnaround times for each test. We aim to complete 95% of tests reports within agreed target turnaround times. Any test that does not meet 95% of the agreed target turnaround time will be investigated to ensure corrective actions and improvements are put in place. The laboratory monitors laboratory turnaround time which is from point of receipt into the laboratory until reported result, and also the full end to end turnaround which includes from when the user collected the sample.

3.0 QUALITY ASSURANCE

The MMMP is a UKAS accredited medical laboratory No 8393 and 10175. The MMMP has been assessed by UKAS (United Kingdom Accreditation Service) and is accredited in accordance with the recognised international standard ISO 15189. This accreditation demonstrates technical competence for a defined scope and the operation of a medical laboratory quality management system. The schedules (8393 for MFT and 10175 for UKHSA) of accredited tests can be found on the UKAS website

Quality assurance schemes such as EQA and IQA help make sure the department's high quality standards are maintained. The results sent out by this laboratory are of the highest possible quality. To this end we have a Quality Management System (QMS) and participate in the UK National External Quality Assurance Scheme (UKNEQAS) and Quality Control for Molecular Diagnostics (QCMD) for a wide range of microbiological investigations. UKNEQAS/QCMD are central organisations that operate on a country wide basis and monitors our performance regularly by sending simulated samples for analysis. Where EQA schemes are not available, interlaboratory comparison is arranged with other laboratories. See appendix 1 for a copy of all EQA schemes and interlaboratory comparisons the laboratory participates in.

An experienced consultant team offers support to clinicians and service users 24 hours a day, seven days a week. The team provides information related to using the service, interpretation of test results and clinical advice on therapy, prophylaxis and immunisations.

Training is accredited by the Institute of Biomedical Science (IBMS) for biomedical scientist specialist training and by The Royal College of Pathologists for medical training. We also support Manchester Metropolitan University, delivering training in biomedical science and have a long-standing relationship with The University of Manchester for research and development and post-graduate training and supervision.

3.1 QUALITY POLICY

QUALITY POLICY OF THE MANCHESTER MEDICAL MICROBIOLOGY PARTNERSHIP

The Manchester Medical Microbiology Partnership (MMMP) is collaboration between Manchester University NHS Foundation Trust (MFT) and United Kingdom Health Security Agency (UKHSA). MMMP provides Clinical Diagnostic Microbiology and Virology services, including Molecular Diagnostics and Genomic Sequencing, and is committed to providing a high quality clinical, analytical and advisory service. Specialist services on site include the UKHSA Meningococcal Reference Unit and the UKHSA Vaccine Evaluation Unit. A full list of accredited tests can be found at UKAS Schedule of Accreditation and the user manual can be found at MMMP User Manual. MMMP aims to take into account the needs and requirements of its users and other stakeholders and to operate in a safe manner for staff, visitors and patients. In order to ensure these aims are met the MMMP will:
MMMP aims to take into account the needs and requirements of its patients and users and other stakeholders and to operate in a safe manner for staff, visitors and patients. In order to ensure these aims are met the MMMP will:

- ensure that patient well-being, safety and rights are our primary considerations.
- planning and implementing actions to address risk of harm to patients, and opportunities for improvement.
- operate a quality management system designed to integrate the function of the organisation and its processes, procedures, resources and safety, including requirements from HTA.
- provide a framework for establishing and reviewing measurable quality objectives and plans in order to implement this quality policy in line with the objectives of the Manchester University NHS Foundation Trust (MFT) and United Kingdom Health Security Agency (UKHSA).
- consult with users on a regular basis to ensure their needs and requirements are met.
- ensure that all personnel are familiar with this policy and the quality manual.
- review the quality policy for suitability and effectiveness at the annual management review.
- commit to the health, safety, and welfare of its entire staff. Visitors to the department will be treated with respect and due consideration will be given to their safety while on site.
- commit to promoting a culture of continuing quality improvement.
- uphold professional values and be committed to good professional practice and conduct.
- maintain confidentiality of information and records of service users, staff, and patients.
- consider environmental legislation and guidelines in its plans and operational policies.
- ensure there is full recognition of diverse needs, circumstances and concerns of all staff, visitors, and patients with respect to the Equality Act and MFT's people plan.

The MMMP will comply with ISO 15189 and is committed to:

- providing a high standard of service for stakeholders, and national screening programmes
- staff recruitment, training, competent staff, development, and retention at all levels to provide a full and effective service to its users.
- the proper procurement and maintenance of such equipment and other resources as are needed for the provision of the service.
- the collection, transport, and handling of all specimens in such a way as to ensure the safe and correct performance of laboratory examinations and the safety of our staff and the general public.
- the use of examination procedures that are fit for purpose and will ensure the highest achievable quality of all tests performed within the resources available.
- reporting results of examinations in ways which are timely, confidential, accurate and clinically useful.
- the assessment of user satisfaction, using regular clinical liaison meetings, satisfaction surveys and face to face meetings with external users
- ensure ongoing evaluation and improvement by the process of internal audit, external quality assessment and by the identification of non-conformities with procedures and standards
- take into consideration the needs and requirements of patients by liaison and surveys of patient groups wherever possible.
- work with clinical teams to ensure right patient, right test, right time in support of patient safety, demand management and GIRFT principles.
- safeguarding impartiality of its laboratory services, and not allowing commercial and financial pressures to compromise impartiality.

Signed on behalf of the Manchester Medical Microbiology Partnership:

Dr S Thomas  **Date: 03/11/2023**

4.0 INFORMATION FOR HEALTHCARE PROFESSIONALS

4.1 OPENING HOURS, CLINICAL ADVICE AND RESULTS LINE

4.1.1 MICROBIOLOGY DEPARTMENT, MFT, OXFORD ROAD CAMPUS

Laboratory Opening Hours

The laboratory is open:

Monday to Friday: 8.00am -5.00pm

Outside of working hours contact the on call Biomedical Scientist through Switchboard (0161 276 1234) for urgent requests.

Saturday: 8.30am – 12.30noon
Sunday: 8.30am – 12.30noon

The total workload is approximately 600,000 specimens per annum.

Clinical Advice

For clinical advice during normal working hours (Mon – Fri):
Tel: 0161-276-8788/8854

- General culture results are available 24 hours after specimen receipt (at the earliest), and sensitivities usually after a further 24 hours. For samples such as blood cultures and CSF, the Microbiologist will usually inform the clinicians of initial significant results as soon as they are known.
- Internal users, please refer to the antibiotic guidelines, in the first instance, for the commoner microbiology enquiries. Please refer to Trust antimicrobial guidelines via the intranet homepage
- New or junior doctors should discuss queries with their own clinical team, before calling the Medical Microbiologist.
- For Medical Microbiology advice for the more complicated cases, the Medical Microbiology team should be contacted on 0161-276-8788/8854 or via switchboard.
- For Infection Control advice alone, the Infection Control Nurses can be contacted on extension 64042 or via switchboard.
- Clinical advice on Mycology results/problems is available from Dr A Dodgson (0161) 276 6010 or Dr K Dodgson (0161) 276 5746

Additional tests

- Additional tests can be requested on all samples by contacting the laboratory, and providing an additional request. Most samples are stored for a maximum of 7 days, although it must be recognised that used samples will have a limited volume and for some tests old samples may influence the culture results.

Results

All urgent clinically significant results will be telephoned back to the requesting ward by a BMS or a Microbiologist. Urgent negative results can be accessed using HIVE.

For other results/enquiries during normal working hours: Tel: 0161-276-8788/6333/4306

Out-of-hours Service

The Microbiology out-of-hours service is an Emergency Service.

A limited number of investigations are offered out of normal laboratory hours (i.e. 17.00 – 08.30 weekdays, 12.30 to 08.30 Saturdays, and 08.30 to 08.30 Sundays and Bank Holidays) where urgent results are required. The duty BMS can be contacted through hospital switchboard (0161 276 1234).

The following tests are available as appropriate:

- Paediatric Emergency Admission urines Children <3 months old
- Paediatric Emergency Admission urines Children >3 months old with a Dipstick positive for Leucocytes or Nitrates
- CSF (Cell Count & Culture) Samples requiring TB investigations cannot be processed out of hours, Ascitic / Peritoneal Fluid (Cell Count & Culture)
- Joint Fluids (Gram stain & Culture) Crystal investigations are performed by Histopathology, cell differential performed by Cytology (separate sample and request required)
- Sterile Fluids from all areas will be considered for processing after discussion with the BMS on call, samples requiring investigations that require lone containment level 3 working will not be performed.

For urgent out of hours processing of samples adopt the following protocol:

1. Call the Biomedical Scientist (BMS) on-call, via the switchboard after you have collected the specimen.

2. Transport of the specimen to the laboratory in a timely fashion is the responsibility of the ward, not of the BMS on-call and should be via the portering system or pneumatic tube.

Contacting the MMMP

Contact details for infection services

Manchester Medical Microbiology Partnership (MMMP) main telephone: 0161 276 8788

Option 1: Microbiology and Virology Results and General Enquiries (Routine Hours- 8:30 – 17:00pm)

Option 2: Virology (Routine hours- 9:00 – 17:00pm)

1. To notify urgent specimen for Virology within routine working hours
2. For Virology medical advice within routine working hours

Option 3: Microbiology (Routine Hours- 9:00 – 16:45pm)

1. To notify urgent specimen for Microbiology
2. Medical Advice for the Oxford Road, Trafford or Wythenshawe sites
3. Medical Advice for Tameside Site via switchboard

Option 4: Out of Hours

1. Virology or Microbiology On-Call Services via switchboard
2. Tameside Site via Switchboard

Option 5: Vaccine Evaluation Unit / Meningococcal Reference Unit clinical advice (Routine Hours- 8:00 – 17:00pm)

Option 6: Wythenshawe specimen tracking advice (Routine Hours 8.30 to 17:00pm)

Out of hours contacts

Contact via the hospital switchboard

Results service

Please check for results on ICE-desktop or Chameleon before calling as results are updated onto these systems in real time. General culture results are available 24 hrs after specimen receipt (at the earliest), and sensitivities usually after a further 24 hours. New information for specimens is usually available by 11.30am. For 'special' samples such as positive blood cultures and CSF samples the microbiologist and/or virologist will inform the clinicians of initial significant results as soon as they are known.

Sending specimens to the laboratory

Microbiology and virology samples are ordered by clinicians using ICE-desktop.

Notify the lab in advance if samples require urgent processing, eg CSF samples.

Samples from Trafford are transported to the microbiology laboratory daily. Results will be available as above.

Clinical Infection Advice from Microbiology and Virology

The clinical microbiology team is available for routine advice 9am to 5pm Monday to Friday. We advise on infection queries from the Oxford Road and Trafford sites. During these times you can expect to speak with a microbiology registrar, Clinical Scientist, or consultant covering clinical queries. An on-call microbiology registrar, Clinical Scientist, and/or consultant are available out-of-hours via switchboard.

The telephone advice service can have busy periods. If your query is about empiric antibiotic choice, please consult the Trust antimicrobial guidelines to see whether the answer to your query can be found before calling. Please note that we have a daily microbiology handover on weekdays between 11.15am and 12.15pm and if you have an urgent enquiry during this time you can contact the on-call microbiology consultant via switchboard.

Contacts details:
Microbiology, normal hours 9am - 5pm: Ext **66333**

For specialist virology advice, see contact details here

Out of hours Microbiology and Virology, via switchboard

When calling for microbiology advice, please have up-to-date information about your patient to hand, including the following:

- Date and reason for admission
- Current clinical problem list and question for infection team
- Overview of recent observations, blood results, scan results and dates
- History of antibiotic courses given during this admission
- Details of known antibiotic allergies
- Overview of relevant microbiology results and culture sensitivities (important when calling microbiologist out-of-hours)

When calling out-of-hours, junior medical staff should consider whether the query can be resolved through discussion with senior members of your team. If the query cannot be resolved, the senior clinician should decide whether the case should be discussed urgently

with the on-call microbiologist or whether non-urgent cases can be discussed the following morning.

Contact Details

Name	Specialist Interest	Telephone Number	email
Dr Stephanie Thomas Head of Service Consultant Medical Microbiologist	Intensive Care Infections (including ECMO) Complex vascular surgical infections inlcuding the diabetic foot Public Health	(0161) 291 4754	Stephanie.Thomas@mft.nhs.uk
Dr R Rajendran Associate Medical Director (Infection Prevention and Control) & Clinical Head of Division for Laboratory Medicine and Consultant Medical Microbiologist	Regional Medical Lead for IPC NHS North West	(0161) 276 4185	Rajesh.Rajendran@mft.nhs.uk
Dr Eamonn Trainor Interim Clinical Lead Consultant Medical Microbiologist	Infection prevention and control Enteric infection Critical care Clinical governance		eamonn.trainor@mft.nhs.uk
Dr Kirsty Dodgson Consultant Clinical Scientist	Outpatient antimicrobial parenteral therapy	**(**0161) 276 8841	Kirsty.Dodgson@mft.nhs.uk
Dr Andrew Dodgson Consultant Medical Microbiologist		(0161) 276 6010	Andrew.Dodgson@mft.nhs.uk
Dr Louise Sweeney Consultant Medical Microbiologist	Adult Haematology & Transplant Critical Care Antimicrobial Resistance	(0161) 276 5745	Louise.Sweeney@mft.nhs.uk

Dr Fiona Price Consultant Medical Microbiologist	Education and training Neonatal infection Infectious Endocarditis Diagnostic pathway optimisation	(0161) 291 2884	fiona.price@mft.nhs.uk
Dr Hamed Sharaf Consultant in infection (Medical Microbiology / Infectious Diseases)	Diabetic foot infection Vascular graft infections Infections in critically ill patients	(0161) 276 6333	hamed.sharaf@mft.nhs.uk
Dr Ranajoy Sankar Bhattacharya Consultant in infection	Surgical infections, antimicrobial stewardship and Infection control	(0161) 291 2819	ranajoy.bhattacharya2@mft.nhs.uk
D**r Zoie Aiken** Consultant Clinical Scientist	Paediatric haematology & transplant Paediatric critical care Molecular diagnostics & laboratory development Clinical Scientist education & training	(0161) 276 6333	zoie.aiken@mft.nhs.uk
Dr Ahmed Qamruddin Consultant Medical Microbiologist	Antibiotic Guidelines Endocarditis Audit Infection in Paediatric Intensive Care, Cystic Fibrosis & Eye	(0161) 276 4282	Ahmed.Qamruddin@mft.nhs.uk
Gemma Shaw Microbiology Secretary		(0161) 701 5953	Gemma.Shaw@mft.nhs.uk
Specialist Registrars Office		(0161) 276 6333	
Rachel Jones UKHSA Regional Head of Laboratory Operations/ Head BMS MMMP		(0161) 276 5747	Rachel.Jones2@mft.nhs.uk

Simon Eccles **Laboratory Manager**		(0161) 701 4703	Simon.Eccles@mft.nhs.uk
Katherine Mather Deputy Laboratory Manager		(0161) 276 4909	Katherine.Mather@mft.nhs.uk
Daniel Hughes Deputy Laboratory Manager		(0161) 276 3577	Daniel.Hughes@mft.nhs.uk
Gemma Edwards **Deputy Laboratory Manager**		(0161) 701 6689	Gemma.Edwards2@mft.nhs.uk
Patrick Farrell **Deputy Laboratory Manager**		(0161) 276 8822	Patrick.Farrell2@mft.nhs.uk
Hospital Switchboard		(0161) 276 1234	

4.1.2

MICROBIOLOGY DEPARTMENT, MFT, WYTHENSHAWE CAMPUS

Clinical Advice within routine hours	(0161) 291 2885
Urgent testing within routine hours	(0161) 276 4424
Tracking Advice within routine hours	(0161) 276 8788
Results Advice within routine hours	(0161) 276 8788
Out of hours for urgent specimen testing	(0161) 276 1234
Out of hours for urgent medical advice	(0161) 998 7070

Contact details for Clinical Advice

Name	External Numbers
Specialist Registrar	(0161) 291 4784/4863
Clinical Advice Line	(0161) 291 2885
Hospital Switchboard	(0161) 998 7070

The Microbiology department at Wythenshawe Hospital has transferred to Oxford Road Campus. All specimens should be transported to the the central specimen reception at Wythenshawe pathology as rapidly as possible after collection to avoid compromising results. Specimens may be transported via normal portering rounds/transport arrangements during the normal working day. When bacteriology and virology tests are to be performed, on the same specimen, a separate specimen for each laboratory is preferred to ensure timely receipt and processing in each laboratory. Specimens are then transported six times (weekday) and three times a day at the weekend to the microbiology and virology laboratories at the Oxford Road Campus.

Laboratory Opening Hours

The laboratory is open:

Monday to Friday: 8.00am -5.00pm

Saturday: 8.30am – 12.30 noon
Sunday: 8.30am – 12.30 noon

The total workload is approximately 1,000,000 specimens per annum.

Outside of working hours and Bank Holidays please contact the on call Biomedical Scientist through Switchboard (0161 276 1234) for urgent requests.

All specimens are tracked to the microbiology department at Oxford Road Campus. Specimens are transported at 08:30, 9:00, 11.00, 13:00, 15:30 and 18:30 Monday – Friday. At the weekend specimens are tracked and transported to Oxford Road Campus at 9:00, 11:00 and 16:00. Any tracking queries can be telephoned to 0161 276 8788 within routine hours

Any urgent samples must be phoned through to the microbiology laboratory on 0161 276 8788 or there may be a delay in the processing of these samples. For any urgent requests outside of working hours contact the on call Biomedical Scientist through Oxford Road Campus Switchboard (0161 276 1234). Wythenshawe specimen reception will arrange for the specimens to be transported to the Oxford Road Campus by courier.

A team of Clinical Microbiologists remain onsite at Wythenshawe Hospital to provide microbiological clinical advice to service users.

Use of Pneumatic tube

Samples that MUST NOT be sent via the pneumatic tube:

- All respiratory samples such as pleural fluid in blood culture bottle, sputum, BALs etc.
- Samples for mycobacterial investigation, including samples sent in Myco/Lytic culture bottle

- CSF samples
- Damaged or leaking specimens
- Precious and unrepeatable samples.

All other specimens, e.g. swabs, tips, clotted bloods, blood cultures, faeces and urines can be sent via the pneumatic tube. If you have any doubt about the suitability of sending a sample via the pneumatic tube system, contact the pathology specimen reception on ext: 4819

Obtaining results or clinical advice

For Medical Microbiology advice for the more complicated cases, contact the duty microbiologist on 0161 291 2885 or via switchboard.

Providing clinical information and an accurate description of the nature of the specimen are important for correct processing and reporting by the laboratory. Please indicate clearly on the request form if there is a history of foreign travel.

Preliminary culture results are available 24 hours after specimen receipt (at the earliest), and sensitivities usually after a further 24 hours. For 'special' samples such as blood cultures and CSF, the microbiologist will inform the clinicians of initial significant results as soon as they are known.

Please refer to the antibiotic guidelines in the first instance for the commoner microbiology enquiries regarding treatment. 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 extension 2630 or bleep via switch during routine working hours.

Sensitivity results are reported as follows:

S= Sensitive (fully)
I= Intermediate (reduced sensitivity)
R= Resistant

Results

All urgent results will be telephoned when requested or if there is a clinically significant result a Microbiologist or BMS will contact the requesting ward.

For other results/enquiries during normal working hours: Tel: 0161-276-8788/6333/4306

Out-of-hours Service

The Microbiology out-of-hours service is an Emergency Service.

A limited number of investigations are offered out of normal laboratory hours (i.e. 17.00 – 08.30 weekdays, 12.30 to 08.30 Saturdays, and 08.30 to 08.30 Sundays and Bank Holidays) where urgent results are required. The duty BMS can be contacted through hospital switchboard (0161 276 1234).

The following tests are available as appropriate:

- Paediatric Emergency Admission urines Children <3 months old
- Paediatric Emergency Admission urines Children >3 months old with a Dipstick positive for Leucocytes or Nitrates
- CSF (Cell Count & Culture) Samples requiring TB investigations cannot be processed out of hours, Ascitic / Peritoneal Fluid (Cell Count & Culture)
- Joint Fluids (Gram stain & Culture) Crystal investigations are performed by Histopathology, cell differential performed by Cytology (separate sample and request required)

Sterile Fluids from all areas will be considered for processing after discussion with the BMS on call, samples requiring investigations that require lone containment level 3 working will not be performed

For urgent out of hours processing of samples adopt the following protocol:

1. Call the Biomedical Scientist (BMS) on-call, via the switchboard after you have collected the specimen.

2. Transport of the specimen to the laboratory in a timely fashion is the responsibility of the ward, not of the BMS on-call and should be via the portering system or pneumatic tube.

Contacting the MMMP

Contact details for infection services

Manchester Medical Microbiology Partnership (MMMP) main telephone: 0161 276 8788

Option 1: Microbiology and Virology Results and General Enquiries (Routine Hours- 8:30 – 17:00pm)

Option 2: Virology (Routine hours- 9:00 – 17:00pm)

1. To notify urgent specimen for Virology within routine working hours
2. For Virology medical advice within routine working hours

Option 3: Microbiology (Routine Hours- 9:00 – 16:45pm)

1. To notify urgent specimen for Microbiology
2. Medical Advice for the Oxford Road, Trafford or Wythenshawe sites
3. Medical Advice for Tameside Site via switchboard

Option 4: Out of Hours

1. Virology or Microbiology On-Call Services via switchboard
2. Tameside Site via Switchboard

Option 5: Vaccine Evaluation Unit / Meningococcal Reference Unit clinical advice (Routine Hours- 8:00 – 17:00pm)

Option 6: Wythenshawe specimen tracking advice (Routine Hours 8.30 to 17:00pm)

4.1.3 MOLECULAR MICROBIOLOGY

Introduction

The MMMP offers a wide range of molecular diagnostic assays for viral, bacterial, fungal and parasite infections. We are continuing to develop a microbiology molecular diagnostic service that will provide a wide range of clinically relevant diagnostic assays exploiting the real time PCR platforms available within the MMMP. The molecular diagnostic services are developed by senior clinical scientists and routine assays undertaken by biomedical scientific staff. Within this unit there is an active programme in developing new molecular approaches to diagnosis and characterisation of pathogens. Consultant microbiology staff have a leading role in establishing the clinical utility of the service.

The total workload is approximately 300,000 specimens (600,000 tests) per annum.

Laboratory opening hours

The laboratory is open:

Monday to Friday: 8.30am - 5.00pm

Saturday: 8.30am - 12.30pm

Sunday (October to March): 08:30 to 12:30pm

Clinical Advice

A full clinical advice service is maintained 24 hours a day.

For advice during normal working hours: Tel: 0161-276-8854/8788.

For Clinical advice out of hours: Tel: 0161-276-1234 and ask for the duty Consultant Virologist.

For technical advice during normal working hours: Tel: 0161-276-8833

For testing out of hours

There is no routine ‘out of hours’ service for molecular diagnostics.

Results

Result enquiries can be made through the microbiology call centre.

Tel: 0161-276-8854/8788

Results will only be telephoned when requested or if there is a clinically significant result. For Contact Details see here

4.1.4 VIROLOGY DEPARTMENT

Introduction

The Clinical Virology Department of the MMMP is situated on the third floor of the Clinical Sciences Centre at MFT. The Virology department provides a comprehensive screening and diagnostic service, including specialised testing, for most of the North West of England. Some of the reference facilities are offered nationally.

The total workload is in excess of 150,000 samples (300,000 tests) per annum.

Laboratory opening hours

The laboratory is open:

Monday to Friday: 8.30am - 5.00pm

Saturday: 8.30am - 12.30pm

A restricted urgent testing service is available (see 10.7, below) outside normal working hours by contacting the on-call Biomedical Scientist (BMS) via the Hospital Switchboard - 0161 276 1234.

Clinical Advice

A full clinical advice service is maintained 24 hours a day.
For advice during normal working hours: Tel: 0161-276-8854/8788.
For Clinical advice out of hours: Tel: 0161-276-1234 and ask for the duty Consultant Virologist.

Results

Result and other enquiries can be made to the microbiology call centre.
Result enquiries : Tel: 0161-276-8854/8788
Results will only be telephoned when requested or if there is a clinically significant result.

Notification of Delayed Results

Where results will be delayed beyond expected turnaround times due to circumstances beyond our control, a duty consultant will notify clinicians of such delays if it is believed that the delay will adversely affect a patient's management.

Out-of-hours Service

The Virology out-of-hours service is an emergency service.

A limited number of investigations are offered out of normal laboratory hours (i.e. 17.00 – 08.30 weekdays, 12.30 to 08.30 Saturdays, and 08.30 to 08.30 Sundays and Bank Holidays) where urgent results are required. The duty BMS can be contacted through hospital switchboard (0161 276 1234).

The following assays are available as appropriate:

Hepatitis B surface antigen
Hepatitis C antibody
HIV antigen/antibody
HTLV antibody
CMV IgG antibody
Hepatitis B core antibody (total)
Toxoplasma antibody
Varicella zoster IgG
Treponemal antibody
Legionella urinary antigen
Pneumococcal urinary antigen

Requests for additional tests

Additional tests can be requested by telephone or letter on samples received by the laboratory up to 2 years after the receipt of the sample (2 years in serology, 1 year in molecular). Although it must be recognised that the archive sample available will have a limited volume and the antibody profile may be different to their current sample.

Issue of immunoglobulin (Ig)

Specific immunoglobulin for prophylaxis of hepatitis B and Varicella-zoster and normal immunoglobulin for prophylaxis of hepatitis A and measles are available. Specific immunoglubulin and vaccine are available for rabies as part of the national rabies immunoglobulin service.

Contact the Consultant on call via the MFT Switchboard (0161 276 1234) who will arrange issue with the duty BMS as appropriate.

Contact Details

Name	email	External Numbers	Internal Numbers
Dr Nick Machin **Consultant Virologist Deputy Head of Service**	Nicholas.Machin@mft.nhs.uk Nicholas.Machin@ukhsa.gov.uk	(0161) 276 8838	68838
Dr Malcolm Guiver **Consultant Clinical Scientist, Head of Molecular Diagnostics**	Malcolm.Guiver@mft.nhs.uk Malcolm.Guiver@ukhsa.gov.uk	(0161) 276 8853	68853
Dr Emma Davies Consultant Clinical Scientist	Emma.Davies@mft.nhs.uk Emma.Davies@ukhsa.gov.uk	(0161) 701 0188	10188
Dr Louise Hesketh **Consultant Clinical Scientist**	Louise.Hesketh@mft.nhs.uk	(0161) 701 0188	10188
Dr Shazaad Ahmad **Consultant Virologist**	Shazaad.Ahmad@mft.nhs.uk	(0161) 276 5688	65688
Kate Yates **Secretary**	Kate.Yates@mft.nhs.uk	(0161) 276 8853	68853
Peter Tilston **Clinical Scientist – Resistance testing**		(0161) 276 8849	68849
Benjamin Brown **Clinical Scientist**		(0161) 276 8680	68680
Alan Lord **Laboratory Manager**	Alan.Lord@mft.nhs.uk Alan.Lord@ukhsa.gov.uk	(0161) 276 5687	65687
Lynne Ashton **Deputy Laboratory Manager**		(0161) 276 8843	68843
Emma Wood **Deputy Laboratory Manager**		(0161) 276 8843	68843
James Barnes **Deputy Laboratory Manager**		(0161) 276 5685	65685
Georgios Chalikias Deputy Laboratory Manager		(0161) 276 5685	65685
Hospital Switchboard		(0161) 276 1234	0

4.1.5 UKHSA MENINGOCOCCAL REFERENCE UNIT

The Meningococcal Reference Unit User Manual and a copy of the request form are available from the UKHSA Website using the following link:

MRU User Manual

The total workload is approximately 16,000 specimens per annum

Name	External Numbers	Internal Numbers
Prof Ray Borrow **Head of Unit**	(0161) 276 8850	68850
Xilian Bai and Jay Lucidarme Lead BMS	(0161) 276 6757	66757
Enquiries	(0161) 276 8788	68788
Hospital Switchboard	(0161) 276 1234	61234

Laboratory opening hours
The laboratory is open:

Monday to Friday: 8.30am - 5.30pm

Answerphone message redirection for Saturday am and urgent clinical enquiries

If a delivery is expected to arrive after 5.30pm, Monday – Friday, at weekends, or on Bank Holidays, it should be left at the MFT Autolab reception (ground floor of Clinical Sciences Building 2). Out of hours access to the Clinical Sciences Centre is granted to couriers via the security intercom. The entrance is situated at the North entrance of the Clinical Sciences Building 2.
(If entering the MRI site from Hathersage Road, it is on the left after passing under the link bridge).

4.1.6 VACCINE EVALUATION UNIT

The Vaccine Evaluation Unit (VEU) specialises in serological determination of immune responses to *Neisseria meningitidis* and *Streptococcus pneumoniae* either following vaccination or disease. It has international recognition for all of the assays that encompass serum bactericidal antibody assays and ELISA for all serogroups of *N. meningitidis* as well as offering determination of IgG concentrations for pneumococcal (serotype-specific), *Haemophilus influenzae* type b, tetanus and diphtheria. The VEU underpinned the implementation of the meningococcal serogroups C and ACWY conjugate vaccines and the serogroup B protein-based vaccine in the U.K. with performance of meningococcal serological assays and redefinition of the correlates of protection. The VEU was involved in a similar project that led to the implementation of a serogroup A vaccine in Sub-Saharan Africa and is involved in an ongoing project regarding the introduction of a pentvalent ACWYX conjugate vaccine. It offers a range of validated assays for meningococcal serogroup B and is involved in many vaccine trials both here and overseas. The pneumococcal serology assays provided by the VEU are now widely used by clinicians as well as for vaccine trials. The VEU also houses the UKHSA Seroepidemiology Unit (SEU), part of the Serum Archive Section. The VEU has been involved in serosurveys for pneumococcal antibodies, meningococcal serogroups A, C, Y and W as well as serogroup B serology and human papilloma virus IgG. The total workload is approximately 200,000 assays per annum.

The VEU has an active research programme and encourages collaborations locally, nationally and internationally. Ongoing projects include novel platforms for multiplexing assays. Nationally the VEU is a key player in the National Immunisation Schedule Evaluation Consortium and the UK Paediatric Vaccine Group whilst internationally it advises WHO on serological assays for meningococci and tetanus and maintains strong links to most vaccine manufacturers, who use the Unit as a reference centre. The VEU is also committed to training of staff from laboratories both nationally and internationally, particularly those from developing countries.

Laboratory opening hours
The VEU is open:
Monday to Friday: 8.00am - 5.00pm

Clinical Advice
A full clinical advice service is maintained.
For advice during normal working hours: Tel: 0161 276 6793 or 0161 276 5697 or 0161 276 6791

Results
For general results/enquiries:
Tel: 0161 276 8854 or 0161 276 8788

Out-of-hours Service
There is no out-of-hours service for the Vaccine Evaluation Unit.

Contact Details

Name	Email address	External No	Internal No
Prof Ray Borrow Head of VEU Consultant Clinical Scientist	ray.borrow@UKHSA.gov.uk	0161 276 8850	68850
Dr Ezra Linley Deputy Head of VEU	ezra.linley@UKHSA.gov.uk	0161 701 5303	15303
Dr George Gyamfi-Brobbey Clinical Scientist	George.gyamfibrobbey@ukhsa.gov.uk	0161 276 6972	66972
Simon Tonge Serum Archives	simon.tonge@UKHSA.gov.uk	0161 276 6791	66791
Nicola Boothman PA/Unit Administrator	nicola.boothman@UKHSA.gov.uk	0161 276 6793	66793
Rajesh Parmer PA/Unit Administrator	Rajesh.parmar@ukhsa.gov.uk	0161 276 6793	66793
Nilofer Razzaq PA/Unit Administrator	nilofer.razzaq@UKHSA.gov.uk	0161 276 6793	66793
Salima Sheikh PA/Unit Administrator	salima.sheikh@ukhsa.gov.uk	0161 2768842	68842

Postal Address:	**Vaccine Evaluation Unit** **MMMP,** **2nd Floor CSB2,** **Manchester Royal Infirmary** **Oxford Road,** **Manchester,** **M13 9WL**
Courier Delivery Address:	**Vaccine Evaluation Unit** **MMMP,** **2nd Floor CSB2,** **Manchester Royal Infirmary** **Oxford Road,** **Manchester,** **M13 9WL**
DX Address:	**Manchester Medical Microbiology Partnership** **DX6962410** **Manchester 90 M**

4.2 LABELLING OF SAMPLE CONTAINERS

Please see the specimen collection information for the selection of appropriate container for test, alternatively, please see the specimen containers in the **REPERTOIRE OF TESTS (A-Z)**

The MMMP will make every effort to ensure requests are processed in a safe and timely manner but it is essential that request forms and specimens are labelled appropriately and legibly in compliance with the specimen acceptance policy (See Specimen Acceptance Policy). All specimens MUST be clearly and unequivocally identified with a minimum of four key identifiers (see tables 1 and 2) which must be correct and if a request form is required, the information on the sample MUST match the information given on the request form. It is best practice to use more than the minimum key identifiers.

Sample containers must be labelled at the time of collection, with cross-checking to positively identify the patient and ensure patient safety. Pre-labelling of blood collection tubes/sample tubes and pots is poor practice, increases risks of misidentification and is not acceptable.

It is also important to clearly identify the investigations required with relevant supporting information.
If you have any doubts regarding this policy please ring the relevant department for further information.

Specimens 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 labeled with less than the minimum data sets for patient identification
- Mismatch of details between the form and sample(s)
- The information provided is illegible

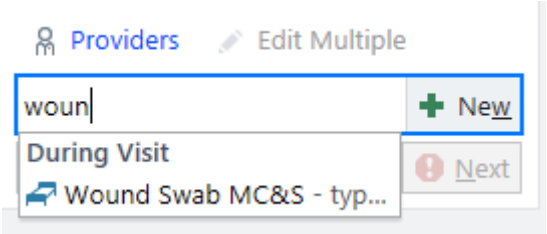
4.3 HOW TO COMPLETE THE REQUEST

4.3.1 Electronic Requesting (HIVE requests)

Manchester Hospital Foundation Trust (MFT) requires the use of the electronic order communication systems wherever possible. MFT utilises EPIC as its electronic ordering system. The laboratory module within EPIC is known as “BEAKER” and orders placed within MFT will print off a barcoded sticker containing all relevant patient demographics that can be scanned and received within BEAKER.

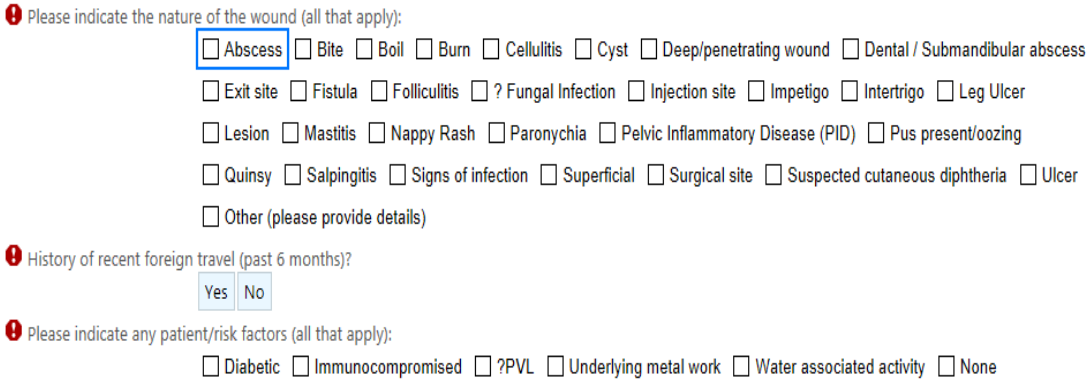
Sample orders are placed by searching for the request and then clicking into the option. Frequently ordered requests will appear below the search box (see below for example) otherwise a preference list will appear to choose the correct test from. The

ordering box contains various synonyms in order to aide swift and accurate requesting –



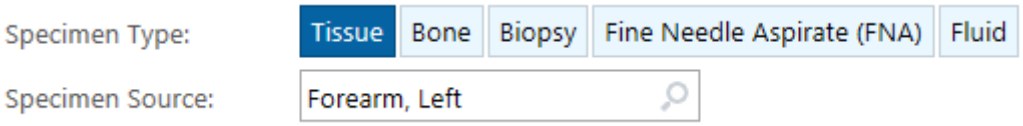
Order labels must be printed at the time of sample collection and once the sample has been collected it must be scanned into EPIC to confirm collection date and time. If the sample is not scanned and collected on the ward the laboratory will not be able to appropriately receive the specimen.

Adequate and relevant clinical information must be provided. This can be documented on the order request by answering the mandatory questions, use of the tick boxes present on the request, or selecting "other" and free texting in details (see below for example) –



It is a valuable aid in ensuring patient safety as Biomedical and Clinical Scientists in the laboratory are trained to be aware of the importance of relevant clinical information when validating and authorising results, especially when cumulative records are available. An unexpected test result can highlight the need for immediate further testing, the need for a result to be communicated urgently or may indicate the possibility of an incorrectly labelled sample or request form. The correct clinical information on the patient is also an essential aid in the identification of High-risk samples which require additional biosafety measures for safe handling and processing

Please ensure that you order the correct test and select the correct specimen type and source as failure to do this may lead to incorrect testing (see below for example) –



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

Where EPIC requesting is not available, the following request forms should be used.

4.3.2 Virology Request forms

You are **strongly** requested to use these new forms in preference to any other (including previous versions of Virology request forms: please destroy all previous versions) in order to improve the way in which your requests are dealt with.

Please note the following instructions for use; compliance with these will also **greatly improve** the **quality** of the service we can deliver to you and ensure the reports reach you in a **timely manner**.

a) There are now six types of request form:

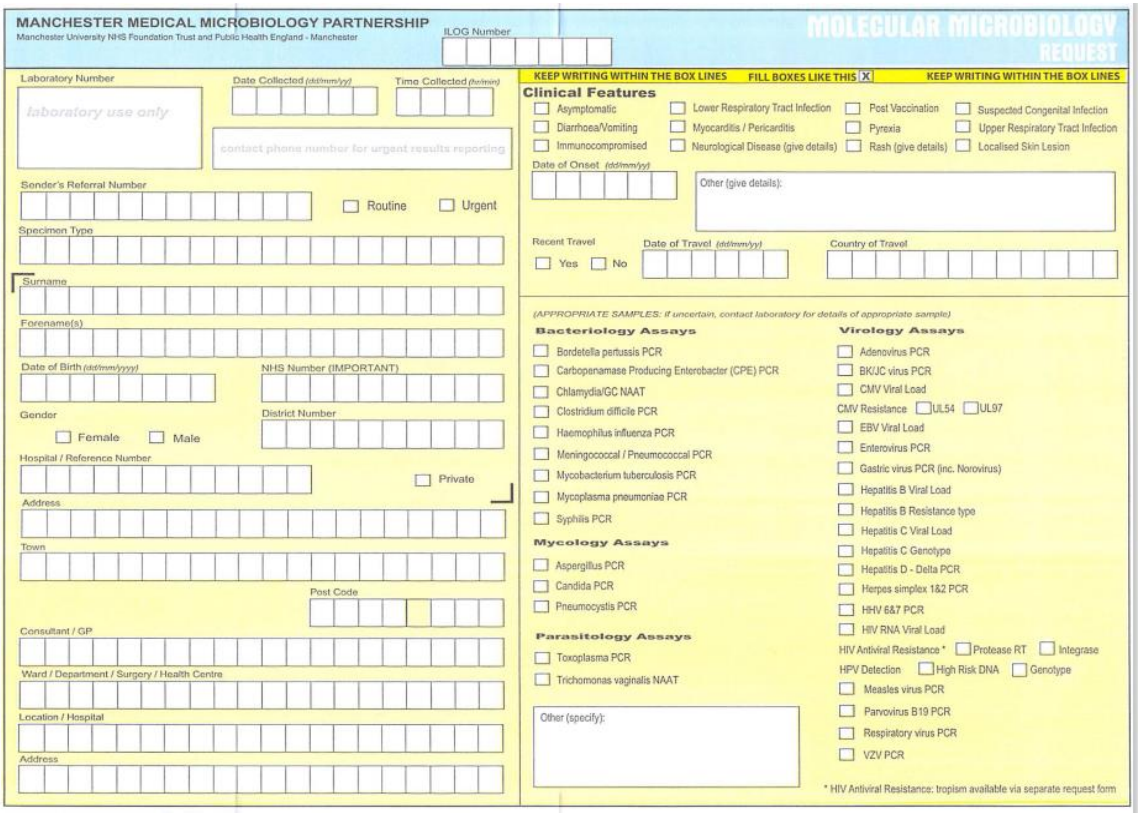
(i) One for general Molecular Microbiology for GP's and Hospitals
(ii) One for general Serology for GP's and Hospitals
(iii) One specifically for Sexual Health Clinics (including FPC services).
(iv) One specifically for Antenatal screening services
(v) Dried blood spot
(vi) The Christie

b) Because the forms will be scanned electronically, it is important that:

- All information on the forms **must** be in **block capitals** and must be kept **within the boxed areas** provided. Please **do not** write over the lines of the boxed areas.
- The tests required are selected by marking the boxes with an "X".
- If addressograph labels are used (which we recommend), they should be placed within the "∟" marks that surround this section of the form.
- All labels attached to the forms must be properly aligned in the appropriate position on the request form.
- DO NOT use or cover any of the areas that state "For Laboratory Use" – these areas are only for use by this laboratory

c) Details of our **specimen acceptance policy** can be found on the reverse of the form, along with other useful information.

Finally, we would like to **thank you** in anticipation of your cooperation in using these forms in the correct way, therefore, **greatly improving the quality and speed of the service** we can provide.



MANCHESTER MEDICAL MICROBIOLOGY PARTNERSHIP

Manchester University NHS Foundation Trust and Public Health England - Manchester

ILOG Number

MOLECULAR MICROBIOLOGY REQUEST

Laboratory Number

laboratory use only

Date Collected (dd/mm/yy)

Time Collected (hr/min)

contact phone number for urgent results reporting

KEEP WRITING WITHIN THE BOX LINES FILL BOXES LIKE THIS X KEEP WRITING WITHIN THE BOX LINES

Sender's Referral Number

Routine Urgent

Specimen Type

Surname

Forename(s)

Date of Birth (dd/mm/yyyy)

NHS Number (IMPORTANT)

Gender

Female Male

District Number

Hospital / Reference Number

Private

Address

Town

Post Code

Consultant / GP

Ward / Department / Surgery / Health Centre

Location / Hospital

Address

Clinical Features

Asymptomatic
Diarrhoea/Vomiting
Immunocompromised
Lower Respiratory Tract Infection
Myocarditis / Pericarditis
Neurological Disease (give details)
Post Vaccination
Pyrexia
Rash (give details)
Suspected Congenital Infection
Upper Respiratory Tract Infection
Localised Skin Lesion

Date of Onset (dd/mm/yy)

Other (give details):

Recent Travel Yes No

Date of Travel (dd/mm/yy)

Country of Travel

(APPROPRIATE SAMPLES: if uncertain, contact laboratory for details of appropriate sample)

Bacteriology Assays

Bordetella pertussis PCR
Carbopenamase Producing Enterobacter (CPE) PCR
Chlamydia/GC NAAT
Clostridium difficile PCR
Haemophilus influenza PCR
Meningococcal / Pneumococcal PCR
Mycobacterium tuberculosis PCR
Mycoplasma pneumoniae PCR
Syphilis PCR

Mycology Assays

Aspergillus PCR
Candida PCR
Pneumocystis PCR

Parasitology Assays

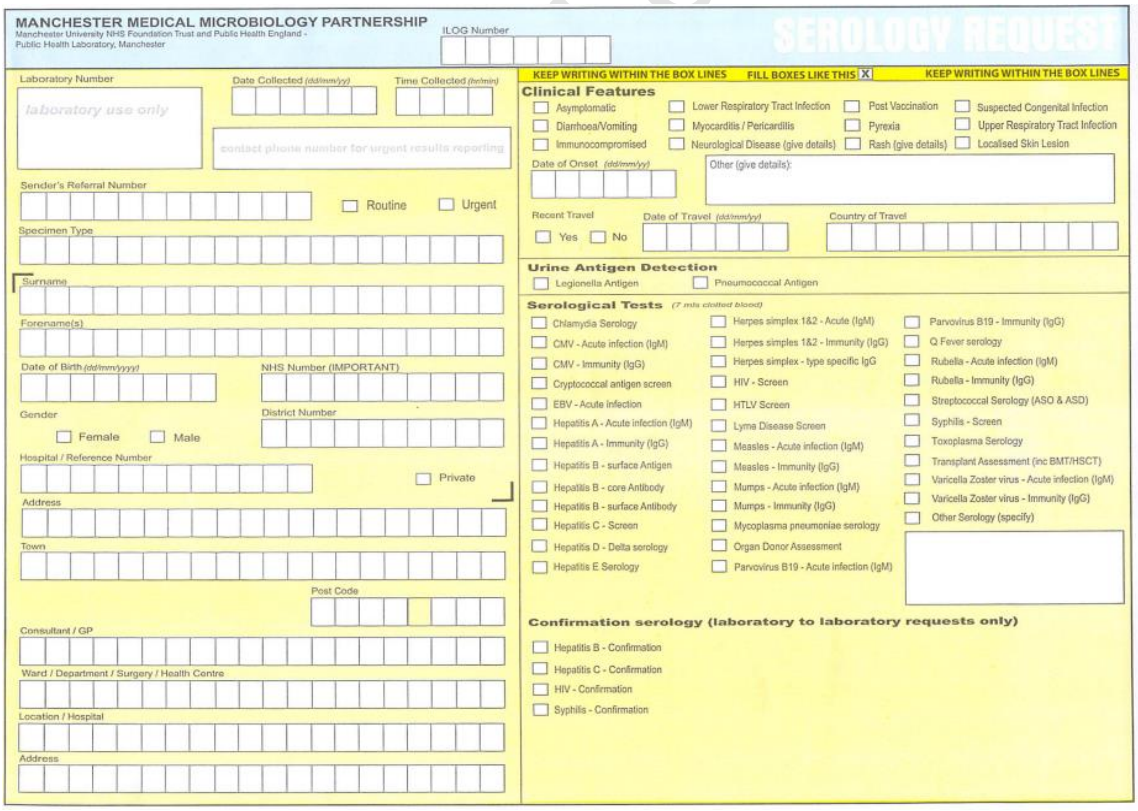
Toxoplasma PCR
Trichomonas vaginalis NAAT

Other (specify):

Virology Assays

Adenovirus PCR
BK/JC virus PCR
CMV Viral Load
CMV Resistance UL54 UL97
EBV Viral Load
Enterovirus PCR
Gastric virus PCR (inc. Norovirus)
Hepatitis B Viral Load
Hepatitis B Resistance type
Hepatitis C Viral Load
Hepatitis C Genotype
Hepatitis D - Delta PCR
Herpes simplex 1&2 PCR
HHV 6&7 PCR
HIV RNA Viral Load
HIV Antiviral Resistance * Protease RT Integrase
HPV Detection High Risk DNA Genotype
Measles virus PCR
Parvovirus B19 PCR
Respiratory virus PCR
VZV PCR

* HIV Antiviral Resistance: tropism available via separate request form



MANCHESTER MEDICAL MICROBIOLOGY PARTNERSHIP

Manchester University NHS Foundation Trust and Public Health England - Public Health Laboratory, Manchester

ILOG Number

SEROLOGY REQUEST

Laboratory Number

laboratory use only

Date Collected (dd/mm/yy)

Time Collected (hr/min)

contact phone number for urgent results reporting

KEEP WRITING WITHIN THE BOX LINES FILL BOXES LIKE THIS X KEEP WRITING WITHIN THE BOX LINES

Sender's Referral Number

Routine Urgent

Specimen Type

Surname

Forename(s)

Date of Birth (dd/mm/yyyy)

NHS Number (IMPORTANT)

Gender

Female Male

District Number

Hospital / Reference Number

Private

Address

Town

Post Code

Consultant / GP

Ward / Department / Surgery / Health Centre

Location / Hospital

Address

Clinical Features

Asymptomatic
Diarrhoea/Vomiting
Immunocompromised
Lower Respiratory Tract Infection
Myocarditis / Pericarditis
Neurological Disease (give details)
Post Vaccination
Pyrexia
Rash (give details)
Suspected Congenital Infection
Upper Respiratory Tract Infection
Localised Skin Lesion

Date of Onset (dd/mm/yy)

Other (give details):

Recent Travel Yes No

Date of Travel (dd/mm/yy)

Country of Travel

Urine Antigen Detection

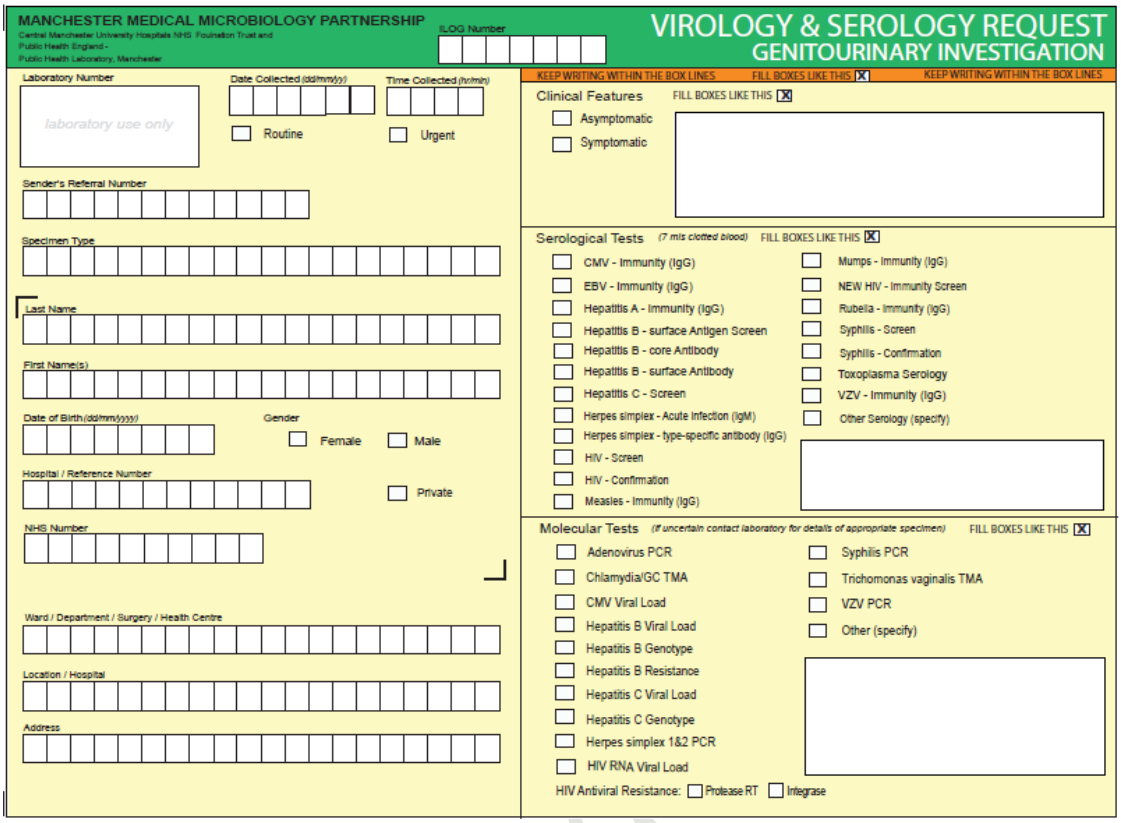
Legionella Antigen
Pneumococcal Antigen

Serological Tests (7 mls clotted blood)

Chlamydia Serology
CMV - Acute infection (IgM)
CMV - Immunity (IgG)
Cryptococcal antigen screen
EBV - Acute infection
Hepatitis A - Acute infection (IgM)
Hepatitis A - Immunity (IgG)
Hepatitis B - surface Antigen
Hepatitis B - core Antibody
Hepatitis B - surface Antibody
Hepatitis C - Screen
Hepatitis D - Delta serology
Hepatitis E Serology
Herpes simplex 1&2 - Acute (IgM)
Herpes simplex 1&2 - Immunity (IgG)
Herpes simplex - type specific IgG
HIV - Screen
HTLV Screen
Lyme Disease Screen
Measles - Acute infection (IgM)
Measles - Immunity (IgG)
Mumps - Acute infection (IgM)
Mumps - Immunity (IgG)
Mycoplasma pneumoniae serology
Organ Donor Assessment
Parvovirus B19 - Acute infection (IgM)
Parvovirus B19 - Immunity (IgG)
Q Fever serology
Rubella - Acute infection (IgM)
Rubella - Immunity (IgG)
Streptococcal Serology (ASO & ASD)
Syphilis - Screen
Toxoplasma Serology
Transplant Assessment (inc BMT/HSCT)
Varicella Zoster virus - Acute infection (IgM)
Varicella Zoster virus - Immunity (IgG)
Other Serology (specify)

Confirmation serology (laboratory to laboratory requests only)

Hepatitis B - Confirmation
Hepatitis C - Confirmation
HIV - Confirmation
Syphilis - Confirmation



MANCHESTER MEDICAL MICROBIOLOGY PARTNERSHIP

Central Manchester University Hospitals NHS Foundation Trust and Public Health England - Public Health Laboratory, Manchester

ILOG Number

VIROLOGY & SEROLOGY REQUEST
GENITOURINARY INVESTIGATION

KEEP WRITING WITHIN THE BOX LINES FILL BOXES LIKE THIS ☒ KEEP WRITING WITHIN THE BOX LINES

Laboratory Number
laboratory use only

Date Collected (dd/mm/yy)

Time Collected (hr/min)

☐ Routine ☐ Urgent

Sender's Referral Number

Specimen Type

Last Name

First Name(s)

Date of Birth (dd/mm/yyyy)

Gender ☐ Female ☐ Male

Hospital / Reference Number ☐ Private

NHS Number

Ward / Department / Surgery / Health Centre

Location / Hospital

Address

Clinical Features FILL BOXES LIKE THIS ☒

☐ Asymptomatic
☐ Symptomatic

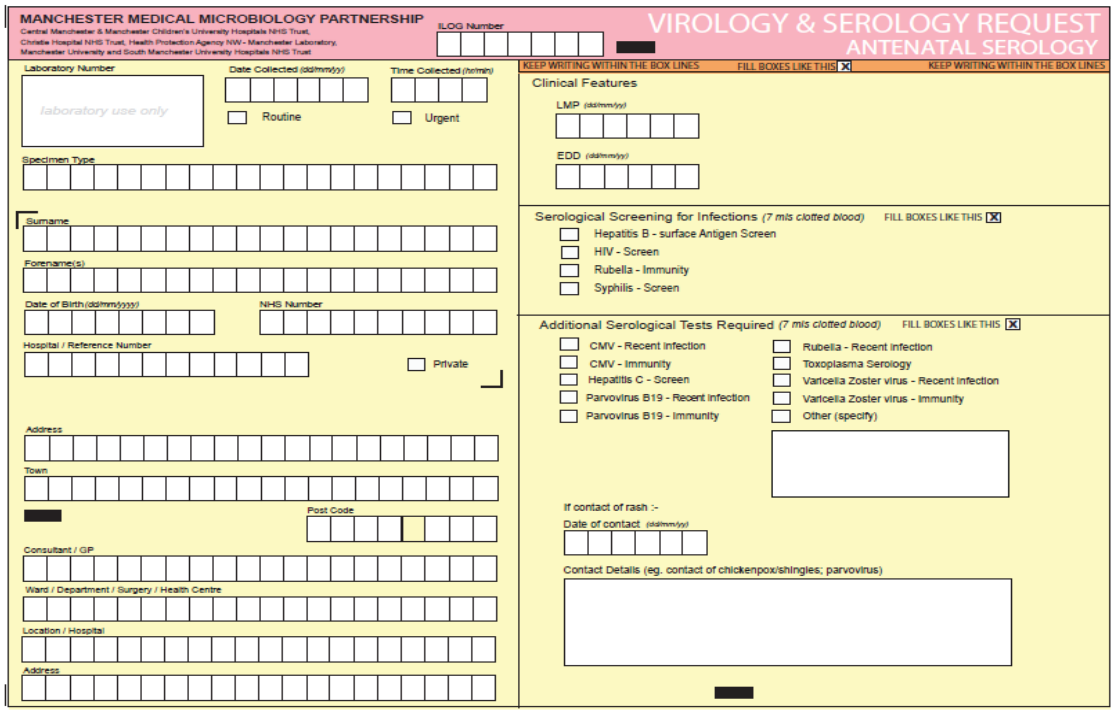
Serological Tests *(7 mls clotted blood)* FILL BOXES LIKE THIS ☒

- ☐ CMV - Immunity (IgG)
- ☐ EBV - Immunity (IgG)
- ☐ Hepatitis A - Immunity (IgG)
- ☐ Hepatitis B - surface Antigen Screen
- ☐ Hepatitis B - core Antibody
- ☐ Hepatitis B - surface Antibody
- ☐ Hepatitis C - Screen
- ☐ Herpes simplex - Acute infection (IgM)
- ☐ Herpes simplex - type-specific antibody (IgG)
- ☐ HIV - Screen
- ☐ HIV - Confirmation
- ☐ Measles - Immunity (IgG)
- ☐ Mumps - Immunity (IgG)
- ☐ NEW HIV - Immunity Screen
- ☐ Rubella - Immunity (IgG)
- ☐ Syphilis - Screen
- ☐ Syphilis - Confirmation
- ☐ Toxoplasma Serology
- ☐ VZV - Immunity (IgG)
- ☐ Other Serology (specify)

Molecular Tests *(If uncertain contact laboratory for details of appropriate specimen)* FILL BOXES LIKE THIS ☒

- ☐ Adenovirus PCR
- ☐ Chlamydia/GC TMA
- ☐ CMV Viral Load
- ☐ Hepatitis B Viral Load
- ☐ Hepatitis B Genotype
- ☐ Hepatitis B Resistance
- ☐ Hepatitis C Viral Load
- ☐ Hepatitis C Genotype
- ☐ Herpes simplex 1&2 PCR
- ☐ HIV RNA Viral Load
- ☐ Syphilis PCR
- ☐ Trichomonas vaginalis TMA
- ☐ VZV PCR
- ☐ Other (specify)

HIV Antiviral Resistance: ☐ Protease RT ☐ Integrase



MANCHESTER MEDICAL MICROBIOLOGY PARTNERSHIP

Central Manchester & Manchester Children's University Hospitals NHS Trust, Christie Hospital NHS Trust, Health Protection Agency NW - Manchester Laboratory, Manchester University and South Manchester University Hospitals NHS Trust

ILOG Number

VIROLOGY & SEROLOGY REQUEST
ANTENATAL SEROLOGY

KEEP WRITING WITHIN THE BOX LINES FILL BOXES LIKE THIS ☒ KEEP WRITING WITHIN THE BOX LINES

Laboratory Number
laboratory use only

Date Collected (dd/mm/yy)

Time Collected (hr/min)

☐ Routine ☐ Urgent

Specimen Type

Surname

Forename(s)

Date of Birth (dd/mm/yyyy)

NHS Number

Hospital / Reference Number ☐ Private

Address

Town

Post Code

Consultant / GP

Ward / Department / Surgery / Health Centre

Location / Hospital

Address

Clinical Features

LMP (dd/mm/yy)

EDD (dd/mm/yy)

Serological Screening for Infections *(7 mls clotted blood)* FILL BOXES LIKE THIS ☒

- ☐ Hepatitis B - surface Antigen Screen
- ☐ HIV - Screen
- ☐ Rubella - Immunity
- ☐ Syphilis - Screen

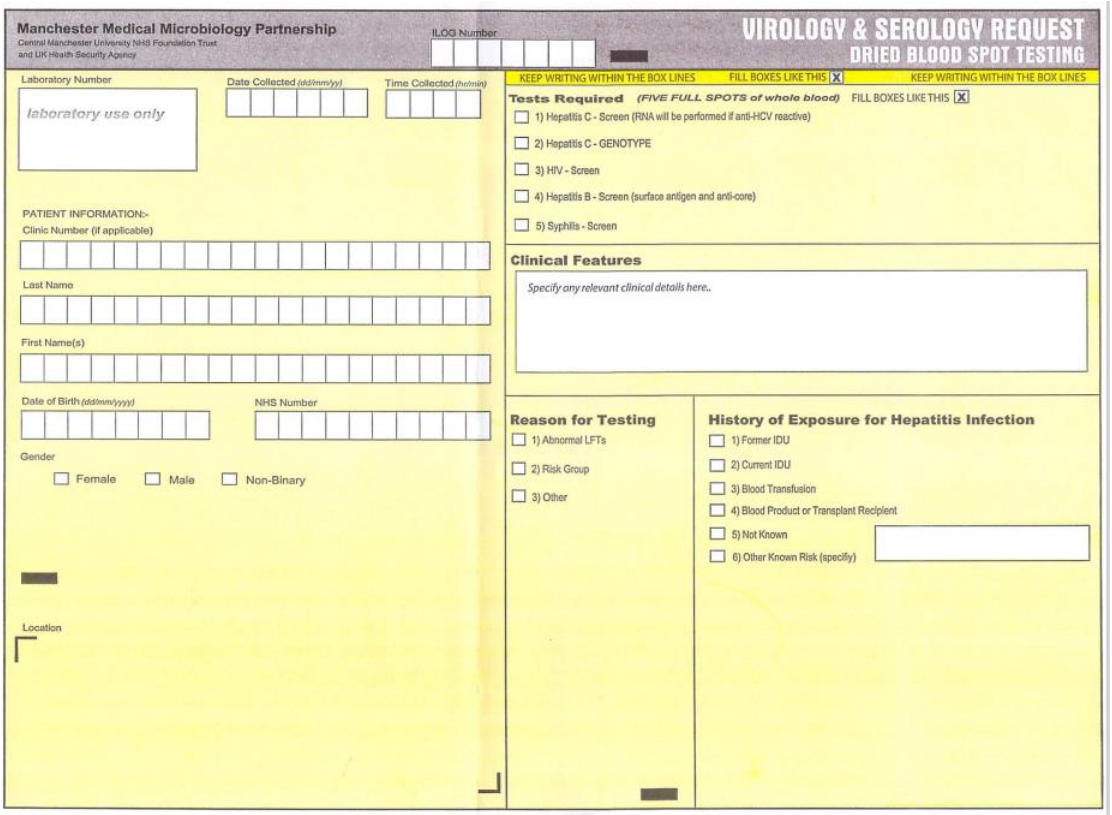
Additional Serological Tests Required *(7 mls clotted blood)* FILL BOXES LIKE THIS ☒

- ☐ CMV - Recent infection
- ☐ CMV - Immunity
- ☐ Hepatitis C - Screen
- ☐ Parvovirus B19 - Recent infection
- ☐ Parvovirus B19 - Immunity
- ☐ Rubella - Recent infection
- ☐ Toxoplasma Serology
- ☐ Varicella Zoster virus - Recent infection
- ☐ Varicella Zoster virus - Immunity
- ☐ Other (specify)

If contact of rash :-

Date of contact (dd/mm/yy)

Contact Details (eg. contact of chickenpox/shingles; parvovirus)



Manchester Medical Microbiology Partnership
Central Manchester University NHS Foundation Trust and UK Health Security Agency

ILOG Number

VIROLOGY & SEROLOGY REQUEST
DRIED BLOOD SPOT TESTING

KEEP WRITING WITHIN THE BOX LINES FILL BOXES LIKE THIS [X] KEEP WRITING WITHIN THE BOX LINES

Laboratory Number
laboratory use only

Date Collected (dd/mm/yy)

Time Collected (hr/min)

PATIENT INFORMATION:-
Clinic Number (if applicable)

Last Name

First Name(s)

Date of Birth (dd/mm/yyyy)

NHS Number

Gender
☐ Female ☐ Male ☐ Non-Binary

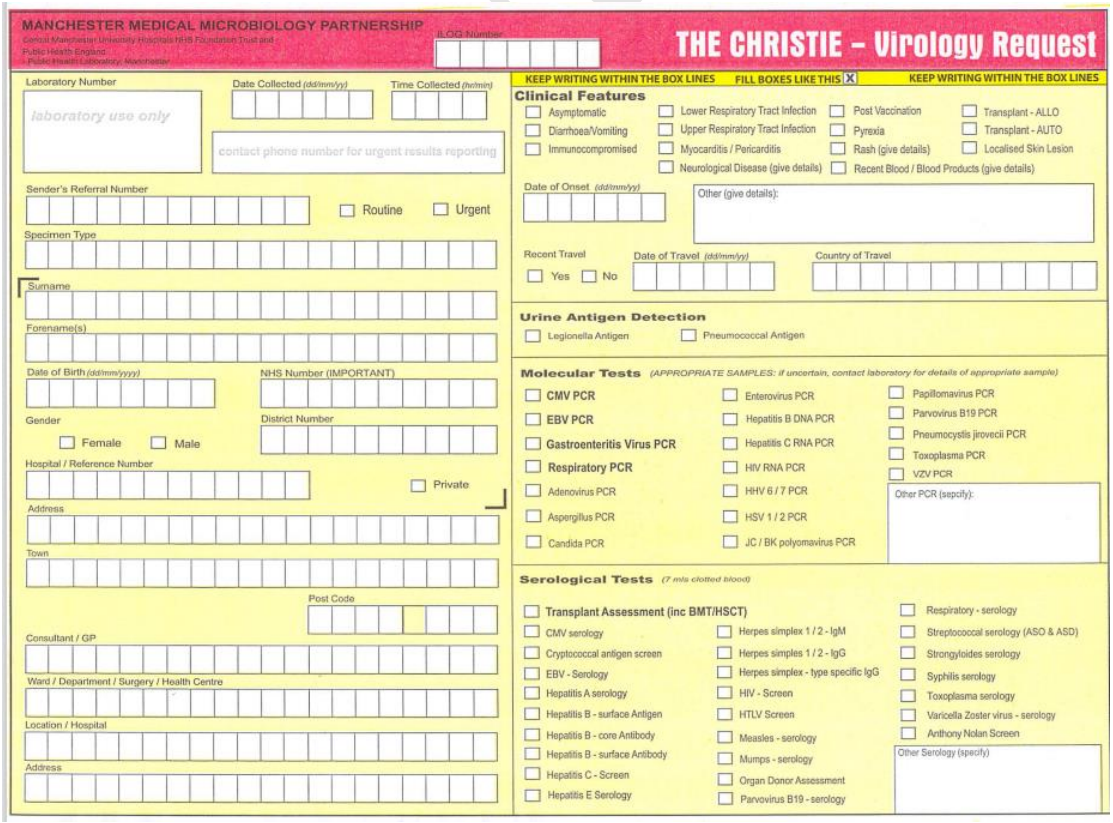
Location

Tests Required *(FIVE FULL SPOTS of whole blood)* FILL BOXES LIKE THIS [X]
- ☐ 1) Hepatitis C - Screen (RNA will be performed if anti-HCV reactive)
- ☐ 2) Hepatitis C - GENOTYPE
- ☐ 3) HIV - Screen
- ☐ 4) Hepatitis B - Screen (surface antigen and anti-core)
- ☐ 5) Syphilis - Screen

Clinical Features
Specify any relevant clinical details here..

Reason for Testing
- ☐ 1) Abnormal LFTs
- ☐ 2) Risk Group
- ☐ 3) Other

History of Exposure for Hepatitis Infection
- ☐ 1) Former IDU
- ☐ 2) Current IDU
- ☐ 3) Blood Transfusion
- ☐ 4) Blood Product or Transplant Recipient
- ☐ 5) Not Known
- ☐ 6) Other Known Risk (specify)



MANCHESTER MEDICAL MICROBIOLOGY PARTNERSHIP
Central Manchester University Hospitals NHS Foundation Trust and Public Health England - Public Health Laboratory, Manchester

ILOG Number

THE CHRISTIE – Virology Request

KEEP WRITING WITHIN THE BOX LINES FILL BOXES LIKE THIS [X] KEEP WRITING WITHIN THE BOX LINES

Laboratory Number
laboratory use only

Date Collected (dd/mm/yy)

Time Collected (hr/min)

contact phone number for urgent results reporting

Sender's Referral Number

☐ Routine ☐ Urgent

Specimen Type

Surname

Forename(s)

Date of Birth (dd/mm/yyyy)

NHS Number (IMPORTANT)

Gender
☐ Female ☐ Male

District Number

Hospital / Reference Number

☐ Private

Address

Town

Post Code

Consultant / GP

Ward / Department / Surgery / Health Centre

Location / Hospital

Address

Clinical Features
- ☐ Asymptomatic
- ☐ Diarrhoea/Vomiting
- ☐ Immunocompromised
- ☐ Lower Respiratory Tract Infection
- ☐ Upper Respiratory Tract Infection
- ☐ Myocarditis / Pericarditis
- ☐ Neurological Disease (give details)
- ☐ Post Vaccination
- ☐ Pyrexia
- ☐ Rash (give details)
- ☐ Recent Blood / Blood Products (give details)
- ☐ Transplant - ALLO
- ☐ Transplant - AUTO
- ☐ Localised Skin Lesion

Date of Onset (dd/mm/yy)

Other (give details):

Recent Travel ☐ Yes ☐ No

Date of Travel (dd/mm/yy)

Country of Travel

Urine Antigen Detection
- ☐ Legionella Antigen
- ☐ Pneumococcal Antigen

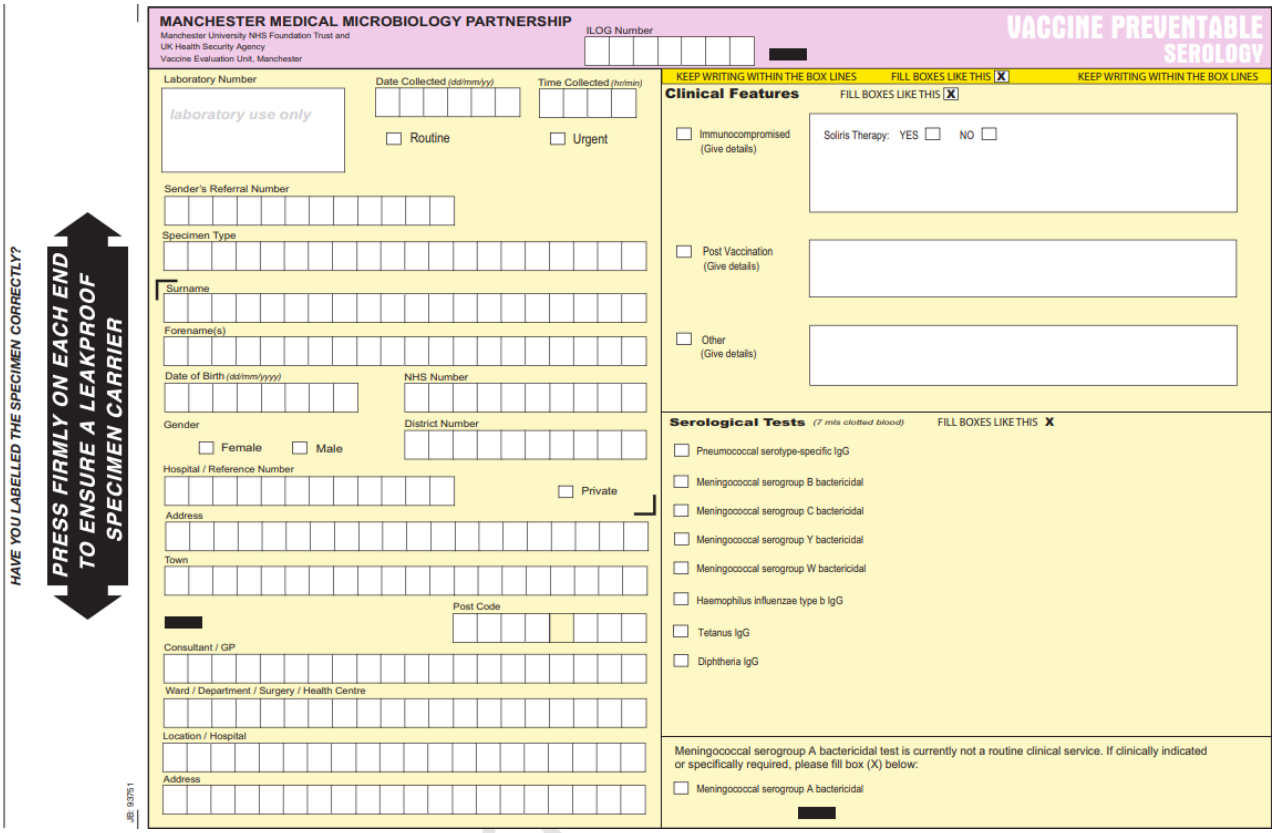
Molecular Tests *(APPROPRIATE SAMPLES: if uncertain, contact laboratory for details of appropriate sample)*
- ☐ CMV PCR
- ☐ EBV PCR
- ☐ Gastroenteritis Virus PCR
- ☐ Respiratory PCR
- ☐ Adenovirus PCR
- ☐ Aspergillus PCR
- ☐ Candida PCR
- ☐ Enterovirus PCR
- ☐ Hepatitis B DNA PCR
- ☐ Hepatitis C RNA PCR
- ☐ HIV RNA PCR
- ☐ HHV 6 / 7 PCR
- ☐ HSV 1 / 2 PCR
- ☐ JC / BK polyomavirus PCR
- ☐ Papillomavirus PCR
- ☐ Parvovirus B19 PCR
- ☐ Pneumocystis jirovecii PCR
- ☐ Toxoplasma PCR
- ☐ VZV PCR

Other PCR (specify):

Serological Tests *(7 mls clotted blood)*
- ☐ Transplant Assessment (inc BMT/HSCT)
- ☐ CMV serology
- ☐ Cryptococcal antigen screen
- ☐ EBV - Serology
- ☐ Hepatitis A serology
- ☐ Hepatitis B - surface Antigen
- ☐ Hepatitis B - core Antibody
- ☐ Hepatitis B - surface Antibody
- ☐ Hepatitis C - Screen
- ☐ Hepatitis E Serology
- ☐ Herpes simplex 1 / 2 - IgM
- ☐ Herpes simplex 1 / 2 - IgG
- ☐ Herpes simplex - type specific IgG
- ☐ HIV - Screen
- ☐ HTLV Screen
- ☐ Measles - serology
- ☐ Mumps - serology
- ☐ Organ Donor Assessment
- ☐ Parvovirus B19 - serology
- ☐ Respiratory - serology
- ☐ Streptococcal serology (ASO & ASD)
- ☐ Strongyloides serology
- ☐ Syphilis serology
- ☐ Toxoplasma serology
- ☐ Varicella Zoster virus - serology
- ☐ Anthony Nolan Screen

Other Serology (specify)

4.3.3 VEU Request Forms



HAVE YOU LABELLED THE SPECIMEN CORRECTLY?

PRESS FIRMLY ON EACH END TO ENSURE A LEAKPROOF SPECIMEN CARRIER

MANCHESTER MEDICAL MICROBIOLOGY PARTNERSHIP
Manchester University NHS Foundation Trust and
UK Health Security Agency
Vaccine Evaluation Unit, Manchester

ILOG Number

VACCINE PREVENTABLE SEROLOGY

Laboratory Number — laboratory use only

Date Collected (dd/mm/yy)

Time Collected (hr/min)

☐ Routine ☐ Urgent

Sender's Referral Number

Specimen Type

Surname

Forename(s)

Date of Birth (dd/mm/yyyy)

NHS Number

Gender ☐ Female ☐ Male

District Number

Hospital / Reference Number ☐ Private

Address

Town

Post Code

Consultant / GP

Ward / Department / Surgery / Health Centre

Location / Hospital

Address

KEEP WRITING WITHIN THE BOX LINES FILL BOXES LIKE THIS [X] KEEP WRITING WITHIN THE BOX LINES

Clinical Features FILL BOXES LIKE THIS [X]

☐ Immunocompromised (Give details) — Soliris Therapy: YES ☐ NO ☐

☐ Post Vaccination (Give details)

☐ Other (Give details)

Serological Tests (7 mls clotted blood) FILL BOXES LIKE THIS X

☐ Pneumococcal serotype-specific IgG
☐ Meningococcal serogroup B bactericidal
☐ Meningococcal serogroup C bactericidal
☐ Meningococcal serogroup Y bactericidal
☐ Meningococcal serogroup W bactericidal
☐ Haemophilus influenzae type b IgG
☐ Tetanus IgG
☐ Diphtheria IgG

Meningococcal serogroup A bactericidal test is currently not a routine clinical service. If clinically indicated or specifically required, please fill box (X) below:

☐ Meningococcal serogroup A bactericidal

JR 93751

The forms for the requesting of VEU investigations have been developed to be consistent with other MMMP request forms. You are **strongly** requested to use these new forms in preference to any other (including previous versions of VEU request forms: please destroy all previous versions) in order to improve the way in which your requests are dealt with.

4.3.4 Bacteriology Request Forms

The forms for the requesting of bacteriology investigations have been developed to be used if ICE is not available.

NHS Manchester University NHS Foundation Trust

Directorate of Laboratory Medicine

Bacteriology

Manchester Medical Microbiology Partnership Non-ICE Bacteriology Request Form	Only to be used in the event of ICE downtime Results will not be available to ICE or EPR

Surname		Forename(s)			Date of Birth DD MM YY	Sex
Hospital	Ward	District/NHS No			Consultant	
Specimen Type/Site		Date Taken	DD	MM YY	Date Received (Lab Use Only)	
		Tests Required		✓	Lab Number (Lab Use Only)	
		Routine MC&S				
Clinical Data		MRSA Screen				
		CPE Screen				
		VRE Screen				
		TB MC&S			If urgent please telephone the laboratory.	
		Other Test				
Foreign Travel Y / N to						

4.4 TRANSPORT SERVICES (INCLUDING ANY SPECIAL HANDLING NEEDS – E.G HG3 PATHOGENS)

4.4.1 TRANSPORTATION OF ROUTINE SAMPLES TO THE LABORATORY

All users of these laboratory services are advised to refer to "Transport of Infectious Substances - Best Practice Guidance for Microbiology Laboratories" on the www.dh.gov.uk website for up to date information on the correct procedures for submitting samples.

All specimens should be transported to the laboratory as rapidly as possible after collection to avoid compromising results. Specimens may be transported via normal portering rounds/ transport arrangements during the normal working day. When bacteriology and virology tests are to be performed, on the same specimen, a separate specimen for each laboratory is preferred to ensure timely receipt and processing in each laboratory.

Non-urgent specimens collected outside routine laboratory working hours may be stored overnight in the refrigerator, with the exception of blood cultures. **Blood cultures should never be refrigerated** but sent directly to the laboratory reception. Please contact the laboratory if there are specific questions regarding transportation of specimens.

In the unlikely event of a spillage during transport to the laboratory, porters know to call the domestic helpdesk, as all domestic staff are trained to handle clinical spillages. All risk assessments/protocols are available on sodexo.net

Bactex FX40 glass bottles for Mycobacteria should be transported by porter and should not be used in the pod system.

4.4.2 URGENT SAMPLES

If a result is required urgently and the sample will arrive during working hours the laboratory MUST be notified by telephone so that we can prioritise your request. The result will be phoned through to the requesting doctor so please ensure that contact details are provided on the request form.

4.4.3 SAMPLES SUBMITTED OUT OF HOURS (ON-CALL)

URGENT SAMPLES: MFT

Urgent specimens out of hours should not be sent before agreement with the laboratory on-call staff. Any specimens sent as urgent without prior agreement will be processed routinely. If you need to submit a sample out of normal working hours for testing on-call please contact the Biomedical Scientist on-call via the hospital switchboard (0161 276 1234).

Urgent specimens must be sent to the laboratory immediately and arrangements made with the portering service. All samples should be packaged and transported as above.

URGENT SAMPLES: From Wythenshawe, Trafford, The Christie & other partner hospitals

Urgent specimens out of hours should not be sent before agreement with the laboratory on-call staff. If you need to submit a sample out of normal working hours for testing on-call please contact the Biomedical Scientist on-call via the hospital switchboard (0161 276 1234).

The BMS on-call will notify MFT Autolab reception staff that an urgent sample is being transported to MFT and an estimated time of arrival will be given. The requesting hospital is responsible for packaging the urgent sample and arranging the taxi / courier service. The taxi driver / courier service will deliver the sample directly to MFT autolab reception; this should be made clear to the driver by the requesting hospital.

MFT autolab reception is accessed via the main entrance to the Clinical Sciences Building; out of hours access is granted by security after identifying yourself using the intercom. The autolab reception staff will notify the Microbiology BMS when the sample has arrived and the Microbiology BMS will collect and process the sample.

4.4.4 OUTBREAK SAMPLES

In addition to its clinical diagnostic microbiology role, the UKHSA lead laboratory in Manchester provides a range of public health microbiology services. These include:

- A full range of tests to investigate any event or outbreak of possible public health significance in the community
- Advice on the best diagnostic strategies to be adopted
- Advice on interpretation of test results and additional investigations that may be helpful
- Support to incident/outbreak investigation teams
- Prompt communication of results in agreement within published turnaround times
- Follow up/clearance testing of patients or contacts of patients in whom organisms of public health importance are detected.
- Support for trusts/HPUs in the specialist investigation of health care associated infection

The laboratory is able to deal with samples from outbreaks arising in primary or secondary care and there is a single notification system in place to inform the laboratory of all types of outbreaks e.g. respiratory, enteric.

More detailed information can be found in the Public Health Microbiology User Services Handbook (including the outbreak request referral form) at http://www.PHE.org.uk/ProductsServices/MicrobiologyPathology/SpecialistMicrobiologyServices/PublicHealthLaboratories/PublicHealthLabsNorthWest/

4.4.5 PACKAGING OF HIGH RISK SAMPLES

High-risk groups can include patients suffering or thought to be suffering from:

- HIV infection
- Hepatitis B
- Hepatitis C
- *E.coli* O157
- *Mycobacterium tuberculosis* (TB)
- *Salmonella typhi* (Typhoid fever)
- Coccidioidesimmitis
- All other Hazard Group 3 and 4 organisms (Advisory Committee on Dangerous Pathogens)
- I.V. drug-use
- patients who have had recent foreign travel with unexplained high pyrexia

NB. Specimens **MUST** be labelled with "Danger of Infection" stickers on the specimen, bag and form. The form must be folded to ensure confidentiality. The specimen must be sealed in the plastic transport bag. The specimen must then be placed in a secondary biohazard plastic bag and sealed.

To protect all health care workers requests for investigations on high risk samples should be the minimum required for diagnosis and good management. Great care must be taken in obtaining specimens, and equipment such as needles and blades must be immediately disposed of safely, in approved sharps boxes. Should a spillage of blood, fluids or tissue occur this should be made safe and disposed of, no matter what the risk to the patient.

Viral haemorrhagic fever: ACDP algorithm and guidance on management of patients, available on hyperlink below:

https://www.gov.uk/government/publications/viral-haemorrhagic-fever-algorithm-and-guidance-on-management-of-patients

5.0 SPECIMEN ACCEPTANCE POLICY

Poor specimen collection and labelling can lead to repeat collection, delayed testing, with potential delays in diagnosis and treatment. This policy aims to reduce risks to patient care in the pre-examination process, the policy ensures adequate identification criteria for Pathology specimens and request forms for them to be accepted by the laboratory for analysis. It is the requesters responsibility to ensure that all details are correct, clearly written and that the specimen details match those on the form and patient wrist band (if applicable).

Inadequately or inaccurately labelled specimens or forms will not be accepted unless they are considered to be 'unrepeatable'. A classification of 'unrepeatable' will be on an individual basis and in these cases the requester may be required to come to the laboratory to amend their request information and to document that they have done so. Any labelling discrepancy will be included on the pathology report. Inadequate or Inaccurate labelling results in delays before pathology results are available and hence affects patient care.

Specimens greater than 3 days old are, in general, unacceptable. In practice some samples may be requested in advance of collection e.g. CPE ward screens. CF samples which are sent through the post are accepted up to 5 days after date of collection.

Mandatory Labelling Requirement	Action by Laboratory if requirement not met
Samples MUST be labelled with 4 unique identifiers which are as follows: • District Number • Surname • Forename • Date of birth	No analysis will be performed. The event will be reported as an incident on Ulysses if appropriate. Where the sample is repeatable/ reproducible, no analysis will be performed and the sample will be discarded. Where the sample is unrepeatable/ unreproducible, the risk to the patient of rejection of the sample must be weighed against the risk of acceptance of a wrongly labelled sample, local procedures will be followed. Laboratory Medicine will accept no responsibility for samples analysed which initially failed to meet the acceptance criteria and will issue a disclaimer on such reports.
The **request form (if required)** data **MUST** match the above information on the **sample.**	
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.	
If a request form is required then the request form data MUST match the above sample information • District Number • Surname • Forename • Date of birth	A lack of patient or sample information may result in the laboratory not conducting the analysis/ examination Examplescouldinclude: • No swab site indicated • No dates and times of sampling • No clinical details given

Request forms SHOULD also contain: • the patient's location/destination for the report (or alocationcode) • Tests required • Name of Consultant or GP • Name of therequester and contact number (bleep or extension) • Patient gender • Date and time of sample collection • Anatomical site and type of sample (where relevant) • **All relevant clinical information** • Patient address for GP requests	• Location for report delivery not given It may not be possible to issue a report or to interpret results. Appropriate comments will be made on the report where this can be issued.

Remember One Bag One Patient

Where multiple patient samples are received in one bag samples will be rejected, as we cannot ensure that the samples were collected correctly and are from the right patient.

Any samples that require testing in multiple departments must be separated and transported in separate specimen bags. The pathology departments are not joint and are spread over three buildings so putting Biochemisty, Cytology and Microbiology samples in one bag will lead to a delay in processing the patient sample.

Please use one patient specimen, one test per bag.

Anonymous/Uniquely Identified Specimens and Requests.

In certain circumstances, patient identification details are intentionally hidden or substituted with particular ID numbers (eg. Sexual Health, Clinical trials, donor specimens), in such instances, a properly coded identifier must be used in place of the patient lastname & firstname.

Clinical & Epidemiological Information

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] are handled at a higher containment level to safeguard both laboratory staff and other downstream workers.

The information is also of benefit to the patient ensuring that appropriate testing is performed to safeguard the patient and benefit their patient journey.

6.0 REPERTOIRE OF TESTS (A-Z)

ABCDEFGHIJKLMNOPQRSTUVW X Y Z

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

Name of test and clinical condition	Measurement units	Biological reference units	Clinical decision points	Type and volume of sample
Collection container	Specimen transport	Turnaround time	Factors known to significantly affect the results	Examinations sent to referral clearly identified

For more information on any of these tests see the Lab Tests Online UK website. Almost all the examinations that we use are NICE accredited UK Standards for Microbiology Investigations (SMI); see UK Standards For Microbiology Investigations

A

Abscesses and Deep-Seated Wound Infections (Bacteriology)
Acanthamoeba (Bacteriology)
Acute haemorrhagic cystitis (Molecular Microbiology)
Adenovirus PCR (Molecular Microbiology)
Adenovirus (Respiratory Infection) (Molecular Microbiology)
Adenovirus 40/41 (Enteric) PCR (Molecular Microbiology)
Antenatal Serology
Antibiotic Susceptibility Tests (Bacteriology)
Anti-HCVantibody screen and confirmation (Virology)
Anti-Hepatitis Bs antibody (Virology)
Anti-HIV 1 and 2 antibody and p24 antigen screen (Virology)
ASD (Virology)
Aspergillus PCR (Molecular Microbiology)
Astrovirus PCR – enteric (Molecular Microbiology)
Avian influenza (Molecular Microbiology)

B

Bacteraemia
Bacteriuria
Bartonella (Virology referral)
Bilharzia (Bacteriology)
Biopsies (Bacteriology)
BK virus PCR (Molecular Microbiology)
Blastomyces (Virology referral)

Blepharitis
Blood culture (Bacteriology)
Bloodstream Infection
Bocavirus PCR (Molecular Microbiology Referral)
Bordetella pertussis (Bacteriology)
Bordetella pertussis PCR (molecular microbiology)
Brucella (Virology referral)

C

Campylobacter serology (Virology referral)
Candida PCR (Molecular Microbiology)
Candida precipitins (Virology referral)
Candidosis
CAPD (Bacteriology)
Carbapenemase producing enterobacteriaceae screen (Bacteriology, Oxford Rd Campus)
Cellulitis
Cerebrospinal fluid
Chickenpox
Chlamydia and Gonococcal PCR (Molecular Microbiology)
Chlamydia NAAT confirmation (Virology)
Chlamydia/Gonococcal (Virology)
Clostridium difficile GDH and Toxin (Bacteriology)
Clostridium difficile Ribotypying Service (Bacteriology)
CMV (Cytomegalovirus) IgG (Virology)
CMV (Cytomegalovirus) IgM (Virology)
CMV (Cytomegalovirus) IgG avidity (Virology)
CMV (Cytomegalovirus) viral load (Molecular Microbiology)
CMV (Cytomegalovirus) genotypic antiviral Resistance
Coccidioides (Virology referral)
Conjunctivitis (Bacteriology)
Contact Lens (Bacteriology)
Corneal Scrape (Bacteriology)
Corneal Scrape (Virology)
Coronavirus COVID-19(Molecular Microbiology)
COVID-19 (Molecular Microbiology)
Coxiella burnetii – see Q fever
CPE screen (Bacteriology)
Cryptococcus antigen (Virology)
Cryptosporidium (Bacteriology)
CSF - Microcopy/culture (Bacteriology)
Culture (Bacteriology)
Culture: Wounds – Skin, Superficial, Non-surgical (Bacteriology)
Cystic Fibrosis (Bacteriology)

D

Dermatological specimens – hair, skin, nails
Diphtheria IgG antibody determination (Vaccine Evaluation Unit)
Dried Blood Spot Hepatitis B core antibody (Virology)
Dried Blood Spot Hepatitis B surface antigen (Virology)
Dried blood Spot Hepatitis C antibody (Virology)
Dried blood Spot Hepatitis C RNA Screening (Virology)
Dried blood Spot Hepatitis C (Virology)

Dried Blood Spot HIV Ag/Ab (Virology)
Dried Blood Spot Syphilis antibody (Virology)
Dysuria

E

Ear (Bacteriology, Oxford Road Campus)
Ebola
EBV (Epstein Barr virus) viral load (Molecular Microbiology)
EBV VCA IgG– screening (Virology)
EBV VCA IgM– screening (Virology)
EBV (EBNA) (Virology)
Ecthyma gangrenosum
Ehrlichia IF (Virology referral)
Entamoeba (Bacteriology)
Enteric Virus Panel (Molecular Microbiology)
Enterovirus and parechovirus (Molecular Microbiology)
Eye (Bacteriology, Oxford Road Campus)
Eye Virology ie Molecular

F

Faeces - Clostridium difficile (Bacteriology)
Faeces - culture/microscopy (Bacteriology)
Faeces culture - Clostridium difficile screen (Bacteriology)
Fluids (Bacteriology)
Folliculitis

G

Galactomannan (Aspergillus antigen) (Virology referral)
Gastric Biopsy for *H.pylori* (Bacteriology)
Genital specimens (Bacteriology)
Giardia lamblia (Bacteriology)
Glucan - Referral
Gonococcal NAAT confirmation (Virology)

H

Haematuria
Haemophilus influenzae type b antibody (Vaccine Evaluation Unit)
Helicobacter pylori stool antigen (Bacteriology)
Helicobacter pylori in Gastric Biopsies (Bacteriology)
Hepatitis A IgG (Virology)
Hepatitis A IgM (Virology)
Hepatitis B confirmation (Virology)
Hepatitis B core antibodies(Virology)
Hepatitis B core IgM (Virology)
Hepatitis B core antibody – Dried Blood Spot (virology)
Hepatitis B e antigen (Virology)
Hepatitis B e antibody (Virology)
Hepatitis B surface antibody (Virology)
Hepatitis B surface antigen (Virology)
Hepatitis B surface antigen – Dried Blood Spot (Virology)
Hepatitis B viral load Molecular (Virology)

Hepatitis B virus Resistance Markers (Molecular Microbiology)
Hepatitis C confirmation (Virology)
Hepatitis C screen (Virology)
Hepatitis C viral load (Molecular Microbiology)
Hepatitis C virus Genotyping (Molecular Microbiology)
Hepatitis C Dried Blood Spot (Virology)
Hepatitis D (delta) antibody (Virology)
Hepatitis E IgG (Virology referral)
Hepatitis E IgM (Virology)
Herpes simplex 1/2 antibody (type specific, IgM and total antibody) (Virology)
Herpes simplex virus types 1 and 2 PCR (Molecular Microbiology)
Histoplasma (Virology referral)
HIV confirmation (Virology)
HIV Integrase Resistance (Molecular Microbiology)
HIV P24 antigen and neutralization (Virology)
HIV Resistance (Molecular Microbiology)
HIV screen (Virology)
HIV screen 4th generation: HIV1 and 2 antibody and p24 antigen (Virology)
HIV screen - same day (Virology)
HIV Tropism prediction (Molecular Microbiology)
HIV-1 Viral load (Molecular Microbiology)
HIV-2 Viral load (Virology referral)
HIV Ag/Ab Dried Blood Spot (Virology)
HIV Resistance Markers (Molecular Microbiology)
HSV ½ antibody (type specific, IgM and total antibody) (Virology)
HSV types 1 and 2 PCR (molecular Microbiology)
HTLV 1 and 2 antibody (Virology)
Human Herpes virus 6 & 7 (Molecular Microbiology)
Human Papillomavirus PCR (Molecular Microbiology)

I

Impetigo
Infective endocarditis
Influenza A
Influenza B
Intravascular cannulae (Bacteriology)
Invasive infection with Aspergillus(Molecular Microbiology)
Invasive infection with Candida (Molecular Microbiology)

J

JC virus (Molecular Microbiology)
Joint Fluids (Bacteriology)

K

L

Legionella urinary antigen detection (Virology)
Leptospira (Virology referral)
Lyme Disease (Virology)
Lyme IgG (Virology)
Lyme IgM (Virology

M

Measles IgG (Virology)
Measles IgM (Virology)
Measles virus PCR (Molecular Microbiology)
Meningitis
Meningococcal DNA detection by PCR (multiplex with Pneumococcal DNA PCR) (Molecular Microbiology)
Meningococcal Serology (Vaccine Evaluation Unit)
MERS (Molecular Microbiology)
Metapneumovirus (Molecular Microbiology)
Molecular subtyping of isolates (Meningococcal Reference Unit)
Mouth swab (Bacteriology, Oxford Road Campus)
MRSA screen (Bacteriology, Oxford Road Campus)
Mumps IgG(Virology)
Mumps IgM (Virology)
Mycobacteria - microscopy/culture/PCR (Bacteriology)
Mycobacterium PCR (Bacteriology)
Mycoplasma PCR (Molecular Microbiology)
Mycoplasma gentitalium PCR (Molecular Micrtobiology)

N

Neisseria meningitidis: Functional antibody to serogroups A, C, W and Y by internationally standardised serum bactericidal antibody assays (Vaccine Evaluation Unit)
Functional antibody to Neisseria meningitidis serogroup B by Serum Bactericidal Antibody Assay (SBA) – (Vaccine Evaluation Unit)
Neisseria meningitidis isolate characterisation (Meningococcal Reference Unit)
Neisseria meningitidis: Serogrouping and outer membrane typing (Meningococcal Reference Unit)
Neisseria meningitidis Minimum inhibitory concentration (Meningococcal Reference Unit)
Neisseria meningitidis PorA sequencing from cultures (Meningococcal Reference Unit)
Neisseria meningitidis serology (Vaccine Evaluation Unit)
Neonatal Sepsis
Norovirus PCR (Molecular Microbiology)
Nose Swab (Bacteriology)

O

Otitis externa
Otitis media
Ova, Cysts and Parasites (Bacteriology)

P

Parasites (Bacteriology)
Paronychia
Parotitis
Parvovirus B19 IgG (Virology)
Parvovirus B19 IgM (Virology)
Parvovirus B19 viral load (Molecular Microbiology)
Peritoneal fluids culture and microscopy (Bacteriology)
Pernasal swab (for pertussis) (Bacteriology)
Pharyngitis
Pneumococcal PCR (Molecular Microbiology)

Pneumococcal serotype-specific IgG (Vaccine Evaluation Unit)
Pneumococcal urinary antigen detection (Virology)
Pneumocystis jirovecii PCR (Molecular Microbiology)
Polyoma viruses (BK) (Molecular Microbiology)
Polyoma viruses (JC) (Molecular Microbiology)
Polysaccharide antigen detection (Meningococcal Reference Unit)
Posaconazole Level - Referral
Progressive multifocal leucoencephalopathy
Prosthetic valve endocarditis (PVE)
Pus (Bacteriology)
Pyuria

Q

Q Fever Serology and PCR - Referral

R

Respiratory specimens (Bacteriology)
Respiratory Screen (Molecular Microbiology)
Respiratory virus PCR (Molecular Microbiology)
Rhinovirus
Rotavirus PCR - enteric (Molecular Microbiology)
RSV (Respiratory Syncytial Virus)
Rubella IgG(Virology)
Rubella IgM (Virology)
Rubella Avidity – (Virology referral)

S

Sapovirus PCR - enteric (Molecular Microbiology)
SARS-CoV-2 (Molecular Diagnostics)
Schistosoma haematobium (Bacteriology)
Sepsis
Sialadenitis
Skin, Superficial, Non-surgical Wounds (Bacteriology)
Sputum (Bacteriology)
Staphylococcal serology - AST (Virology referral)
Stem Cell Sterility Check (Bacteriology)
Sterile Fluids (Bacteriology)
Streptococcal serology (including anti-DNase B) (Virology)
Streptococcus pneumoniae serology (Vaccine Evaluation Unit)
Syphilis antibody (Virology)
Syphilis confirmation including immunoblot
Syphilis IgM (Virology)
Syphilis PCR (molecular Microbiology)

T

TB examination (microscopy and culture) (Bacteriology)
Tetanus antibodies (Vaccine Evaluation Unit)
Throat Swab (Bacteriology, Oxford Road Campus)
Tips (Bacteriology)
Tissue (Bacteriology)
Toxoplasma PCR (Molecular Microbiology)

Toxoplasma serology (IgG) (Virology)
Toxoplasma serology (IgM) (Virology)
Toxoplasma serology (Avidity) (Virology)
Treponema pallidum (syphilis) PCR (Molecular Microbiology)
Treponema pallidum confirmation (Virology)
Treponema pallidum screen (Virology)
Trichomonas vaginalis (Virology)

U

Ulcers
Urinary Tract Infection
Urine - cell count (Bacteriology)
Urine Culture (Bacteriology)

V

Varicella Zoster IgG (Virology)
Varicella Zoster IgM (Virology)
Varicella Zoster virus PCR (Molecular Microbiology)
VRE Screening (Bacteriology)
Vincent's angina
Viral Haemorragic Fever (VHF)

W

Whooping Cough
Wounds – Skin, Superficial, Non-surgical (Bacteriology)

Abscesses and Deep-Seated Wound Infections (Bacteriology)

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.

General Information

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Collection container (including preservatives)	Use aseptic technique. Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags. Avoid accidental injury when pus is aspirated.
Collection	Collect specimens before antimicrobial therapy where possible. Samples of pus are preferred to swabs. However, pus swabs are often received (when using swabs, the deepest part of the wound should be sampled, avoiding the superficial microflora). Unless otherwise stated, swabs for bacterial and fungal culture should be taken with liquid eSwabs. Pus  eSwab for Oxford Road Campus  Collect specimens other than swabs into appropriate CE marked leak proof containers and place in sealed plastic bags.
Specimen type	Abscess pus, abscess swab, deep-seated pus swab, post-operative wound swab, wound exudates.
Specimen transport	Specimens should be transported and processed as soon as possible. The volume of specimen influences the transport time that is acceptable. Large volumes of purulent material maintain the viability of anaerobes for longer.
Minimum volume of sample	Minimum volume of 1mL of pus. Swabs should be well soaked in pus. The liquid in the eSwab should NOT be discarded. The laboratory cannot process samples with <1ml of liquid remaining in the swab and these samples will be discarded.

Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	1 day	**Turnaround time to Final result (working days)**	Direct culture 5-7 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	The recovery of anaerobes is compromised if the transport time exceeds 3 hr

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Adenovirus (Molecular Microbiology)

General Information

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Collection container (including preservatives)	CE marked leak proof container
Collection	EDTA Blood (EDTA Tube), Eye swab (Virus Transport Media)
Specimen transport	Ambient or refrigerated Compliance with current postal and transportation regulations is essential. Clinical samples should be collected into a leak-proof container in a sealed plastic bag. Appropriate hazard labelling according to local policy should be applied. Specimens should be transported and processed as soon as possible.
Minimum volume of sample	Minimum volume 500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at room temperature.

Laboratory Information

Measurement units	Threshold cycle (CT)		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

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

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Antenatal Serology

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Antenatal screening is carried out for syphilis, hepatitis B, and HIV antibodies on clotted blood samples. The turnaround time is 5 working days from specimen being taken; in accordance with RCPath key performance indicators.

Please note Rubella Immunity is not routinely available as part of the routine antenatal booking screen in accourdance with the IDPS guidance. Please indicate clearly stating reason if Rubella Immunity is required on the request.

1) Syphilis serology
2) Hepatitis B serology
3) HIV antibodies

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Antimicrobial Susceptibility Test (AST) (Bacteriology)

General Information

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Antimicrobial susceptibility tests are performed using disc diffusion (EUCAST and BSAC methods), Gradient strip (Etest) and Broth Microdilution (BMD) using VitekXL systems (Biomerieux, UK) to establish the antibiotic options available for an identified organism.

AST are performed on bacterial and fungal isolates from a variety of clinical specimens.

Laboratory Information

Measurement units	ETest & Vitek AST: MIC (Minimum Inhibitory Concentration) Disc diffusion: zone sizes in mm Reported in qualitative terms as: (S) Sensitive (I) Intermediate (Reduced Susceptibility) (R) Resistant		
Biological reference units	MIC: ug/L		
Turnaround time for Provisional result (working days)	1-2 days	**Turnaround time to Final result (working days)**	Usually 3-4 days Slow growing species e.g. Tb and species that are referred to reference centres will take longer

Clinical Information

Clinical decision points	Clinical information relating to the sample site, sample type, PMH, previous antimicrobial therapy, current antimicrobial therapy, underlying immune status of the patient, travel history (including hospital stays abroad), presence of indwelling or prosthetic material will all influence the whether AST are performed and the panel of antimicrobials tested.
Factors known to significantly affect the results	Delayed results may occur when the bacteria / fungi isolated is slow growing Isolates referred to reference units for specialist AST e.g. Actinomyces, Tb will take considerably longer, Medical Microbiologists will provide advice Multi drug resistant isolates with limited treatment options may undergo secondary AST, Medical Microbiologists will provide advice

Aspergillus PCR (Molecular Microbiology)

General Information

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Collection container (including preservatives)	CE marked leak proof containeror
Specimen Type	Sputum, BAL, CSF
Specimen transport	Ambient or refrigerated Transport at ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Type and volume of sample	**Pulmonary infection with Aspergillus spp** A minimum of 1mL of a bronchoalveolar lavage in a sterile screw-capped plastic container should arrive at the laboratory within 1 working day. The sample should not be frozen, but should be stored at 4^{O}C before dispatch, and kept cool during transport to the laboratory. Non invasive samples such as sputum may be used if BAL is unobtainable. **Fungal infections of the central nervous system** A minimum of 0.5mL of whole CSF. Do not centrifuge. Use a small capacity screw capped container.
Special precautions	Samples should be stored at 4^{O}C and dispatched as soon as possible after being drawn

Laboratory Information

Measurement units	Threshold cycle (CT)		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	5 days	**Turnaround time to Final result (working days)**	7 days if urgent please contact the laboratory

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of target below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

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BK virus PCR (Molecular Microbiology)

General Information

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Collection container (including preservatives)	CE marked leak proof container or 5mL EDTA blood collection tube
Specimen Type	EDTA whole blood, CSF, urine
Specimen transport	Compliance with current postal and transportation regulations is essential. Clinical samples should be collected into a leak-proof container in a sealed plastic bag. Appropriate hazard labelling according to local policy should be applied. Specimens should be transported and processed as soon as possible. If processing is delayed refrigeration is preferable to storage at room temperature.
Minimum volume of sample	Minimum volume 500µl
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	Copies/mL		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

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

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Blood Cultures (Bacteriology)

Bloodstream Infection, Sepsis, Neonatal Sepsis, Infective endocarditis, Prosthetic valve endocarditis (PVE), Bacteraemia.

The Blood Culture system can also be used for small volumes of the following sterile fluids to aid the recovery of fastidious organisms, for example but not limited to, CAPD/peritoneal fluids (Ascites), Joint Fluids (Prosthetic & Natural), and Stem Cell fluids. For all other sterile fluids please refer to the Sterile Fluids (Bacteriology) section.

General Information

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Collection container (including preservatives)	Collect specimens in BD Bactec bottles using aseptic technique. The bottles should be stored at room temperature before use.
Specimen Type	Venous blood, arterial blood, peripheral blood, sterile fluids  BD BACTEC bottles.
Collection	A blood culture set is defined as one aerobic (Silver/Blue Top) and one anaerobic (Purple top) bottle. This set is also suitable for patients on antibiotics, or where fungaemia is suspected. For infants and neonates, a single Peds aerobic bottle (Pink top) may be requested. For small volume sterile fluids such as Pacemaker fluids & Stem cells, a single Peds aerobic bottle (Pink top) should be used. Please refer to MFT sepsis pathway for guidance.

	Take two consecutive sets from two separate venepuncture sites during any 24hr period for each septic episode. For neonates, take a single low-volume Peds aerobic bottle Take two sets during the first hour in cases of severe sepsis prior to commencing antibiotic treatment, provided this does not significantly delay antibiotic administration. Take at least three sets during a 24hr period where the patient has suspected infective endocarditis.
Specimen transport (e.g at room temperature, or within 4 hrs)	Collect specimens before antimicrobial therapy where possible. Samples should be taken as soon as possible after a spike of fever. Samples should **not** be refrigerated. Inoculated bottles should be incubated as soon as possible, and within a maximum of four hours. The four hour turnaround time from collection to incubation for blood culture samples reflects their clinical significance.
Type and volume of sample	Adults – Purple top and Silver/Blue top bottles. Inoculate up to 10mL to each bottle. Children – Pink top bottle. Inoculate up to 3mL Neonates – Pink top bottle. Inoculate preferably 1-2mL. Do not exceed the manufacturer's recommended maximum volume for each bottle as shown on label. The minimum volume (shown on blood culture bottles) should be met where possible to comply with manufacturer's requirements.
Special precautions	Use aseptic technique. Inspect the blood culture bottles for damage. Do not use blood culture bottles which are bulging at the rubber seal as this may be a sign of bacterial growth and contamination. Ensure that the blood culture bottles have not exceeded their expiry date. Do not re-sheathe needles.

Laboratory Information

Measurement units	Growth detected or not detected		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	Negative result 2 days	**Turnaround time to Final result (working days)**	6 days for final negative results 7 days for positive results

Clinical Information

Clinical decision points	Not applicable
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.

Limitations

It is estimated that 2-5% of positives samples may be missed if bottles are pre-incubated, these organisms may fail to trip the threshold algorithm of the continuous monitoring blood culture machine. This may occur with Abiotrophia species (nutritionally variant streptococci), S. pneumoniae which have undergone a degree of autolysis, and fastidious organisms which are unable to grow on routine solid culture media. Organisms may include:

- Campylobacter species.
- Helicobacter species.
- Capnophilic organisms.
- Slow-growing anaerobes

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Bordetella pertussis culture (Bacteriology)

Whooping cough is a highly contagious disease that is caused by the fastidious Gram-negative coccobacillus *Bordetella pertussis*. In some cases this syndrome may also be caused by *Mycoplasma pneumoniae*, and by viruses such as adenoviruses and enteroviruses. It is advisable to take two pernasal swabs: one for the culture of Bordetella species and the other for viral culture; however nasal swabs for PCR are preferred.

General Information

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Collection container (including preservatives)	A pernasal swab (Dacron™ with flexible wire shaft)
Specimen Type	
Collection	A pernasal swab (Dacron™ with flexible wire shaft) is inserted through a nostril and advanced along the floor of the nose until it reaches the nasopharynx. It has been suggested that the swab be held against the posterior nasopharynx for up to 30 seconds or until the patient coughs. In practice, it is more likely that a patient will only be able to tolerate this for a few seconds
Specimen transport	Collect using a blue top pernasal swab with charcoal Amies and transport in sealed plastic bags. If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.
Minimum volume of sample	Not applicable
Special precautions	Pertussis serology is usually more useful in adults presenting with a prolonged cough. PCR on pernasal swabs or nasopharyngeal aspirates is now also available for the diagnosis of B. pertussis infection.

Laboratory Information

Measurement units	Not applicable
Turnaround time	7 working days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Pernasal swabs The only swab fibre recommended for diagnosis of whooping cough is Dacron™. *B. pertussis* has a stronger affinity for Dacron™ than for plain cotton wool or for treated cotton wool and its use improves recovery of the organism. It is also less inhibitory for PCR techniques.

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Bordetella pertussis PCR (Molecular Microbiology)

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Specimen Type and collection container	Pernasal swab Nose and/or throat swab (virus transport medium) BAL/Sputum (sterile container) NPA (Sterile container)
Specimen transport	Ambient or refrigerated
Minimum volume of sample	Minimum volume 500µL
Special precautions	None known

Laboratory Information

Measurement units	Threshold cycle (CT)
Turnaround time to Final result (working days)	3-4working days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of target below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

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Candida PCR (Molecular Microbiology)

General Information

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Collection container (including preservatives)	EDTA blood collection tube
Specimen Type	EDTA Blood , Sputum, CSF, BAL, swabs
Specimen transport	Ambient or refrigerated Transport at ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Type and minimum volume of sample	5mL of EDTA blood. A minimum of 1mL of a bronchoalveolar lavage in a sterile screw-capped plastic container should arrive at the laboratory within 1 working day. The sample should not be frozen, but should be stored at 4^{O}C before dispatch, and kept cool during transport to the laboratory. Non invasive samples such as sputum and EDTA-blood may be used if BAL is unobtainable. A minimum of 0.5mL of whole CSF. Do not centrifuge. Use a small capacity screw capped container.
Special precautions	Samples should be stored at 4^{O}C and dispatched as soon as possible after being drawn. If longer storage is unavoidable, serum or plasma may be stored frozen, but should not be repeatedly frozen and thawed. In special circumstances, 0.5mL of serum or plasma can be tested, but for such small volumes avoid using a large container; use a small capacity container with a screw cap, such as an Eppendorff tube.

Laboratory Information

Measurement units	Threshold Cycle (CT)
Biological reference units	Not applicable
Turnaround time to Final result (working days)	5-7days If urgent please contact the laboratory

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of target below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

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Rapid /Routine Carbapenemase-Producing Enterobacteriaceae (CPE) Screen (Bacteriology)

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

Rapid & routine CPE screens are processed on a molecular platform; culture is only performed on positive samples for epidemiological & monitoring purposes.

General Information

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Collection container (including preservatives)	Swab: Double headed Red topped swab; available from Microbiology. For urgent testing 
Specimen Type	Screening of faeces/ rectal swabs Samples are stored in Microbiology for 7 days should any additional tests be requested.
Specimen transport	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.
Type and minimum volume of sample	Not applicable
Special precautions	None

Laboratory Information

Measurement units	Threshold Cycle (CT)
Biological reference units	Not applicable
Turnaround time	Rapid CPE Screens : Designated wards agreed with IPC Trafford Transfers: 2 - 4 hours from receipt into Microbiology Reception. The laboratory MUST be telephoned prior to the patient(s) being sampled. Samples should be received in the laboratory before 6pm (Mon-Fri) and before 4pm (Weekends/Bank Holidays) Routine CPE Screen: Designated wards agreed with IPC 24-72hrs

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Faecal material must be visible on the cotton tip of the swab; failure to provide faecal material may produce a false negative screening result. Some faecal products may prove inhibitory to the PCR process; samples will be reported as inhibitory and a repeat will be requested.

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Chlamydia trachomatis, Neisseria gonorrhoea, Trichomonas vaginalis, Mycoplasma genitalium NAATs (Molecular Microbiology)

General Information

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Collection container (including preservatives)	cobas® PCR media tube cobas® PCR Dual Swab Collection Kit
Specimen Type	Swab, urine Please note, for TV and MG testing: •From male patients, urine only •From female patients, urine or a vaginal or endocervical swab
Collection	Specimens should be collected and handled following the recommended guidelines on the collection packs: **Male and female urine specimens** Male and female urines must be collected in a sterile container and transferred to the cobas® PCR media tube within 24 hours of collection. After transfer, specimens can then be stored at 2-30°C for up to 3 months prior to testing. Urine specimens must fill the cobas® PCR media tube between the 2 black urine fill lines (shown below). If the amount of urine is above or below these lines the specimen will not be tested by the laboratory.  Urine specimen with 2 black urine fill lines **Vaginal, throat and anorectal specimens**  Woven polyester swab used to collect vaginal, throat and anorectal specimens

	Only the larger woven polyester swab (shown above) included in the cobas® PCR Dual Swab Collection Kit should be used to collect vaginal, rectal and throat specimens. Specimens may be stored in cobas® PCR media at 2-30°C for up to 3 months. **Endocervical specimens** The larger woven polyester swab (shown above) included in the cobas® PCR Dual Swab Collection Kit should be used first to remove any cervical secretions followed by the smaller flocked swab (shown below) to collect the endocervical specimen.  Flocked swab used to collect endocervical specimens Please ensure the correct swab is used for the test requested or the sample cannot be processed. Please note only ONE swab should be returned in the specimen tube. Specimens may be stored in cobas® PCR media at 2-30°C for up to 3 months.
Specimen transport	Transport at ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Type and volume of sample	2mL Urine
Special precautions	Patient consent must be obtained for both Chlamdyia and Gonococcal testing. Single tests cannot be accepted for either Chlamydia or Gonorrhoea. If consent for both cannot be obtained, please contact the laboratory for information on alternative laboratories that provide a single analyte service. Specimens received more than 3 months after collection will not be tested by the laboratory. Only the woven polyester swab or flocked swabs contained in the cobas® PCR Dual Swab Collection Kit will be accepted for testing. Swab specimens received with no swab or 2 swabs will not be tested by the laboratory. Cobas® PCR media that has expired will not be tested.

	Please ensure the request form clearly states the specimen type and the required test. Please ensure the swabs are not inverted in the tube, i.e. the specimen collection end should be placed in the liquid media.

Laboratory Information

Measurement units	Relative Light Units (RLU)		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days For urgent tests please contact the laboratory M. genitalium antibiotic resistance testing is a referral test with a significantly longer turnaround time, please refer to the UKHSA BRD user manual.

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Samples must be kept at ambient temperature Where possible, check that swabs are visually clear of stool, mucus or blood as these can interfere with the assay. Other known factors include, some over the counter feminine hygiene, lubricants or prescriptions. Where possible, request patient avoids applying these 24 hours prior to sample collection False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of target below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

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Clostridium difficile GDH EIA,Toxin EIA and Toxin PCR (Bacteriology)

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. The laboratory uses the three-step testing algorthim recommended by the Department of Health and Social Care. This involves the specimen being tested using *C.difficile* GDH EIA, *C.difficile* Toxin EIA and *C.difficile* toxin PCR assays.

General Information

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Collection container (including preservatives)	Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags. 
Specimen Type	Faeces
Collection	Specimen may be passed into a clean, dry, disposable bedpan or similar container and transferred into a CE marked leak proof container. The specimen is unsatisfactory if any residual soap, detergent or disinfectant remains in the pan.
Specimen transport	Compliance with current postal and transportation regulations is essential. Clinical samples should be collected into a sterile leak-proof container in a sealed plastic bag. Specimens should be transported and processed as soon as possible. If processing is delayed refrigeration is preferable to storage at room temperature.
Type and volume of sample	A liquid specimen of 2 mL is sufficient for culture and toxin detection. 2 gram (large pea-size) of unformed specimen

Special precautions	Formed stools are unsuitable for investigation for C. difficile.

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	1 day	**Turnaround time to Final result (working days)**	2 days *

* Please note that a 2 day TaT for high risk samples cannot be achieved as the sample requires a clearance of CL3 pathogens before C.difficile toxin testing on DS2 analyser can be performed.

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	The detection of *C. difficile* is dependent on the number of organisms present in the sample, reliable results are dependent on correct specimen collection, handling, and storage.

Limitations

Interpretation of toxin results in children less than 2 years old should be treated with caution.

Contact lens (Bacteriology)

General Information

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Collection container (including preservatives)	Contact lens case or Sterile container with saline
Specimen Type	Contacts lens
Specimen transport	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable. Please send contact lens in solution or sterile saline, not dry contact lenses
Minimum volume of sample	Not applicable

Laboratory Information

Turnaround time	2-3 working days for culture Acanthameoba investigations 7 working days Fungal Culture 5 working days

Clinical Information

Factors known to significantly affect the results	The sample should be sent to the laboratory without delay

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Corneal Scrape (Bacteriology)

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.

Agar plates for bacterial, fungal or acanthamoebal culture, which are inoculated directly at the patient's side, are incubated immediately on receipt in the laboratory.

General Information

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Collection container (including preservatives)	Kits are available 24 hours a day from the stock fridge within Autolab reception MRI; should infection with fungi or Acanthamoeba be suspected additional kits are available from the Autolab reception. The Scrape kit contains 3 culture plates and a glass slide within slide carrier and an instruction sheet The kit label indicates when the kit expires; kits should not be used after the expiry date and unused kits should be returned to microbiology.
Specimen Type	Aqueous and vitreous humour, corneal scrapings
Collection	Use aseptic technique. For each scrape of the eye a fresh needle must be used. **1. Preparing the Gram Stain:** Clear/wipe the infected area by removing as much cellular material as possible using a syringe needle and spread this evenly over the scribed area of the glass slide. 2. **Innoculating the Culture plates:** Scrape the infected area using a fresh needle and inoculate the surface of the agar with a large "C" streak. (if the syringe needle is dug deep into the agar this will delay signs of bacterial growth) Acanthameoba plates should be labelled on the lid of the plate as labelling the agar side obstructs the visualisation of the plate down the microscope.
Specimen transport	Specimens should be transported and processed as soon as possible.
Minimum volume of sample	Corneal scrapings should be of sufficient quantity to make a visible deposit on a microscope slide and to inoculate culture plates. If insufficient specimen to make an impression smear and inoculate plates, cultures should be the priority.

Special precautions	Collect specimens before antimicrobial therapy where possible.

Laboratory Information

Turnaround time	2- 3working days for culture 30 – 60 mins for microscopy if telephoned in advance

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.

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Corneal Scrape (Virology)

General Information

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Collection container (including preservatives)	CE marked leak proof container with or without virus transport media
Specimen Type	Corneal Scrape for Microbial/Viral PCR
Specimen transport	Specimens should be transported and processed as soon as possible.
Minimum volume of sample	Not Applicable
Special precautions	Care with small sample size

Laboratory Information

Turnaround time	2-3 working days

Clinical Information

Factors known to significantly affect the results	None Known

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Coronavirus COVID-19
Testing for SARS-CoV-2 (Molecular Microbiology)

General Information

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Collection container (including preservatives)	• This guidance should be used for sending samples to PHL Manchester for COVID-19 testing following identification of the patient that meets the national case definition. Refer to national guidance at https://www.gov.uk/government/publications/wuhan-novel-coronavirus-initial-investigation-of-possible-cases/investigation-and-initial-clinical-management-of-possible-cases-of-wuhan-novel-coronavirus-wn-cov-infection#interim-definition-possible-cases • The regional COVID-19 request form (E28 form) **must** be completed https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/868264/PHE_2019-COVID-19_Testing_Request_Form_E28.pdf
Specimen Type	The following samples must be sent: • Upper respiratory tract (nose and throat swab or NPA) • Lower respiratory tract if possible (sputum, BAL or ETA) The Laboratory can test for SARS-CoV-2 on a nose and throat swab. Swab each site with a separate swab and place both swabs in one tube of Virus Transport Medium (VTM). If a patient is producing sputum then please send sputum as well as a nose and throat swab. Refer to national guidance at https://www.gov.uk/government/publications/wuhan-novel-coronavirus-guidance-for-clinical-diagnostic-laboratories
Specimen transport	Arrange transport to PHL Manchester - Label package clearly for Virology with '**PRIORITY 10'** label. - Virology Reception, 3rd Floor, Clinical Sciences Building One, MRI, M13 9WL or, out of hours, - Central Specimen Reception, Ground Floor, Clinical Sciences Building One, MRI, M13 9WL - Packages should be labelled with '**PRIORITY 10**' for all specimens for COVID-19 testing, with the exception of known positive patients. - Packages should be labelled with '**PRIORITY 20'** for all known positive COVID-19 patients specimens.

	Samples **must be sent in Category B transport containers**. Follow the diagram below for instructions on packaging samples to send for testing. Category B transport http://www.who.int/ihr/publications/who_hse_ihr_2012.12/en/

- **Please keep the specimen separate from other pathology specimens.**
- **All other pathology specimens should be transported in the usual way so they are not delayed.**

Minimum volume of sample	Minimum volume 700µl
Special precautions	All samples must be sent in accordance with Cat B transport guidance. If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Positive or Negative
Biological reference units	Not applicable
Turnaround time for result (working days)	24 hr is the target turnaround time. Turnaround times will be dependent on the progression of the COVID-19 outbreak and the number of specimens received for testing.

Clinical Information

Clinical decision points	Not applicable

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Cryptococcus Antigen (Virology)

General Information

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Collection container (including preservatives)	CE marked leak proof container
Specimen Type	Clot or CSF
Specimen transport	No special requirements
Minimum volume of sample	150µl

Laboratory Information

Measurement Units	Positive or Negative, or titre
Turnaround time	24 hrs

Clinical Information

Factors known to significantly affect the results	None known

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CSF (Bacteriology)

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.

Royal Manchester Childrens Hopsital is a specialist paediatric neurology centre; as such CSF obtained from ventricular shunts and shunts removed during revision may also be submitted to the laboratory for microscopy and culture.

General Information

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Collection container (including preservatives)	Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags.
Specimen Type	Cerebrospinal Fluid 
Collection	Use aseptic technique. Collect specimens into appropriate CE marked leak proof containers and place in sealed plastic bag.
Specimen transport	Specimens should be transported and processed as soon as possible. CSFs should not be podded.
Minimum volume of sample	For routine cell count & culture; ideally a minimum volume of 1 mL For Mycobacteria sp., culture (Tb), at least 6mL where possible; such investigations cannot be performed outside of normal hours CSF is normally collected sequentially into three or more separate containers which should be numbered consecutively.
Special precautions	**Always** contact the laboratory when sending a CSF sample. Send sample 3 (or the last sample if more than 3 taken) to Microbiology. Outside of normal hours contact the on-call Biomedical Scientist through the main switchboard.

Laboratory Information

Measurement units	Cell count x10^6/L
Biological reference units	Leucocytes (WBC) Neonates 0 - 30 cells x 10^6/L 1-4yr old 0 - 20 cells x 10^6/L 5yr-puberty 0 - 10 cells x 10^6/L Adults 0 - 5 cells x 10^6/L When possible the WBC count will be differentiated into lymphocytes and polymorphs. Erythrocytes(RBC) Newborn 0 - 675 cells x 10^6/L Adults 0 - 10 cells x10^6 /L Protein (Performed by Biochemistry) Neonates ≤6d 0.7 g/L Others 0.2-0.4g/L (<1% of serum protein concentration) Glucose (Performed by Biochemistry) ≥60% of simultaneously determined plasma concentration (CSF: serum ratio ≥0.6)
Turnaround time	30 mins to 1 hour for microscopy 2-3 working days for culture

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Cells disintegrate and a delay may produce a cell count that does not reflect the clinical situation of the patient. The laboratory will be unable to perform cell counts on clotted samples.

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Culture (Bacteriology)

General Information

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Collection container (including preservatives)	Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags.  eSwab for Oxford Rd Campus 
Specimen Type	Please state anatomical site on request form and recent clinical history incuding any foreign travel.
Collection	Use aseptic technique. Liquid eSwabs contain 1ml of liquid. No liquid should be discarded when collecting sample. Samples with insufficient liquid will be discarded
Specimen transport	Specimens should be transported and processed as soon as possible.
Minimum volume of sample	1ml. The liquid in the eSwab should NOT be discarded. The laboratory cannot process samples with <1ml of liquid remaining in the swab and these samples will be discarded.
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Not applicable
Biological reference units	Not applicable

Turnaround time for Provisional result (working days)	2 days	**Turnaround time to Final result (working days)**	2-3 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Collect specimens before antimicrobial therapy where possible. Specimens should be transported and processed as soon as possible

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Cystic fibrosis (Bacteriology)

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.

General Information

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Collection container (including preservatives)	Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags. Sputum/Pleural Fluids/BALs Cough Swabs (Paediatric CF)  
Specimen Type	Respiratory specimens; Sputum and Cough Swabs (Paediatric use only)
Collection	Use aseptic technique.
Specimen transport	Specimens should be transported and processed as soon as possible. Paediatric postal samples should be submitted using the kit provided by the Microbiology Laboratory.
Minimum volume of sample	5mL
Special precautions	Some complex identification can take several weeks to confirm identity If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Not applicable
Biological reference units	Not applicable

Turnaround time	Negative results available at 2 working days and positives generally within 8 working days.

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Specimens should be transported and processed as soon as possible. The recovery rate of *Haemophilus* sp., is reduced the longer the time taken to transport the specimen.

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Cytomegalovirus (CMV) IgG avidity

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	No special needs
Minimum volume of sample	2ml Venous Blood
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turnaround time for Provisional result (working days)	5 days	**Turnaround time to Final result (working days)**	7 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Cytomegalovirus (CMV) IgG

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	No special needs
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	AU/mL		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days
For urgent tests please contact the laboratory for 4 hour turnaround			

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Cytomegalovirus (CMV) IgM

Specific CMV IgM assay is useful in distinguishing individuals who have acquired the infection recently from those who have not. Further information may be gained from IgG avidity testing where IgM is.

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	No special needs
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Cytomegalovirus viral load (Molecular Microbiology)

General Information

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Collection container (including preservatives)	CE marked leak proof container, EDTA blood tube or Guthrie card
Specimen Type	Urine EDTA blood 
Specimen transport	Ambient or refrigerated
Minimum volume of sample	Minimum volume 500µl
Special precautions	None known

Laboratory Information

Measurement units	IU/ml		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	2 days	**Turnaround time to Final result (working days)**	3 days
Turnaround time The results of all tests will be available within 3 working days after receipt of the specimen in the laboratory, and usually within 24 hours.			

Clinical Information

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

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CMV (Cytomegalovirus) antiviral Resistance markers

CMV viral load positive bloods. Complete CMV antiviral resistance genotypic screening including

UL97: Nucleotide sequencing of the CMV phosphotransferase gene for the identification of mutations encoding resistance to ganciclovir and maribavir.

UL54: Nucleotide sequencing of the DNA polymerase gene for the identification of mutations encoding resistance to ganciclovir, foscarnet and cidofovir.

General Information

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Collection container (including preservatives)	CE marked leak proof container EDTA blood tube
Specimen Type	EDTA blood
Specimen transport	Ambient or refrigerated For PCR for confirmation of active CMV infection and monitoring of antiviral therapy please send 4mL of EDTA blood. This should be stored at 4^{O}C and dispatched as soon as possible after being drawn. If longer storage is unavoidable, serum or plasma may be stored frozen, but should not be repeatedly frozen and thawed. In special circumstances, 0.5mL of serum or plasma can be tested, but for such small volumes avoid using a large container but use a small capacity container with a screw-cap, such as an Eppendorff tube.
Minimum volume of sample	3.0 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	mL Wild type / resistant mutation		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	5 days	**Turnaround time to Final result (working days)**	7 days

Clinical Information

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

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Diphtheria IgG Antibody Determination (Vaccine Evaluation Unit)

Diphtheria IgG antibody determination by flow analysis assay bead assay.

General Information

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Collection container (including preservatives)	Clotted blood sample tube (no preservative)
Specimen Type	Clotted Blood/serum,paired sera
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Type and volume of sample	Clotted Blood/serum; **Minimum volume 0.1mL**
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	IU/mL
Biological reference units	Not applicable
Turnaround time	28 Working Days

Clinical Information

Clinical decision points	IgG of ≥ 0.1IU/mL considered protective
Factors known to significantly affect the results	none known

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Ear (Bacteriology)

General Information

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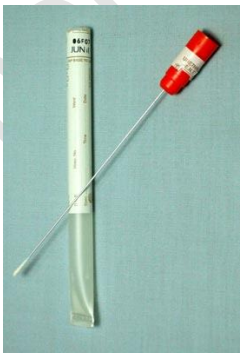
Collection container (including preservatives)	Collect using a single liquid eSwab and transport in sealed plastic bags. Numbers and frequency of specimen collection are dependent on clinical condition of patient. Fine wire swabs can be used for inner ear swabs where necessary; these swabs should be transported promptly to the laboratory to prevent dessication.
Specimen Type	Ear Swab  
Collection	For investigation of fungal infection, scrapings of material from the ear canal are preferred although swabs can also be used. Liquid eSwabs contain 1ml of liquid. No liquid should be discarded when collecting sample. Samples with insufficient liquid will be discarded
Specimen transport (e.g at room temperature, or within 4 hrs)	Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags. Collect using a single liquid eSwab and transport in sealed plastic bags. For investigation of fungal infection, use an appropriate method to transport scrapings of material from the ear canal.
Minimum volume of sample	1ml. Liquid eSwabs contain 1ml of liquid. No liquid should be discarded when collecting sample. Samples with insufficient liquid will be discarded
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Not applicable
Biological reference units	Not applicable

Turnaround time for Provisional result (working days)	1 day	**Turnaround time to Final result (working days)**	2-3 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Collect specimens before antimicrobial therapy where possible

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Enteric Virus Panel (Virology)

Multiplex PCR including:

1) Adenovirus 40/41
2) Astrovirus
3) Rotavirus
4) Sapovirus
5) Norovirus G1 and G2

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

General Information

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Specimen Type and container	Faeces collected in a CE marked leak proof container 
Specimen transport	Compliance with current postal and transportation regulations is essential. Clinical samples should be collected into a sterile leak-proof container in a sealed plastic bag. Appropriate hazard labelling according to local policy should be applied. Specimens should be transported as soon as possible.
Minimum volume of sample	Minimum volume 500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at room temperature.

Laboratory Information

Measurement units	Threshold cycle (CT)		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

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In order to provide the most clinically beneficial, operationally efficient and cost-effective service the laboratory employs a number of multiplex assays and testing algorithms, which are based on UK Standards for Microbiology Investigations; it is normal practice to use these even when not all tests within the multiplex or algorithm are requested.

It is our policy to report all results along with the requested result to provide as much information as possible to aid diagnosis

Enterovirus and Parechovirus PCR (Molecular Microbiology)

Encephalitis, meningitis

General Information

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Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA blood, CSF, Swab, Faeces, Respiratory samples
Specimen transport	Ambient or refrigerated
Minimum volume of sample	Minimum 500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Threshold cycle (CT)		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	None known

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Epstein Barr Virus (EBV) IgG- screening

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	U/mL		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Epstein Barr Virus (EBV) IgM - screening

General Information

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Collection container (including preservatives)	6mL clotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	U/mL		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Epstein Barr Virus (EBNA) - confirmation

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	U/mL
Turnaround time	3- 4 working days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Epstein Barr virus viral load (Molecular Microbiology)

General Information

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Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA blood
Specimen transport	Ambient or refrigerated
Minimum volume of sample	500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Copies/mL		
Turnaround time for Provisional result (working days)	2 days	**Turnaround time to Final result (working days)**	3 days

Clinical Information

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

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Eye and Canalicular Pus (Bacteriology)

General Information

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Collection container (including preservatives)	Collect specimens other than swabs into appropriate CE marked leak proof containers and place in sealed plastic bags Any available pus should be sampled as well as the lesion of interest. Swabs for bacterial and fungal culture should be taken with a single liquid eSwab. Liquid eSwabs contain 1ml of liquid. No liquid should be discarded when collecting sample. Samples with insufficient liquid will be discarded
Specimen Type	Pus  Eye Swab  Small syringes (0.25ml) containing pus will be accepted, but the needle MUST be removed before submission.
Specimen transport (e.g at room temperature, or within 4 hrs)	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.
Minimum volume of sample	1ml.

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	1 day	**Turnaround time to Final result (working days)**	2-3days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Collect specimens before antimicrobial therapy where possible, and preferably before application of local anaesthetic.

Limitations

Superficial swabs, although not ideal, may be all that is available. Deep-seated samples if available should be sought.

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Faeces Culture (Bacteriology)

All diagnostic faecal samples, except single organism screens, are tested for the following organisms; *Campylobacter* sp., *Salmonella* sp., *E.coli* (VTEC) including 0157 & *Shigella* sp. Faecal samples submitted from patients that have a foreign travel history will also be examined for Vibrio sp., including *Vibrio cholera.*

Foodborne outbreak samples submitted through the local environmental health team may have additional culture performed for *Staph aureus*, Bacillus sp., and Clostridia sp.

Additional screening for Yeast sp.,and Vancomycin Resistant Enterococci (VRE) is performed on selected Immunocompromised patient groups under the guidance of the IPC Team.

General Information

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Collection container (including preservatives)	Collect specimens in appropriate CE marked leak proof containers 
Specimen Type	Faeces
Collection	Specimen may be passed into a clean, dry, disposable bedpan or similar container and transferred into an appropriate CE marked leak proof containers and place in sealed plastic bags. Please no not send additional faeces to the laboratory collected within the same 24-hour period as the last sample sent. Additional faeces received that was collected within the same 24 hour period will not be processed.
Request Form	The microbiological examination of faeces is complex and requires a full clinical history including the possibility of food poisoning, foreign travel with the countries visited and the dates, and antimicrobial therapy, as well as the more basic information. Failure to give this information may mean important pathogens are not isolated.
Specimen transport	If processing is delayed, refrigeration is preferable to storage at ambient temperature
Minimum volume of sample	A liquid specimen 2 mL is sufficient. 2 gram (large pea-size) of solid specimen

Special precautions	The specimen is unsatisfactory if any residual soap, detergent or disinfectant remains in the pan. Sample should avoid contamination with urine or the toilet bowl.

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	1 day	**Turnaround time to Final result (working days)**	2-3 days

Clinical Information

Clinical decision points	Not applicable

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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.

General Information

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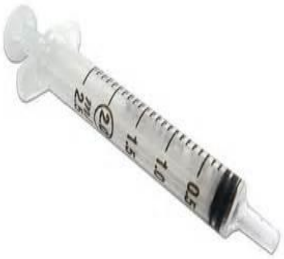
Collection container (including preservatives)	Use aseptic technique. Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags.
Specimen Type	Universal container: Amniotic fluid, bursa fluid, pericardial fluid, joint fluid, peritoneal/CAPD fluid (ascites), pleural fluid, dialysis fluid. Pleural Fluids (Not Pleural Drains) should be sent in a set of blood culture bottles for culture plus an additional universal container for a Gram stain Capped Syringes: Vitreous aspirates & other intra ocular fluids should be injected into a Blood Culture bottle set with a small syringe of fluid submitted for a Gram stain. The needle MUST be removed before submission for the laboratory. Cell differentials are performed in Cytology, separate sample and request required

	  
Collection	Collect specimens before antimicrobial therapy where possible.
Specimen transport	Specimens should be transported and processed as soon as possible
Minimum volume of sample	Ideally, a minimum volume of 1 mL. Large volume - specimens such as peritoneal fluid and ascitic fluid may contain very low numbers of organisms which are usually received in adequate quantities and require concentration to increase the likelihood of successful culture. Small volume - fluids such as synovial fluids may be received in inadequate volumes, which may impede the recovery of organisms. Enrichment culture is performed on all fluids from normally sterile sites to enhance the recovery of bacterial pathogens.
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	X10 ^{6}/L for cell count		
Biological reference units	Not applicable		
Turnaround time for Provisional	30 -60 mins for microscopy & Gram	**Turnaround time to Final result (working**	2- 3 days for direct culture result

result (working days)	Stain, when telephoned as Urgent.	**days)**	5 days for enriched culture result

Clinical Information

Clinical decision points	Positive microscopy and/or Positive Culture results are telephoned to the requesting physician

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Genital Specimens for Culture (Bacteriology)

General Information Back to Index

Collection container (including preservatives)	CE marked leak proof container
Specimen Type	High vaginal swab (HVS), vaginal discharge, vulval swab, labial swab, cervical swab, endocervical swab, penile swab, urethral swab, genital ulcer swab, semen, screening swabs for *N. gonorrhoeae*, aspirates from bartholin's gland, fallopian tube, tubo-ovarian abscess, pouch of Douglas fluid, intra-uterine contraceptive device (IUCD), products of conception. Wire swabs are permitted for use with Utheral samples where required and they should be transported to the laboratory as soon as possible to prevent specimen degregation. High Vaginal swabs (HVS) are not suitable for the isolation of *N. gonorrhoeae*, Endocervical swabs should be submitted. Aspirates Genital/throat eSwab Urethral Swab Charcoal swab for Trichomonas 
Collection	Use aseptic technique. Collect specimens in appropriate CE marked leak proof containers and transport in sealed plastic bags. Collect swabs into appropriate transport medium and transport in sealed plastic bags. **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 only, the posterior fornix, including any obvious candidal plaques should be swabbed using a charcoal swab. If pelvic infection, including gonorrhoea, is suspected, the cervix should be swabbed Separate samples should be collected into appropriate transport media for detection of viruses or C. trachomatis.

	High vaginal swabs After the introduction of the speculum, the eSwab should be rolled firmly over the surface of the vaginal vault. Please use an eSwab and ensure the liquid remains in the tube. **Cervical swabs** After introduction of the speculum to the vagina, the swab should be rotated inside the endocervix. Please use an eSwab and ensure the liquid remains in the tube. **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. Place the thin swab in Amies transport medium with charcoal. **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… during surgery Liquid eSwabs contain 1ml of liquid. No liquid should be discarded when collecting sample. Samples with insufficient liquid will be discarded.
Specimen transport	Specimens should be transported and processed as soon as possible.
Minimum volume of sample	Fluids and pus – preferably a minimum volume of 1mL. Liquid eSwabs contain 1ml of liquid. No liquid should be discarded when collecting sample. Samples with insufficient liquid will be discarded
Special precautions	Endocervical swabs for gonorrhoea investigation should not be refrigerated

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	30 -60 mins for microscopy 1 day for culture	**Turnaround time to Final result (working days)**	2-3 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	HVS swabs for gonorrhoea investigation should not be refrigerated as this significantly reduces the recovery rate

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Haemophilus influenzae type b IgG Antibody Determination (Vaccine Evaluation Unit)

Haemophilus influenzae type b IgG antibody determination by flow analysis assay bead assay.

General Information

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Collection container (including preservatives)	Clotted blood sample tube (no preservative)
Specimen Type	Clotted Blood/serum
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Type and volume of sample	Clotted Blood/serum; **Minimum volume 0.1mL**
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	µg/mL
Biological reference units	Not applicable
Turnaround time	28 Working Days

Clinical Information

Clinical decision points	IgG of ≥ 0.15 µg/mL for short term protection: IgG of ≥ 1.00 µg/mL for long term protection
Factors known to significantly affect the results	None known

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Hepatitis B virus (HBV) e antigen (HBeAg) and e antibody (Anti-HBe)

General Information

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Collection container (including preservatives)	6mL clotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Type and volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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HBV Resistance Markers (Molecular Microbiology)

General Information

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Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA blood
Collection	
Specimen transport	Ambient or refrigerated
Minimum volume of sample	3 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Not applicable
Turnaround time	The results of all tests will be available within 5-7 working days after receipt of the specimen in the laboratory, and may be available sooner by prior arrangement

Clinical Information

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

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HCV Genotyping (Molecular Microbiology)

HCV genotyping would only be performed on an HCV viral load positive patient

General Information

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Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA blood
Specimen transport	Whole bloods/EDTA samples should be processed in the laboratory within 24hrs @ 2-25C. Please send to the laboratory as soon as possible.
Minimum volume of sample	3.0 mL
Special precautions	Haemolysed specimens can be inhibitory; where this is unavoidable, such as with post-mortem samples, the laboratory should be contacted (0161-276-8843).

Laboratory Information

Measurement units	Results presented as genotype
Turnaround time	The results of all tests will be available within 5-7 working days after receipt of the specimen in the laboratory, and may be available sooner by prior arrangement

Clinical Information

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

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Helicobacter pylori (Bacteriology)

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

General Information

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Collection container (including preservatives)	Collect specimens in appropriate CE marked leak proof containers  
Specimen Type	Faeces
Collection	Specimen may be passed into a clean, dry, disposable bedpan or similar container and transferred into an appropriate CE marked leak proof containers and place in sealed plastic bags.
Specimen transport	If processing is delayed, refrigeration is preferable to storage at ambient temperature
Minimum volume of sample	A liquid specimen of 1-2 mL is sufficient. 1 gram of solid specimen
Special precautions	The specimen is unsatisfactory if any residual soap, detergent or disinfectant remains in the pan.

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	2 days	**Turnaround time to Final result (working days)**	2-3 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	None known

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Gastric Biopsies for Helicobacter pylori (Bacteriology)

General Information

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Collection container (including preservatives)	CE marked leak proof container in a sealed plastic bag. The biopsy should be placed in a small, sterile container such as a bijou bottle, containing a small amount (approximately 100µL) of sterile isotonic saline to preserve moisture.
Specimen Type	Gastric biopsies – This is the specimen of choice for the culture of *H. pylori*
Collection	Before antimicrobial therapy where possible Gastric biopsy specimens are usually taken from the gastric antrum at endoscopy, and sometimes from the body depending on location of inflammation
Specimen transport	Specimens should be transported and processed as soon as possible (preferably within 6h)
Minimum volume of sample	At the discretion of the endoscopist as it depends on the individual patient
Special precautions	It is important to maintain a moist atmosphere during transport.

Laboratory Information

Measurement units	Not applicable
Biological reference units	Not applicable
Turnaround time	Culture result within 10 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Sensitivity of the microscopy may be reduced if the biopsy is submerged in the saline, because mucus globules form and production of a satisfactory smear becomes difficult.

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Hepatitis A Total antibody (IgG and IgM) (Virology)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis Assay interference and generation of anomalous results can occur when a patients' sample contains: Heterophile antibodies Animal serum products (from routine exposure to animals) Human mouse monoclonal antibodies (patients who receive Preparations of mouse monoclonal antibodies for diagnosis or therapy).

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Hepatitis A virus (HAV) IgM (Virology)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis Assay interference and generation of anomalous results can occur when a patients' sample contains: Heterophile antibodies Animal serum products (from routine exposure to animals) Human mouse monoclonal antibodies (patients who receive Preparations of mouse monoclonal antibodies for diagnosis or therapy).

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Hepatitis B virus (HBV) surface antigen (HBsAg)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days Hepatitis B virus surface antigen confirmation is 6 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis, mutation

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Hepatitis B virus (HBV) confirmation (Virology)

This test consists of HBsAg, anti-HBcore and anti-HBs and may also include tests for Hepatitis B e antigen, Hepatitis B e antibody and Hepatitis B core IgM

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable

Laboratory Information

Turnaround time	3 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Hepatitis B virus (HBV) core antibody (Dried Blood Spot) (Virology)

This service is designed for those patients on whom it is difficult to obtain venous blood, especially for intra venous drug users.

Contact the laboratory for supply of postal packs containing all necessary items for using this service.

Paediatric/infant packs are available on request

General Information

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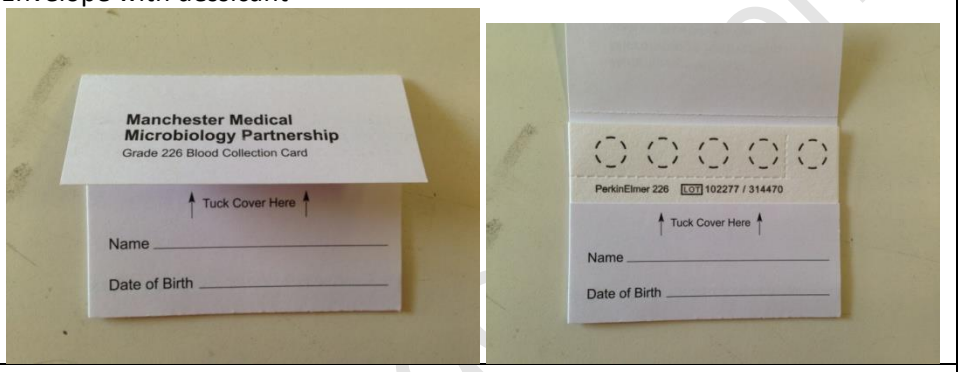
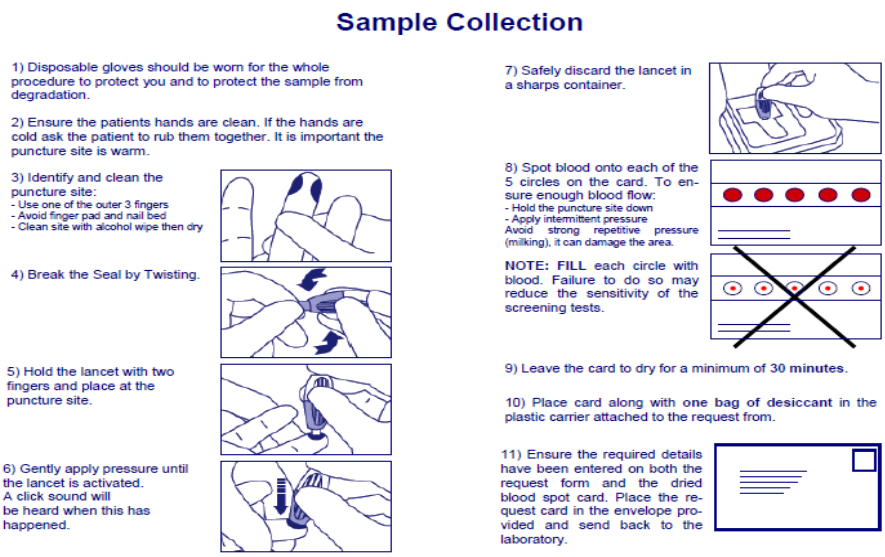
Collection container (including preservatives)	Envelope with dessicant 
Specimen Type	Dried blood spot card
Collection	
Specimen transport	No special needs

Minimum volume of sample	7mm diameter blood spot
Special precautions	Ensure blood spot has dried and submit with dessicant pouch enclosed

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	4 days	**Turnaround time to Final result (working days)**	5 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Spots too small, not all spots filled with blood

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Hepatitis B virus (HBV) core IgM (Anti HBc IgM) (Virology)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	No special needs
Minimum volume of sample	2mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	S/CO		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Hepatitis B virus (HBV) core antibodies (Virology)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Hepatitis B virus (HBV) surface antigen (HBsAg) (Dried Blood Spot) (Virology)

This service is designed for those patients on whom it is difficult to obtain venous blood, especially for intra venous drug users.

Contact the laboratory for supply of postal packs containing all necessary items for using this service.

Paediatric/infant packs are available on request

General Information

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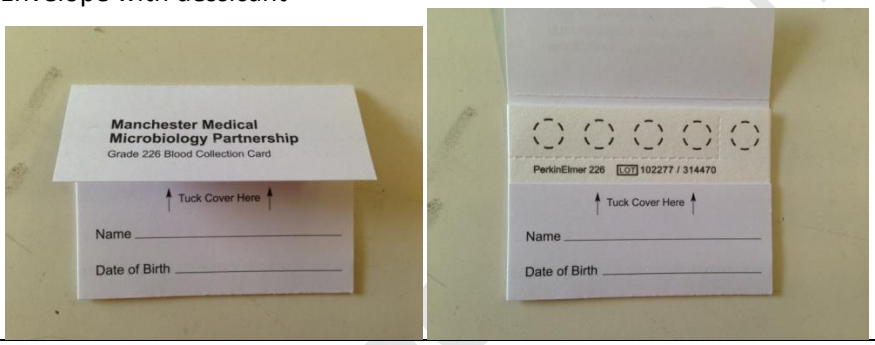
Collection container (including preservatives)	Envelope with dessicant 
Specimen Type	Dried blood spot card
Collection	**Sample Collection** 1) Disposable gloves should be worn for the whole procedure to protect you and to protect the sample from degradation. 2) Ensure the patients hands are clean. If the hands are cold ask the patient to rub them together. It is important the puncture site is warm. 3) Identify and clean the puncture site: - Use one of the outer 3 fingers - Avoid finger pad and nail bed - Clean site with alcohol wipe then dry 4) Break the Seal by Twisting. 5) Hold the lancet with two fingers and place at the puncture site. 6) Gently apply pressure until the lancet is activated. A click sound will be heard when this has happened. 7) Safely discard the lancet in a sharps container. 8) Spot blood onto each of the 5 circles on the card. To ensure enough blood flow: - Hold the puncture site down - Apply intermittent pressure Avoid strong repetitive pressure (milking), it can damage the area. **NOTE: FILL** each circle with blood. Failure to do so may reduce the sensitivity of the screening tests. 9) Leave the card to dry for a minimum of **30 minutes**. 10) Place card along with **one bag of desiccant** in the plastic carrier attached to the request from. 11) Ensure the required details have been entered on both the request form and the dried blood spot card. Place the request card in the envelope provided and send back to the laboratory.
Specimen transport	No special needs
Minimum volume of sample	7mm diameter blood spot

Special precautions	Ensure blood spot has dried and submit with dessicant pouch enclosed

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	4 days	**Turnaround time to Final result (working days)**	5 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Spots too small, not all spots filled with blood

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Hepatitis B virus (HBV) surface antibody (Anti-HBs) (Virology)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	mIU/mL		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Hepatitis B virus viral load (Molecular Microbiology)

General Information

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Collection container (including preservatives)	Blood should be collected in SST™ Serum Separation Tubes, BD Vacutainer® PPT™ Plasma Preparation Tubes or in sterile tubes using EDTA as the anticoagulant. Whole blood collected in EDTA tubes may be stored and/or transported for up to 24 hours at 2°C to 25°C. If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.
Specimen Type	EDTA plasma and serum samples
Minimum volume of sample	3.0 mL

Laboratory Information

Measurement units	IU/mL		
Dynamic range	The dynamic range for this assay is 10-1x10^9 copies/mL		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

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

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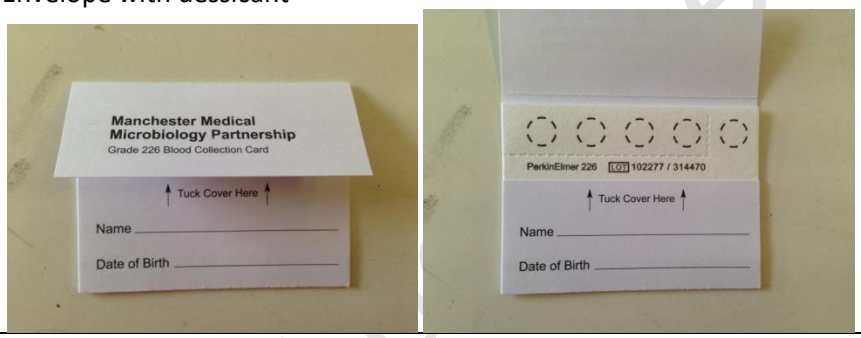
Hepatitis C antibody (HCV) screen and confirmation (Dried Blood Spot) (Virology)

This service is designed for those patients on whom it is difficult to obtain venous blood, especially for intra venous drug users.

Contact the laboratory for supply of postal packs containing all necessary items for using this service.

Paediatric/infant packs are available on request

General Information Back to Index

Collection container (including preservatives)	Envelope with dessicant 
Specimen Type	Dried blood spot card

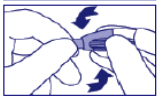
Sample Collection

1) Disposable gloves should be worn for the whole procedure to protect you and to protect the sample from degradation.

2) Ensure the patients hands are clean. If the hands are cold ask the patient to rub them together. It is important the puncture site is warm.

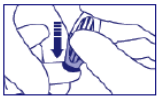
3) Identify and clean the puncture site:
- Use one of the outer 3 fingers
- Avoid finger pad and nail bed
- Clean site with alcohol wipe then dry

4) Break the Seal by Twisting.



5) Hold the lancet with two fingers and place at the puncture site.

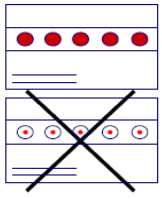
6) Gently apply pressure until the lancet is activated. A click sound will be heard when this has happened.



7) Safely discard the lancet in a sharps container.

8) Spot blood onto each of the 5 circles on the card. To ensure enough blood flow:
- Hold the puncture site down
- Apply intermittent pressure

Avoid strong repetitive pressure (milking), it can damage the area.



NOTE: FILL each circle with blood. Failure to do so may reduce the sensitivity of the screening tests.

9) Leave the card to dry for a minimum of 30 **minutes**.

10) Place card along with **one bag of desiccant** in the plastic carrier attached to the request from.

11) Ensure the required details have been entered on both the request form and the dried blood spot card. Place the request card in the envelope provided and send back to the laboratory.

Specimen transport	No special needs
Minimum volume of sample	7mm Dried blood spot

Special precautions	Ensure blood spot has dried and submit with dessicant pouch enclosed

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	5 days for screen	**Turnaround time to Final result (working days)**	7 days for confirmation

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Spots too small, not all spots filled with blood

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Hepatitis C antibody (HCV) screen and confirmation (Virology)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL Venous Blood
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	Not applicable
Turnaround time	Rountine3-4 working days. Please contact the laboratory if urgent for 4 hour turnaround (screen only)

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Hepatitis C viral load (Molecular Microbiology)

General Information

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Collection container (including preservatives)	Blood should be collected in SST™ Serum Separation Tubes, BD Vacutainer® PPT™ Plasma Preparation Tubes or in sterile tubes using EDTA as the anticoagulant. Whole blood collected in EDTA tubes may be stored and/or transported for up to 24 hours at 2°C to 25°C. If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.
Specimen Type	EDTA plasma and serum samples
Minimum volume of sample	3 mL

Laboratory Information

Measurement units	IU/mL		
Dynamic range	The dynamic range for this assay is 15-1x10^8 copies/mL		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

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

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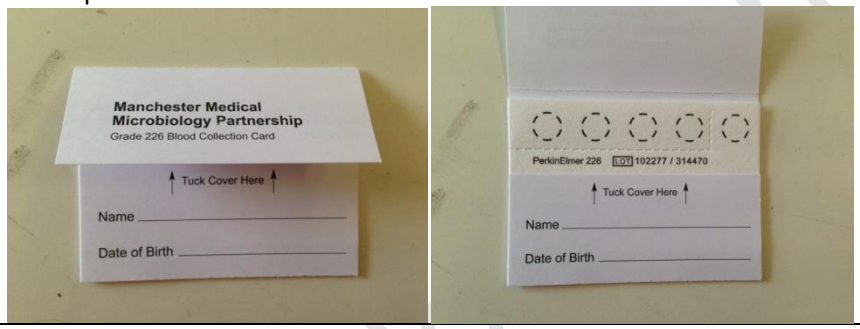
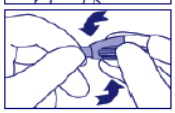
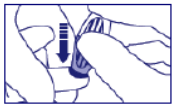
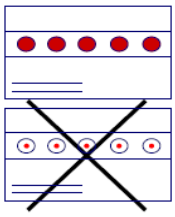
Hepatitis C qualitative PCR (Dried Blood Spot)

This service is designed for those patients on whom it is difficult to obtain venous blood, especially for intra venous drug users.

Contact the laboratory for supply of postal packs containing all necessary items for using this service.

Paediatric/infant packs are available on request

General Information **Back to Index**

Collection container (including preservatives)	Envelope with dessicant 
Specimen Type	Dried blood spot card
Collection	**Sample Collection** 1) Disposable gloves should be worn for the whole procedure to protect you and to protect the sample from degradation. 2) Ensure the patients hands are clean. If the hands are cold ask the patient to rub them together. It is important the puncture site is warm. 3) Identify and clean the puncture site: - Use one of the outer 3 fingers - Avoid finger pad and nail bed - Clean site with alcohol wipe then dry  4) Break the Seal by Twisting.  5) Hold the lancet with two fingers and place at the puncture site.  6) Gently apply pressure until the lancet is activated. A click sound will be heard when this has happened.  7) Safely discard the lancet in a sharps container.  8) Spot blood onto each of the 5 circles on the card. To ensure enough blood flow: - Hold the puncture site down - Apply intermittent pressure Avoid strong repetitive pressure (milking), it can damage the area.  **NOTE: FILL** each circle with blood. Failure to do so may reduce the sensitivity of the screening tests. 9) Leave the card to dry for a minimum of **30 minutes**. 10) Place card along with **one bag of desiccant** in the plastic carrier attached to the request from. 11) Ensure the required details have been entered on both the request form and the dried blood spot card. Place the request card in the envelope provided and send back to the laboratory. 
Specimen transport	No special needs

Minimum volume of sample	7mm Dried blood spot card
Special precautions	Ensure blood spot has dried and submit with dessicant pouch enclosed

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	5 days	**Turnaround time to Final result (working days)**	7 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Spots too small, not all spots filled with blood

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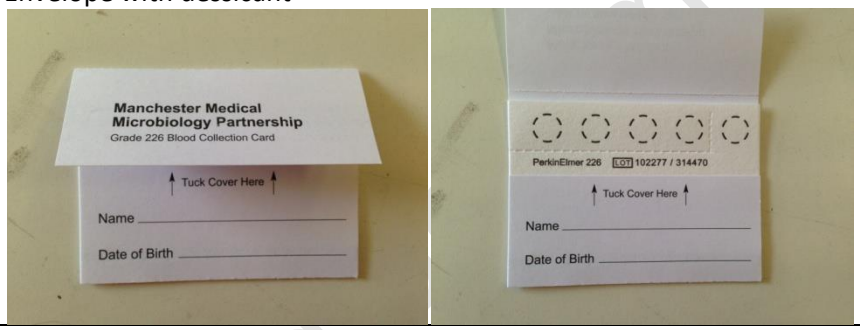
Dried blood Spot Hepatitis C RNA Screening (Virology)

This service is designed for those patients on whom it is difficult to obtain venous blood, especially for intra venous drug users.

Contact the laboratory for supply of postal packs containing all necessary items for using this service.

Paediatric/infant packs are available on request

General Information **Back to Index**

Collection container (including preservatives)	Envelope with dessicant 
Specimen Type	Dried blood spot card
Collection	**Sample Collection** 1) Disposable gloves should be worn for the whole procedure to protect you and to protect the sample from degradation. 2) Ensure the patients hands are clean. If the hands are cold ask the patient to rub them together. It is important the puncture site is warm. 3) Identify and clean the puncture site: - Use one of the outer 3 fingers - Avoid finger pad and nail bed - Clean site with alcohol wipe then dry 4) Break the Seal by Twisting. 5) Hold the lancet with two fingers and place at the puncture site. 6) Gently apply pressure until the lancet is activated. A click sound will be heard when this has happened. 7) Safely discard the lancet in a sharps container. 8) Spot blood onto each of the 5 circles on the card. To ensure enough blood flow: - Hold the puncture site down - Apply intermittent pressure Avoid strong repetitive pressure (milking), it can damage the area. **NOTE: FILL** each circle with blood. Failure to do so may reduce the sensitivity of the screening tests. 9) Leave the card to dry for a minimum of 30 **minutes**. 10) Place card along with **one bag of desiccant** in the plastic carrier attached to the request from. 11) Ensure the required details have been entered on both the request form and the dried blood spot card. Place the request card in the envelope provided and send back to the laboratory.

Specimen transport	No special needs
Minimum volume of sample	7mm Dried blood spot card
Special precautions	Ensure blood spot has dried and submit with dessicant pouch enclosed

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	5 days	**Turnaround time to Final result (working days)**	7 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Spots too small, not all spots filled with blood

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Hepatitis D (delta) antibody (Virology)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Not applicable
Turnaround time	4-6 working days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Hepatitis E IgM (Virology)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Not applicable
Turnaround time	3-4 working days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Herpes simplex virus types 1 and 2 PCR (Molecular Microbiology)

General Information

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Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA blood , CSF, Lesion Swab, Eye Swab, Viterous Tap
Collection	Samples for PCR testing should be collected according to local protocols. Ideally, a separate sample for PCR processing should be obtained.
Specimen transport	Ambient or refrigerated
Minimum volume of sample	Minimum volume 500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Threshold Cycle (CT)		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	2 days	**Turnaround time to Final result (working days)**	3 days

Clinical Information

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

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Herpes simplex 1/2 antibody (type specific, IgM and total antibody)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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HHV6 & 7 PCR (Molecular Microbiology)

General Information

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Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA blood, CSF, BAL
Specimen transport	Ambient or refrigerated Compliance with current postal and transportation regulations is essential. Clinical samples should be collected into a sterile leak-proof container in a sealed plastic bag. Appropriate hazard labelling according to local policy should be applied. Specimens should be transported and processed as soon as possible. If processing is delayed, refrigeration is preferable to storage at room temperature.
Minimum volume of sample	Minimum volume 500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Threshold Cycle (CT)		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	5 days

Clinical Information

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

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HIV confirmation (screen test plus at least 2 further tests for HIV 1/2)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turnaround time for Provisional result (working days)	4 days	**Turnaround time to Final result (working days)**	6 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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HIV p24 Antigen (Virology)

General Information

Back to Index

Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	3mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	pg/mL		
Turnaround time for Provisional result (working days)	4 days	**Turnaround time to Final result (working days)**	6 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Not known

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HIV resistance, integrase, tropism (Molecular Microbiology)

General Information

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Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA Blood
Collection	Freshly drawn whole blood in EDTA
Specimen transport	Blood to arrive at the laboratory within 6 hours of being drawn
Minimum volume of sample	3.0 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turnaround time for Provisional result (working days)	7 days	**Turnaround time to Final result (working days)**	10 days
Urgent results available by prior arrangement			

Clinical Information

Treatment information	In order to provide a more complete service, it would be helpful for us to know the treatment history of the patient, results of previous tests, and, if possible, CD4 counts. A specific request form for tropism will be supplied on request

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HIV 1 and 2 antibody and p24 antigen screen (Dried Blood Spot) (Virology)

This service is designed for those patients on whom it is difficult to obtain venous blood, especially for intra venous drug users.

Contact the laboratory for supply of postal packs containing all necessary items for using this service.

Paediatric/infant packs are available on request

General Information

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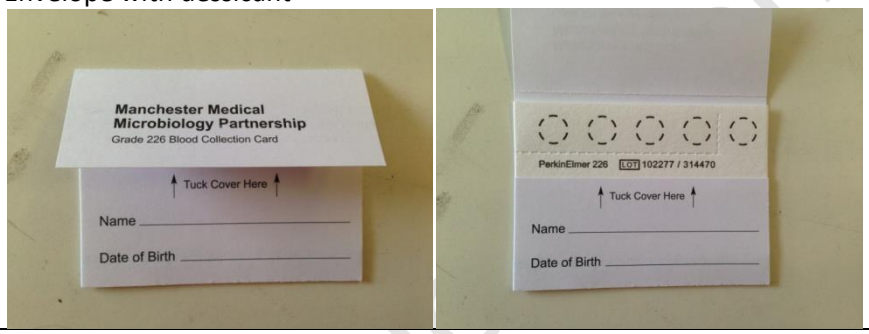
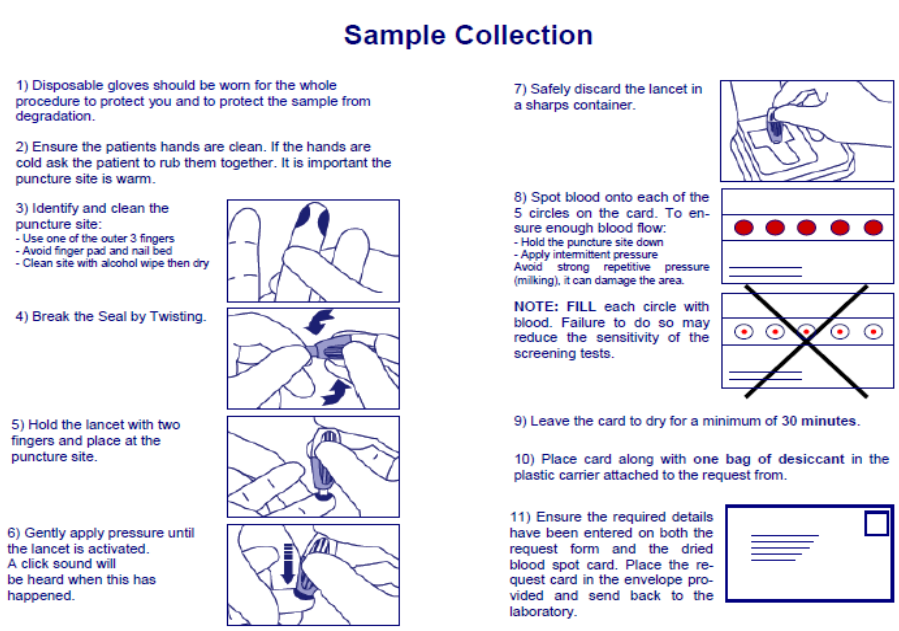
Collection container (including preservatives)	Envelope with dessicant 
Specimen Type	Dried blood spot card
Collection	
Specimen transport	No special needs

Minimum volume of sample	7mm Dried blood spot card
Special precautions	Ensure blood spot has dried and submit with dessicant pouch enclosed

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	5 days for screen	**Turnaround time to Final result (working days)**	7 days for confirmation

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Spots too small, not all spots filled with blood

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HIV screen (4th generation: HIV1 and 2 antibody and p24 antigen)

General Information

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Collection container (including preservatives)	6mL blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2mL
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	Not applicable
Biological reference units	Not applicable
Turnaround time	3-4days Same day testing offered, contact the laboratory for 4 hour turnaround (screen and confirmation for same day request only)

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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HIV-1 viral load (Molecular Microbiology)

General Information

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Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA Blood
Collection	Freshly drawn whole blood in EDTA
Specimen transport	Whole bloods/EDTA samples should be processed in the laboratory within 24hrs @ 2-25C. Please send to the laboratory as soon as possible.
Minimum volume of sample	3.0 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Copies/mL		
Dynamic range	The dynamic range for this assay is 40-1x10 ^{7}copies/ml		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	4 days	**Turnaround time to Final result (working days)**	5 days

Clinical Information

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

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Human Papilloma Virus Screening Assay (Molecular Microbiology)

General Information

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Collection container (including preservatives)	Surepath container 
Specimen Type	Cervical smear, swabs, biopsies, paraffin wax sections
Specimen transport	Ambient or refrigerated
Minimum volume of sample	600µl

Laboratory Information

Measurement units	Threshold cycle (CT)
Turnaround time	PCR result available in 3-4 days
Sample types for referral for genotyping	1. Tissue (MUST be formalin fixed paraffin embedded FFPE). Fresh tissue cannot be tested. 2. Swabs (Tested but reported with a comment indicating it is not a validated sample type).

Clinical Information

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

Human T Lymphotropic virus (HTLV) 1 and 2 (Virology)

Tropical spastic paraperesis

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	3mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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JC virus PCR (Molecular Microbiology)

General Information

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Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA blood, urine, CSF
Specimen transport	Compliance with current postal and transportation regulations is essential. Clinical samples should be collected into a sterile leak-proof container in a sealed plastic bag. Appropriate hazard labelling according to local policy should be applied. Specimens should be transported and processed as soon as possible. If processing is delayed refrigeration is preferable to storage at room temperature.
Minimum volume of sample	Minimum volume 500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Copies/mL		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

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

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Legionella urinary antigen detection (Virology)

General Information

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Collection container (including preservatives)	CE marked leak proof container 
Specimen Type	Urine
Collection	Urine
Specimen transport	No special needs
Minimum volume of sample	1mL urine
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turnaround time	Please contact laboratory to arrange urgent test (3 hrs) Routine testing is 1 working day

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Not known

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Lyme IgG, IgM (Virology)

General Information

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Collection container (including preservatives)	6mL clotted blood tube CE marked leak proof container
Specimen Type	Venous Blood; CSF can be used for LYME IgG
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Index		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Measles IgG (Virology)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	AU/mL		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Measles IgM (Virology)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2ml Venous Blood
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Measles virus PCR (Molecular Microbiology)

General Information

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Collection container (including preservatives)	CE marked leak proof container
Specimen Type	Urine, Throat swab
Specimen transport	Ambient or refrigerated
Minimum volume of sample	500µL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Threshold Cycle (CT)		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

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

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Meningococcal DNA detection by PCR (including Pneumococcal PCR)

The Meningococcal Reference Unit provides a separate manual that is distributed to all users of the unit, and is also available on

MRU User Manual

General Information

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Collection container (including preservatives)	EDTA Blood tube CE marked leak proof container
Specimen Type	EDTA blood, CSF, pleural fluid, DNA extracts Where a CSF sample is available, this should be sent in addition to an EDTA blood sample
Collection	CE marked leak proof container
Specimen transport	Ambient or refrigerated **Specimen type and transport:** • EDTA blood sample collected on admission should be sent to the Meningococcal Reference Unit (MRU) if PCR confirmation is required. Heparinised, clotted blood, serum or citrated samples can be tested, but EDTA is preferred. • Whole CSF (i.e. an uncentrifuged specimen) should be sent in small sterile containers such as a sterile 2mL screw capped vial (rather than universal containers).
Minimum volume of sample	Minimum volume of 500µL
Special precautions	Remember to also collect blood cultures and a throat swab for bacteriology and label these clearly for meningococcal investigation.

Laboratory Information

Measurement units	Threshold Cycle (CT)		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	1-2 days	**Turnaround time to Final result (working days)**	2 days

Turnaround time	Negative results and Meningococcal Serogroup B positive results, are typically available within 24 hours of receipt. Samples requiring serogroup confirmation and samples confirmed positive for Pneumococcal are available within 48 hours. Urgent samples may be processed sooner providing the laboratory is notified in advance of receipt Same day (if received by 10.00am) Results on specimens received up to 10.00am on Monday – Friday are normally available between 4.30pm and 5.00pm on the same day. Positive results will be telephoned following serogroup confirmation up to 5.30pm, or as soon as possible on the morning of the next working day, when printed reports will also be sent out. **Urgent turn-round times** Arrangements to accept couriered urgent samples for PCR or other investigations **must** be agreed with the MRU before the samples are sent. Failure to do so may result in the specimen(s) not being tested in a timely fashion

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Any specimens for PCR tests should be stored at 4^{O}C and **not** frozen prior to transport. 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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Middle East Respiratory Synndrome Coronavirus (MERS-CoV) (Molecular Microbiology)

General Information

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Collection container (including preservatives)	Virus Transport Medium Undertaken by local clinician/infection specialist in conjunction with the duty Virologist at PHL Manchester (Tel. 0161 276 8853/4277, or Manchester Royal Infirmary (MRI) switchboard out of hours (0161 276 1234) Advice is also available from the Infectious Diseases team at North Manchester General Hospital (Tel: 0161 795 4567) Ensure full PPE is worn by the clinical team assessing the patient: (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/554055/MERS_IPC_guidance_Sept_2016.pdf)
Specimen Type	Sputum, BAL, Nose swab, Throat swab
Specimen transport	Collect samples for MERS-CoV testing: - Lower respiratory tract sample if possible, or one set of nose and throat swabs in virus transport medium otherwise. Specify whether respiratory virus testing is required in addition (NB: it would also be chargeable) Collect samples for local microbiology testing (e.g. blood cultures, sputum, urine for Legionella and pneumococcal antigen testing) Arrange transport to PHL Manchester in time for next test run (see below): - Virology Reception, 3rd Floor, Clinical Sciences Building One, MRI, M13 9WL or, out of hours, - Central Specimen Reception, Ground Floor, Clinical Sciences Building One, MRI, M13 9WL (Category B transport http://www.who.int/ihr/publications/who_hse_ihr_2012.12/en/)

	Label '**Urgent Virology samples, do not open outside Containment Level 3 Laboratory in Microbiology**'
Minimum volume of sample	Minimum volume 500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Positive or Negative
Biological reference units	Not applicable
Turnaround time for result (working days)	Monday to Friday: Samples received by 13:00 will be reported the same day Saturday and Sunday: Samples received by 09:00 will be reported the same day

Clinical Information

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

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Mouth Swab (Bacteriology)

General Information

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Collection container (including preservatives)	Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags. Collect with liquid eSwab and transport in sealed plastic bags.
Specimen Type	Mouth Swab 
Collection	Collect specimens before antimicrobial therapy where possible. To assure that the preconditions of the sampling for oral infections are comparable it is advised that patients should not: 1. Eat or drink within 2 hours 2. Brush their teeth within 2 hours 3. Use any mouth rinse of disinfectant within 2 hours prior to sampling If possible, samples should be taken in the morning under fasting conditions. Unless otherwise indicated collect each swab for bacterial and/or fungal culture and place in appropriate transport medium. Collect specimens other than swabs into appropriate CE marked leak proof containers and place in sealed plastic bags 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. Liquid eSwabs contain 1ml of liquid. No liquid should be discarded when collecting sample. Samples with insufficient liquid will be discarded.
Specimen transport (e.g at room temperature, or within 4 hrs)	Use aseptic technique. Unless otherwise stated, swabs for bacterial and fungal culture should taken with a liquid eSwab.
Minimum volume of sample	1ml. Liquid eSwabs contain 1ml of liquid. No liquid should be discarded when collecting sample. Samples with insufficient liquid will be discarded
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	1 day	**Turnaround time to Final result (working days)**	2-3 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Collect specimens before antimicrobial therapy where possible. Specimens should be transported and processed as soon as possible

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MRSA (Bacteriology)

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. While infections with community-acquired MRSA (CA-MRSA) are usually mild they can be severe.

General Information

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Collection container (including preservatives)	Collection using Liquid eSwabs under the direction of your local IPC Team.
Specimen Type	Swab from Nose, Groin and manipulated wound sites. Perineal swabs will be accepted if agreed with your local IPC Team. Urine, Sputum and manipulated sites will be accepted if they are within local guidance and agreed with the IPC Team. Double MRSA eSwab (nose & groin/perineum only)  Single eSwab (wound sites) 

Collection

Use aseptic technique

Double MRSA eSwab (N+G, or Peri):

Dampen swab with one drop of sterile saline. Do not use the liquid from the eSwab as the whole amount is needed for the test.

Do not use excessive force, pressure or bending when collecting the swab or it could break.

Apply label vertically.

Double eSwab: MRSA screening for nose and groin/perineum only

1. Open the peel pouch and hold with swabs and tube accessible.

Alternatively, the tube can be placed on a flat surface.

2. Take out the pink swab holding **only** the top half of the shaft.

3. Collect the first sample (groin/perineum).

4. Unscrew tube cap, insert swab into the liquid and 'swirl' for 5 seconds.

5. **Discard** the pink swab as tiger waste. Re-cap tube if required.

6. Take out the white swab holding **only** the top half of the shaft.

7. Collect the second sample (nose).

8. Unscrew tube cap, insert the swab into the tube and snap off at marked break point.

9. Discard the remaining plastic shaft.

10. Re-cap the tube with the white swab end and liquid inside.

Single MRSA eSWAB (all other sites):
Dampen swab with one drop of sterile saline. Do not use the liquid from the eSwab as the whole amount is needed for the test.
Do not use excessive force, pressure or bending when collecting the swab or it could break

Liquid eSwabs contain 1ml of liquid. No liquid should be discarded when collecting sample. Samples with insufficient liquid will be discarded.

Specimen transport	Specimens should be transported and processed as soon as possible.
Minimum volume of sample	1ml. Liquid eSwabs contain 1ml of liquid. No liquid should be discarded when collecting sample. Samples with insufficient liquid will be discarded

Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable. The white swabs should be used for nose swab as nose is the highest area of MRSA colonisation. The white swab swab should remain in the sample tube and is transferred to the laboratory. Pink swabs should be discarded and **NEVER** transferred to the lab.

Laboratory Information

Measurement units	Not applicable
Turnaround time	Negative screen at 1 working day Positive MRSA result with sensitivities at 2 working days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Collect specimens before antimicrobial therapy where possible.

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Mumps IgG (Virology)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	AU/mL		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Mumps IgM (Virology)

General Information

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Collection container (including preservatives)	6mL clotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Not applicable		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Mycoplasma pneumoniae PCR (Molecular Microbiology)

General Information

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Collection container (including preservatives)	CE marked leak proof container
Specimen Type	Nose and Throat Swabs, Respiratory samples, CSF
Specimen transport	Ambient or refrigerated
Minimum volume of sample	Minimum 500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Threshold cycle (CT)		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	None known

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Neisseria meningitidis
Functional antibody to serogroups A, C, W and Y by internationally standardised serum bactericidal antibody assays.

General Information

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Collection container (including preservatives)	Clotted Blood/serum, paired sera, no preservatives
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	Minimum volume 0.2mL per serogroup
Specimen type	Clotted Blood/serum, paired sera
Special precautions	If the serum bactericidal activity is reported with the comment 'SBA titre includes non-complement mediated lysis', then the result must be interpreted with caution. If in doubt, please telephone 0161 276 6791 for advice. If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	SBA titres expressed as the reciprocal of the final serum dilution giving ≥ 50% killing at 60 minutes calculated from the number of colony forming units (cfu) in the control
Biological reference units	Not applicable
Turnaround time	28 Working Days

Clinical Information

Clinical decision points	The putative protective SBA titre for serogroup C is ≥ 8. A cut off of ≥ 8 is currently considered protective for serogroups A,Y and W
Factors known to significantly affect the results	As this is a 'killing type' assay using live bacteria, antibiotics can impact on results. A control to monitor this is included in the assay.

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Functional antibody to Neisseria meningitidis serogroup B by Serum Bactericidal Antibody Assay (SBA)

General Information

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Collection container (including preservatives)	Clotted blood sample tube (no preservative)
Specimen Type	Clotted Blood/serum, paired sera
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	Minimum volume 0.6mL
Special precautions	If the serum bactericidal activity is reported with the comment 'SBA titre includes non-complement mediated lysis', then the result must be interpreted with caution. If in doubt, please telephone 0161 276 6791 for advice. If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	SBA Titres expressed as the reciprocal of the final serum dilution giving ≥ 50% killing at 60 minutes calculated from the number of colony forming units (cfu) in the control
Biological reference units	Not applicable
Turnaround time	28 Working Days

Clinical Information

Clinical decision points	For putative protection against serogroup B, the SBA titre must be ≥ 4 for at least 2 of the 3 strains used.
Factors known to significantly affect the results	As this is a 'killing type' assay using live bacteria, antibiotics can impact on results. A control to monitor this is included in the assay. The effect and impact of Eculizumab therapy on this assay is currently under investigation

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Neisseria meningitidis: Serogrouping and outer membrane typing

General Information

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Collection container (including preservatives)	Not applicable
Specimen Type	Referral of viable pure cultures on slopes and transport swabs
Collection including preservative	Not applicable
Specimen transport	Only submit viable isolate samples in approved packaging (UN3373) which are suitable for Royal Mail post (airfreight) or commercial couriers such as HAYS DX. Agar slopes: where possible pure, viable cultures; inoculated on chocolate (heated) blood agar, blood agar or Dorset egg slopes after establishing growth by overnight incubation at 37°C. On occasion it may be necessary to submit an unincubated culture. This can save time but requires a heavy inoculum to ensure survival in transport. Please indicate on the request form if the material (slope) has not been incubated. Short-term storage of sloped cultures is optimal at 30°C if there are delays before submission.
Minimum volume of sample	Not applicable
Special precautions	Non-viable cultures: cultures which are no longer viable may still be considered for characterisation by molecular based methods after consultation with the MRU. A heavy inoculum of the inert material on a slope may be submitted with an appropriate request form.

Laboratory Information

Measurement units	Not applicable
Biological reference units	Not applicable
Turnaround time	Serogroup telephoned to sending laboratory within 2-3 working days. The final printed report is submitted within 7-10 working days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Contaminated culture will delay the results.

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Neisseria meningitidis Minimum inhibitory concentration

General Information

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Collection container (including preservatives)	Not applicable
Specimen Type	Referral of Viable pure cultures on slopes and transport swabs
Collection including preservative	Not applicable
Specimen transport	Only submit viable isolate samples in approved packaging (UN3373) which are suitable for Royal Mail post (airfreight) or commercial couriers such as HAYS DX. Agar slopes: where possible pure, viable cultures; inoculated on chocolate (heated) blood agar, blood agar or Dorset egg slopes after establishing growth by overnight incubation at 37°C. On occasion it may be necessary to submit an unincubated culture. This can save time but requires a heavy inoculum to ensure survival in transport. Please indicate on the request form if the material (slope) has not been incubated. Short-term storage of sloped cultures is optimal at 30°C if there are delays before submission.
Minimum volume of sample	Not applicable
Special precautions	The MICs routinely determined on submitted isolates are: penicillin, cefotaxime, rifampicin, ciprofloxacin and sulphonamide (sulphamethoxazole) using Etest (Biomerieux) gradient diffusion methodology. Other antibiotic susceptibility tests may be performed on request.

Laboratory Information

Measurement units	mg/L
Biological reference units	Not applicable
Turnaround time	2 working days if requested Routine final report is issued within 1-2 weeks

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	None Known

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Mycobacteria – Culture, Sensitivity and PCR (Bacteriology)

General Information

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Collection container (including preservatives)	Use aseptic technique. Collect specimens in appropriate CE marked leak proof containers and transport in sealed plastic bags.  
Specimen Type	Sputum, gastric washing, sterile site body fluids (CSF, pleural fluids etc), urine, skin or tissue biopsies, bone marrow, bronchoalveolar washings, blood, post-mortem specimens, bone
Collection	If sample volume is insufficient for both, culture is usually preferred to microscopy due to greater sensitivity. BD Bactec Myco/F Lytic Culture Bottle (1-5ml)
Specimen transport	Specimens should be transported and processed as soon as possible. Specimens should be transported and received in the laboratory within one working day of collection and processed as soon as possible. Requirements of individual testing laboratories should be referred to. If processing is delayed, refrigeration is preferable to storage at ambient temperature (this does not include blood culture bottles must not be refrigerated) **Blood and Bone Marrow** Request the TB blood culture bottles (as shown above) from the laboratory on 0161 276 4424, and request a porter to collect. These bottles MUST NOT be sent via the pod system. **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 CE marked leak proof container (that does not contain boric acid), and placed in a sealed plastic bag. **Sterile site body fluids** Sterile site body fluids (CSF, pleural fluid, etc) will normally not require decontamination, and can be inoculated directly to neutral media. However, sterile site body fluids can be treated with acid if necessary. Collect aseptically as much (eg>6mL in adults) CSF sample as possible into a CE Marked leak proof container in a sealed plastic bag. 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.
Minimum volume of sample	1mL of Sputum 5mL of BAL 6mL of CSF 1-5mL of bone marrow or blood for the BD Bactec Myco/F Lytic Culture Bottle
Special precautions	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. Any samples taken where the patient is suspected of having TB MUST be divided within theatre so as to provide sufficient samples for Histology (sent in formalin) and Microbiology (Sent in an empty sterile container).

Laboratory Information

Measurement units	Not Applicable
Biological reference units	Not Applicable
Turnaround time	Urgent microscopy available within 2 hours Culture 3 weeks (incubation continued for 6 weeks) Mycobacterium PCR available within 3 working days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	EDTA, even in trace amounts, inhibits the growth of some *Mycobacterium* species.

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Nose Swab (Bacteriology)

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. Single organism nasal screens for *Staphylococcus aureus* may be requested as part of a PVL outbreak as part of a IPC investigation. For Bordetella pertussis investigation please see Pernasal Swab

General Information

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Collection container (including preservatives)	Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags. Collect using liquid eSwabs and transport in sealed plastic bags.
Specimen Type	Nose Swab 
Collection	Collect specimens before antimicrobial therapy where possible. Plain sterile cotton wool swab. Sample the anterior nares by gently rotating the swab over the mucosal surface. Unless otherwise stated, swabs for bacterial and fungal culture should be taken with a liquid eSwab Liquid eSwabs contain 1ml of liquid. No liquid should be discarded when collecting sample. Samples with insufficient liquid will be discarded.
Specimen transport	Specimens should be transported and processed as soon as possible. If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.
Minimum volume of sample	1ml. Liquid eSwabs contain 1ml of liquid. No liquid should be discarded when collecting sample. Samples with insufficient liquid will be discarded

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	2 days	**Turnaround time to Final result (working days)**	2-3 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Special considerations to minimise deterioration If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Limitations

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Nasal swabs should not be taken to investigate the presence of Bordetella pertussis.

Ova, Cysts and Parasites (Bacteriology)

As part of our quality improvements for the Parasitology service within the Microbiology department at MFT, we have outlined the current testing requirements in order to provide an efficient service for the investigation of ova, cysts and parasites (OCP) from samples other than blood.

Our aim is to clarify the requesting and selection of appropriate enteric samples for the examination of ova, cysts and parasites. **Back to Index**

Pathogen	Sample required	Comment
Cryptosporidium sp. & *Giardia lamblia*	Faeces	There is NO NEED to request OCP All enteric samples for bacterial culture will automatically be tested for these.
Other parasitic infestations (other than *Cryptosporidium sp.* & *Giardia lamblia)*	3 faecal samples over a period of 10 days	OCP investigation must be requested Samples labelled and dated:- 1of3, 2of3 and 3of3. Information required:- • Foreign travel history • Blood eosinophil count • Duration of diarrhoea • Presence/absence of abdominal symptoms • Evidence of malabsorption
Threadworm. *(E. vermicularis* ova.)	Perianal Swab in saline	Rotate a saline moistened swab around the anus of the child first thing in the morning.
Bilharzia *(Schistosoma haematobium)*	Urine	Sample collected between 10am and 2pm. Alternatively a 24hr collection of terminal samples of urine may be obtained.
Microsporidia	Faeces	Modified trichrome is not a test the laboratory performs and is referred to another laboratory. This test should be specifically requested on the request form of after discussion with a Microbiologist.
Worms seen in stool	Worm	Please send actual worm seen in a universal container
The turnaround time is 14 days		

If any other types of samples require testing, or other parasite investigations required, please contact the Microbiology department on 0161 276 6717.

If amoebic dysentery is suspected and clinical advice needed please
tel 0161 276 6333

On occasions, we may need to refer samples to a reference laboratory for specialised testing procedures and further samples may be necessary. Please see list of tests and referral laboratories here

Andrew Dodgson
Consultant Microbiologist

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Human Parvovirus B19 IgG (Virology)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Human Parvovirus B19 IgM (Virology)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Human Parvovirus B19 viral load (Molecular Microbiology)

Slapped cheek syndrome, Fifth disease

General Information

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Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA blood, Amniotic Fluid, Tissues
Specimen transport	Ambient or refrigerated
Minimum volume of sample	500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Copies/mL
Turnaround time	3-4 working days Tissues take longer to process which can sometimes increase the turnaround time.

Clinical Information

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

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Peritoneal Fluids (Bacteriology)

Continuous ambulatory peritoneal dialysis (CAPD) is used as an alternative to haemodialysis for the management of patients with end-stage renal failure.

General Information

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Collection container (including preservatives)	Withdraw fluid aseptically from the injection port of the plastic dialysate bag with a sterile needle and syringe and transfer to a CE marked leak proof containers and place in sealed plastic bag.
Specimen Type	In a sealed plastic bag with a request form. Cell count = Sterile leakproof container in a sealed plastic bag containing 20mL of fluid for microscopy. Culture = Inoculated BD BACTEC Plus Aerobic/Anaerobic (blue/purple) BC bottles.
Collection	Use aseptic technique. Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags. Large volumes or whole dialysate bags may require special transportation according to local protocols. They should be transported in rigid, leakproof outer containers.
Specimen transport	Specimens should be transported and processed as soon as possible
Minimum volume of sample	Minimum volume of10mL. If blood culture bottles are used they should be inoculated aseptically with 5-10 mL of dialysate
Special precautions	Collect specimens before antimicrobial therapy where possible.

Laboratory Information

Measurement units	Cell count x 10^6 per litre
Turnaround time	2 – 7 working days for culture 30 – 60 mins for cell count. Telephone the laboratory in advance for urgent microscopy

Clinical Information

Factors known to significantly affect the results	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

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Pneumococcal urinary antigen detection (Virology)

General Information

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Collection container (including preservatives)	10mL urine 
Specimen Type	Urine
Collection	10mL urine
Specimen transport	No special needs
Minimum volume of sample	10mL urine

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	1 day	**Turnaround time to Final result (working days)**	2-3 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	None known

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Pneumocystis jirovecii PCR (Molecular Microbiology)

General Information

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Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA blood, BAL, sputum (Swabs can be tested – but are not accredited)
Specimen transport	Ambient or refrigerated
Minimum volume of sample	500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	Threshold Cyle (CT)		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

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

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Respiratory Samples for Culture (Bacteriology)

General Information

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Collection container (including preservatives)	
Specimen Type	Bronchial aspirate, transthoracic aspirate, bronchoalveolar lavage, transtracheal aspirate, bronchial brushings, protected catheter specimens, bronchial washings, endotracheal tube specimens, sputum – expectorated
Collection	All specimens should be fresh and taken before antimicrobial treatment is started. Sputum samples for routine culture that are not 'purulent' or 'mucopurulent' will not be tested by the microbiology laboratory.
Specimen transport	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.
Minimum volume of sample	1 mL
Special precautions	Please send to the laboratory without delay Do not submit samples with Trap tubing still attached. These samples are prone to leaking and may be discarded.

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	2 days	**Turnaround time to Final result (working days)**	2-3 days
Sputum investigation requiring fungal investigation is up to 7 days			

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend. 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 (Molecular Microbiology)

Respiratory screen including
1) Influenza A including H1N1 (avian types: contact lab)
2) Influenza B
3) Parainfluenza viruses 1,2,3
4) Respiratory syncytial virus
5) Metapneumovirus
6) Adenovirus
7) Rhinovirus

General Information

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Specimen Type and container	Nose and/or throat swab (virus transport medium) BAL/Sputum (sterile container) NPA (Sterile container)
Specimen transport	Ambient or refrigerated
Minimum volume of sample	Minimum volume 500µl
Special precautions	For avian flu please contact the laboratory with full travel history

Laboratory Information

Measurement units	Threshold cycle (CT)		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	2 days	**Turnaround time to Final result (working days)**	3 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

In order to provide the most clinically beneficial, operationally efficient and cost effective

service the laboratory employs a number of multiplex assays and testing algorithms, which are based on UK Standards for Microbiology Investigations; it is normal practice to use these even when not all tests within the multiplex or algorithm are requested.

It is our policy to report all results along with the requested result to provide as much information as possible to aid diagnosis

During an outbreak of Influenza the laboratory offers a more rapid test (4 hours). The test detects influenza A, B and RSV.

Specimen type: Only nasopharyngeal (NP) swabs and nasopharyngeal aspirates (NPA) collected from patients with signs and symptoms of respiratory infection

Specimen container: Nasopharyngeal (NP) swabs should be collected into a laboratory approved virus transport medium. Nasopharyngeal aspirates should be collected into a laboratory approved container.

Any interference with the extraction and amplification of influenza A, B and RSV in any given patient sample will be identified by a negative result for the internal control. These will then be re-tested and reported as 'Sample inhibitory for respiratory PCR'.

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Rubella IgG (Virology)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	IU/mL		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Rubella IgM (Virology)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	IU/mL		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Stem Cell Sterility Check (Bacteriology)

Stem cells samples are submitted from two clinical teams:

- Cellular Therapeutics Ltd, Grafton Street Unit (Manchester University) Dr Ryan Guest (Purple top & Pink Top Bottle)
- Stem Cell Unit, Haematology Department MFT, Wendy Ogden (Single Pink Top Bottle)

General Information

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Collection container (including preservatives)	Collect specimens in BD Bactec bottle using aseptic technique. Bactec bottles should be stored at room temperature before use.
Specimen Type	
Collection	Culture bottles are prepared during stem cell processing and stem cell product manufacture to ensure the stem cells have not been contaminated with bacteria.
Specimen transport (e.g at room temperature, or within 4 hrs)	Samples should **not** be refrigerated. Inoculated bottles should be incubated as soon as possible, and within a maximum of four hours. The four hour turnaround time from collection to incubation for blood culture samples reflects their clinical significance.
Type and volume of sample	A Paediatric (pink top) blood culture bottle requires 1-3ml of stem cell product. An Anaerobic (purple top) blood culture bottle requires 5-8 ml of stem cell product. Do not exceed the manufacturers recommended maximum volume for each bottle as shown on label.

Special precautions	Use aseptic technique. Inspect the blood culture bottles for damage. Ensure that the blood culture bottles have not exceeded their expiry date. Do not re-sheathe needles.

Laboratory Information

Measurement units	Growth detected or not detected		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	Negative result 3 days	**Turnaround time to Final result (working days)**	10 days

Clinical Information

Clinical decision points	Not applicable
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.

Limitations

It is estimated that 2-5% of positives samples may be missed if bottles are pre-incubated, these organisms may fail to trip the threshold algorithm of the continuous monitoring blood culture machine. This may occur with Abiotrophia species (nutritionally variant streptococci), S. pneumoniae which have undergone a degree of autolysis, and fastidious organisms which are unable to grow on routine solid culture media.

Organisms may include:
- Campylobacter species.
- Helicobacter species.
- Capnophilic organisms.
- Slow-growing anaerobes

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Streptococcal serology (anti-streptodornase B)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL blood tube
Special precautions	Single or paired sera, collected 7 days apart

Laboratory Information

Measurement units	ASD U/mL		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	5 days	**Turnaround time to Final result (working days)**	7 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Streptococcus pneumoniae IgG antibody determination by flow analysis bead assay for 12 pneumococcal serotypes (Vaccine Evaluation Unit)

General Information

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Collection container (including preservatives)	Clotted blood sample tube (no preservative)
Specimen Type	Clotted blood sample tube (no preservative)
Specimen transport	At ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	Clotted Blood/serum,paired sera; Minimum volume 0.1mL
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable

Laboratory Information

Measurement units	µg/mL
Biological reference units	Not applicable
Turnaround time	28 Working Days

Clinical Information

Clinical decision points	≥ 0.35 µg/mL; putative correlate of protection
Factors known to significantly affect the results	None known

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Syphilis Confirmation including Immunoblot (Virology)

General Information

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Collection container (including preservatives)	6mL blood tube Clean container for CSF
Specimen Type	Clotted Blood, CSF
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	1.5 mL blood 0.5 mL CSF
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Turnaround time for Provisional result (working days)	5 days	**Turnaround time to Final result (working days)**	7 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Dried Blood Spot Syphilis antibody

This service is designed for those patients on whom it is difficult to obtain venous blood, especially for intra venous drug users.

Contact the laboratory for supply of postal packs containing all necessary items for using this service.

Paediatric/infant packs are available on request

General Information

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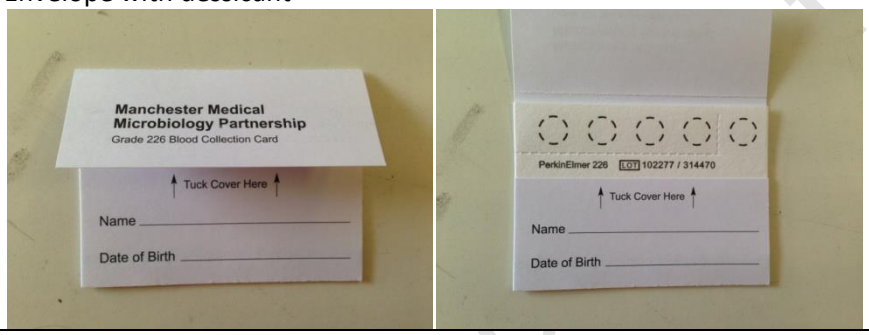
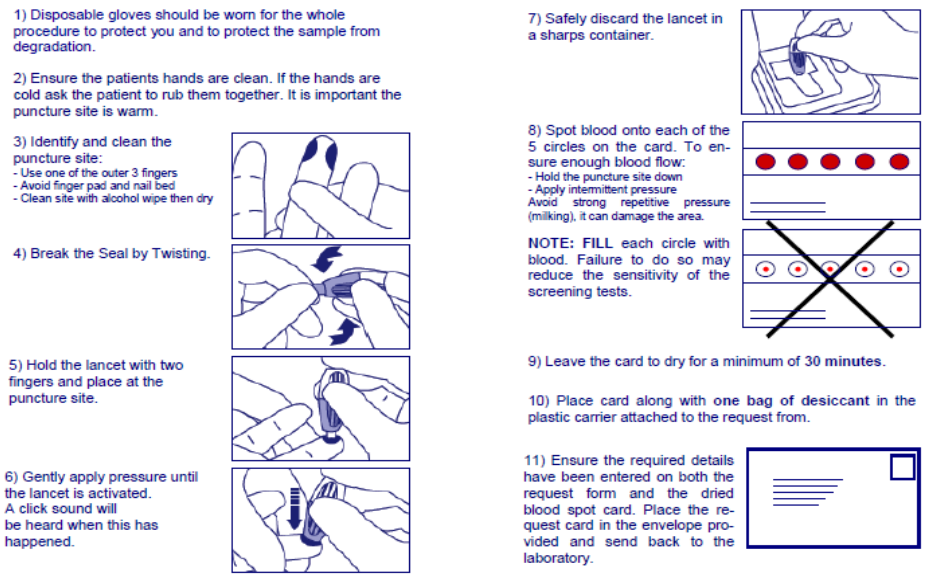
Collection container (including preservatives)	Envelope with dessicant 
Specimen Type	Dried blood spot card
Collection	
Specimen transport	No special needs
Minimum volume of sample	7mm Dried blood spot card

Special precautions	Ensure blood spot has dried and submit with dessicant pouch enclosed

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	5 days for screen	**Turnaround time to Final result (working days)**	7 days for confirmation

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Spots too small, not all spots filled with blood

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Syphilis (Treponema pallidum) screen (Virology)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood , CSF, Viterous tap
Collection	6mL blood tube
Specimen transport	Ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	2 mL
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Tetanus IgG Antibody Determination (Vaccine Evaluation Unit)

Tetanus IgG antibody determination by flow analysis assay bead assay.

General Information

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Collection container (including preservatives)	Clotted blood sample tube (no preservative)
Specimen Type	Clotted Blood/serum,paired sera
Collection	Clotted Blood/serum,paired sera
Specimen transport	At ambient temperature via porter, courier, Royal Mail or DX compliant with IATA packing instruction 650
Minimum volume of sample	Clotted Blood/serum,paired sera; **Minimum volume 0.1mL per serogroup**
Special precautions	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable.

Laboratory Information

Measurement units	IU/mL
Biological reference units	Not applicable
Turnaround time	28 Working Days

Clinical Information

Clinical decision points	IgG of ≥ 0.1 of IU/mL considered protective
Factors known to significantly affect the results	none known

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Throat Swab for Culture (Bacteriology)

General Information

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Collection container (including preservatives)	Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags. Collect using liquid eSwabs and transport in sealed plastic bags. 
Specimen Type	Swab
Collection	Throat swab taken from the tonsillar area and/or posterior pharynx, should be taken avoiding the tongue and uvula. Liquid eSwabs contain 1ml of liquid. No liquid should be discarded when collecting sample. Samples with insufficient liquid will be discarded.
Specimen transport	Specimens should be transported and processed as soon as possible.
Minimum volume of sample	1ml. Liquid eSwabs contain 1ml of liquid. No liquid should be discarded when collecting sample. Samples with insufficient liquid will be discarded
Special precautions	Fastidious anaerobes, such as *Fusobacterium necrophorum*, will not be recovered from samples that are delayed. When Diptheria is suspected, advice from a Consultant Microbiologist should be sought prior to sample submission. Scarlet fever presentations should be noted on the request form as they are notifiable. Pharyngeal swabs for *N.meningitidis* carriage should be clearly labelled. Pharyngeal swabs for *N.gonorrhoeae*carriage are not advised; inoculation directly onto culture media at the time of collection within a GUM clinic is recommended.

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	1 day	**Turnaround time to Final result (working days)**	2-3 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Collect specimens before antimicrobial therapy where possible

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Tips / Intravascular cannulae (Bacteriology)

Please note the tips from Urinary catheters are not suitable for Microbiological analysis.

General Information

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Collection container (including preservatives)	Intravascular cannulae/Tips should be collected in CE marked leak proof container 
Specimen Type	Line tips (eg CVP or Hickman lines),
Collection	Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags.
Specimen transport	Specimens should be transported and processed as soon as possible. If processing is delayed, refrigeration is preferable to storage at ambient temperature.
Minimum volume of sample	Cut off 4 cm of the tip.
Special precautions	Disinfect the skin around the cannula entry site, remove cannula using aseptic technique, and cut off 4cm of the tip into an appropriate CE marked leak proof container using sterile scissors. Place in sealed plastic bags for transport. Cannulae should only be sent if there is evidence of infection.

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	1 day	**Turnaround time to Final result (working days)**	2-3 days

Clinical Information

Clinical decision points	Not applicable

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Tissue and Biopsies (Bacteriology)

A biopsy may be defined as a portion of tissue removed from the living body for further examination. Ideally these specimens should be discussed with the laboratory prior to sampling to ensure that transport and processing are timely and appropriate tests are performed

General Information

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Collection container (including preservatives)	Tissue or biopsy material in a microbiologically CE marked leak proof container without formalin. 
Specimen Type	Tissue, Biopsy Ulcer Biopsy:
Collection	Collect specimens before antimicrobial therapy where possible.
Specimen transport	Specimens should be transported and processed as soon as possible
Minimum volume of sample	Large enough to carry out all microscopy preparations and cultures.
Special precautions	If specimen is small, place it in sterile water to prevent desiccation.

Laboratory Information

Measurement units	Not applicable		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	Gram stain 30mins – 2hours within receipt into the Microbiology laboratory, on request. Culture 1 day	**Turnaround time to Final result (working days)**	5-7 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Specimens received in formol-saline are not suitable for culture. If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48 hr are undesirable.

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Toxoplasma PCR (Molecular Microbiology)

General Information

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Collection container (including preservatives)	CE marked leak proof container
Specimen Type	EDTA blood, amniotic fluid, CSF
Specimen transport	Ambient or refrigerated
Minimum volume of sample	500µl
Special precautions	Please send to the laboratory without delay

Laboratory Information

Measurement units	Threshold Cycle (CT)		
Biological reference units	Not applicable		
Turnaround time for Provisional result (working days)	3days	**Turnaround time to Final result (working days)**	4days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

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Toxoplasma avidity

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	No special needs
Minimum volume of sample	2 mL
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	Low avidity; High avidity		
Turnaround time for Provisional result (working days)	5 days	**Turnaround time to Final result (working days)**	7 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Toxoplasma IgG (Virology)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	No special needs
Minimum volume of sample	2 mL
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	IU/mL		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Toxoplasma IgM (Virology)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	No special needs
Minimum volume of sample	2 mL
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	IU/mL		
Turnaround time for Provisional result (working days)	5 days	**Turnaround time to Final result (working days)**	7 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Treponema pallidum (Syphilis) PCR (Molecular Microbiology)

General Information

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Collection container (including preservatives)	CE marked leak proof container
Specimen Type	Swab
Specimen transport	Ambient or refrigerated
Minimum volume of sample	Not applicable
Special precautions	Send to the laboratory without delay

Laboratory Information

Measurement units	Threshold Cycle (CT)		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

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Urines (Bacteriology)

Urinary tract infection (UTI) results from the presence and multiplication of microorganisms in one or more structures of the urinary tract with associated tissue invasion. This can give rise to a wide variety of clinical syndromes. These include acute and chronic pyelonephritis (kidney and renal pelvis), cystitis (bladder), urethritis (urethra), epididymitis (epididymis) and prostatitis (prostate gland). Infection may spread to surrounding tissues (eg perinephric abscess) or to the bloodstream.
The microscopical presence of White Blood Cells (WBC) is quantified and correlated to bacterial growth to diagnose a urinary tract infection. The presence of Red Blood Cells (RBC) and epithelial cells is also reported.

General Information

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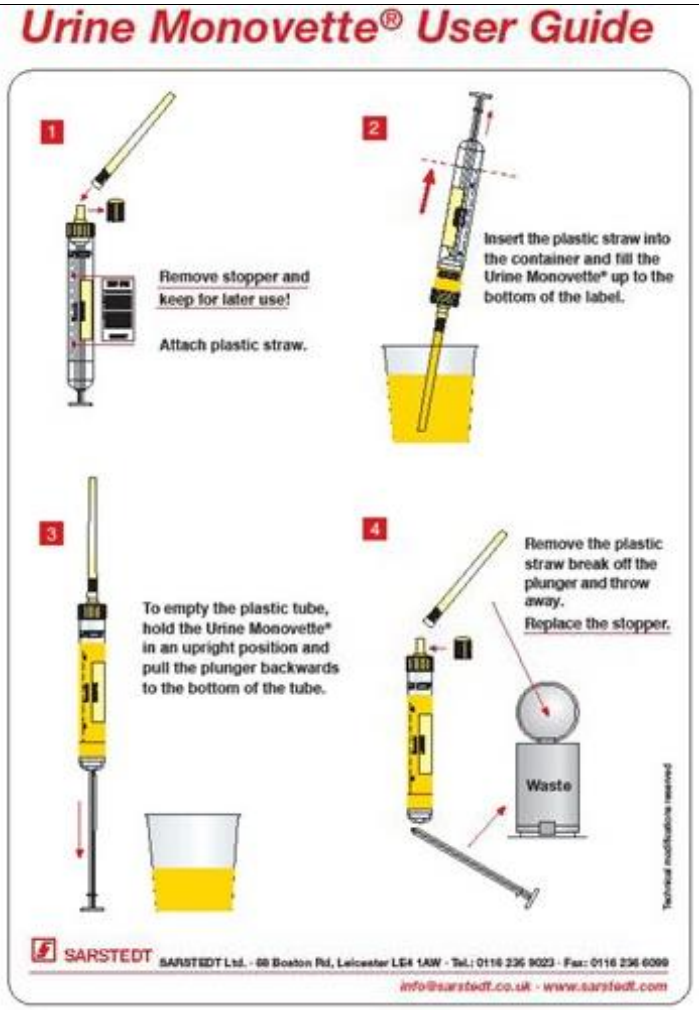
Collection container (including preservatives)	Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags. 10ml Sarstedt urine Monovette tubes 
Specimen Type	Urine: Clean catch urine (CCU) Mid stream urine (MSU) Supra pubic aspirate (SPA) Bladder urine & Catheter urine

Collection	 Before sending to the laboratory urines should be screened in the clinical setting using dipsticks that are able to detect both leucocyte esterase and nitrites. This will give an almost immediate indication as to whether UTI is likely and for the need to culture in all but a few patient groups. There is a strict rejection policy in place for urine samples that are submitted without the relevant information or screening. Urine catheter tips will not be processed. There is no such thing as a routine MSU or CSU. Specimens should be sent only on clinical grounds. MSU and clean catch urines are the most commonly collected specimens and are recommended for routine use. Suprapubic aspirate (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.
Specimen transport	Delays and storage at room temperature allow organisms to multiply which generates results that do not reflect the true clinical situation.

	Where delays in processing are unavoidable, refrigeration at 4°C is essential. Samples >48 hours old are not suitable for testing and a repeat sample should be collected.
Minimum volume of sample	A minimum volume of 1mL For Mycobacteria culture collect 3 consecutive early morning urine samples in 200mL containers
Special precautions	Specimens should be transported and processed within 4 hr

Laboratory Information

Measurement units	$X10^6$/L (WBC / RBC) Urine culture is quanitified (cfu)
Biological reference units	Not applicable
Turnaround time	30 – 60 mins for cell count if laboratory contacted prior to sending 1-3 working days for culture

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Collect specimens before antimicrobial therapy where possible.

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Varicella-zoster IgG (Virology)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	No special needs
Minimum volume of sample	2 mL
Special precautions	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend

Laboratory Information

Measurement units	mIU/mL		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days
If urgent please contact the laboratory for 4 hours turnaround.			

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Varicella-zoster IgM (Virology)

General Information

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Collection container (including preservatives)	6mLclotted blood tube
Specimen Type	Venous Blood
Collection	6mL blood tube
Specimen transport	No special needs
Minimum volume of sample	2 mL
Special precautions	None known

Laboratory Information

Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Haemolysis

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Varicella-zoster virus PCR (Molecular Microbiology)

Chickenpox, Shingles, Encephalitis, meningitis, rash, lesion

General Information

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Specimen container	CE marked leak proof container
Specimen Type	EDTA blood, CSF, Swabs, Viterous tap
Specimen transport	Ambient or refrigerated Compliance with current postal and transportation regulations is essential Clinical samples should be collected into a sterile leak-proof container in a sealed plastic bag. Appropriate hazard labelling according to local policy should be applied. Specimens should be transported and processed as soon as possible.
Minimum volume of sample	Minimum volume 500µl
Special precautions	If processing is delayed, refrigeration is preferable to storage at room temperature.

Laboratory Information

Measurement units	Threshold Cycle (CT)		
Turnaround time for Provisional result (working days)	3 days	**Turnaround time to Final result (working days)**	4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	All samples are suitable for overnight refrigeration only, they must not be stored over a weekend False negative results may occur for a variety of reasons, for example inappropriate timing of sample collection, inappropriate sample, presence of virus below the detectable limit of the assay. New and emerging variants may also occur which may not be detected by this assay. Towards the limit of detection of an assay sampling variation will result in lower reproducibility.

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VRE: Infection Control Screen (Bacteriology)

General Information

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Specimen container	Unless otherwise stated, swabs for bacterial and fungal culture should be taken with a liquid eSwab Liquid eSwabs contain 1ml of liquid. No liquid should be discarded when collecting sample. Samples with insufficient liquid will be discarded.
Specimen Type	 Liquid eSwab
Specimen transport	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable
Minimum volume of sample	Not applicable
Special precautions	Rectal swabs should be submitted under the direction of the Infection Control Team or Consultant Microbiologist.

Laboratory Information

Measurement units	1ml		
Biological reference units	Not Applicable		
Turnaround time for Provisional result (working days)	2 days	**Turnaround time to Final result (working days)**	3 - 4 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Specimens should be transported and processed as soon as possible to prevent deterioration.

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Wounds: Skin, Superficial, Non-surgical (Bacteriology)

Infections of the skin and subcutaneous tissues are caused by a wide range of organisms. Organisms isolated from a clinically infected wound may be clinically significant, but this decision needs to be made in conjunction with clinical details. Examination of biopsies might be more effective for diagnosis than swabs (See Tissue & Biopsy Section)

General Information

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Specimen container	Unless otherwise stated, swabs for bacterial and fungal culture should then betaken using a liquid eSwab. Samples of pus/exudate, if present, are preferred to swabs
Specimen Type	 
Collection	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.
Specimen transport	If processing is delayed, refrigeration is preferable to storage at ambient temperature. Delays of over 48hr are undesirable
Minimum volume of sample	1ml. The liquid in the eSwab should NOT be discarded. The laboratory cannot process samples with <1ml of liquid remaining in the swab and these samples will be discarded.
Special precautions	If only a minute amount of pus or exudate is available it is preferable to send a pus/exudate swab in transport medium to minimise the risk of desiccation during transport.

Laboratory Information

Measurement units	Not Applicable
Biological reference units	Not Applicable

Turnaround time for Provisional result (working days)	1 day	**Turnaround time to Final result (working days)**	2-3 days

Clinical Information

Clinical decision points	Not applicable
Factors known to significantly affect the results	Collect specimens before antimicrobial therapy where possible. Specimens should be transported and processed as soon as possible to prevent deterioration.

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7.0 REFERRAL LABORATORIES

Analyte	Laboratory	Address	ISO 15189 accreditation
16S Panbacterial PCR	UKHSA Colindale	Department for Bioanalysis & Horizon Technologies UKHSA Colindale 61 Colindale Avenue LONDON NW9 5HT	8197
18S Panfungal PCR	Bristol Mycology	UKHSA Bristol Myrtle Road Kingsdown	8043
Aciclovir levels	Southmead, Bristol	Antimicrobial Reference Laboratory Southmead Bristol	8099
Actinomyces	Cardiff	Anaerobic Reference Laboratory University Hospital of Wales Heath Park CARDIFF CF4 4XW	9510
Adenovirus typing	UKHSA Colindale	Virus Reference Department Microbiology Services UKHSA Colindale 61 Colindale Avenue	8825

		London NW9 5HT	
Amoebiasis	Hospital for Tropical Diseases London	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	7512
Antifungal drug assays	MRCM Wythenshawe	Mycology Reference Centre Manchester Wythenshawe Hospital	10196
Arbovirus	RIPL, Porton Down	UKHSA Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG	9304
Anti-staphylolysin	UKHSA Colindale	Staphylococcus Reference Unit (SRU)	8197
Bartonella serology	UKHSA Colindale	Bacteriology Reference Department (RVPBRU) 61 Colindale Avenue London NW9 5HT	8197
Babesia serology	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	7512
Bacterial identification, typing & sensitivity testing	UKHSA Colindale	UKHSA Colindale 61 Colindale Avenue	8197

		London NW9 5EQ	
Borrelia recurrentis serology	RIPL, Porton Down	UKHSA Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG	9304
Burkholderia pseudomallei serology	UKHSA Colindale	AMRHAI UKHSA Colindale Bacteriology 61 Colindale Avenue LONDON NW9 5HT	8197
TSE	Western General, Edinburgh	National CJD Surveillance Unit Western General Hospital	Laboratory work recognised by WHO, & follow CPS standards, inspected by HSE & perform well in European QC schemes
Chikungunya	RIPL	UKHSA Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG	9304
Coccidiomycosis	Bristol mycology	UKHSA Bristol Myrtle Road Kingsdown	8043
Chlamydophila pneumoniae Ab/PCR	Bristol UKHSA /Colindale	UKHSA Bristol Myrtle Road Kingsdown	8043
Cryptococcal Antigen	Bristol mycology	UKHSA Bristol	8043

		Myrtle Road Kingsdown	
Cryptosporidium	Swansea	Cryptosporidium Reference Unit (CRU) Swansea NPHS Microbiology Swansea Singleton Hospital Sketty Swansea SA2 8QA	9510
Cysticercosis	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	7512
Delta Antigen Hepatitis D (delta)/ Antibody / PCR	UKHSA Colindale	Virus Reference Department Microbiology Services UKHSA Colindale 61 Colindale Avenue London NW9 5HT	8825
Dengue Fever	RIPL, Porton Down	UKHSA Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG	9304
E. coli 0157	UKHSA Colindale	Gastrointestinal bacterial reference unit (GBRU) UKHSA Colindale Bacteriology 61 Colindale Avenue LONDON NW9 5HT	8197

		Tel: 020 8200 4400	
E. coli VTEC antibodies	UKHSA Colindale	Gastrointestinal bacterial reference unit (GBRU) UKHSA Colindale Bacteriology 61 Colindale Avenue LONDON NW9 5HT Tel: 020 8200 4400	8197
Echinococcus (hydatid)	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	7512
Ehrlichia	RIPL, Porton Down	UKHSA Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG	9304
Enterovirus typing	UKHSA Colindale	Virus Reference Department Microbiology Services UKHSA Colindale 61 Colindale Avenue London NW9 5HT	8825
Fasciola	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London	7512

		WC1E 6JB	
Filaria	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	7512
Ganciclovir levels	Southmead, Bristol	Antimicrobial Reference Lab. Med. Micro. Dept. North Bristol NHS Trust Southmead Hospital (Old pathology block) Bristol BS10 5NB	8099
Galactomannan (Aspergillus antigen)	Bristol Mycology	UKHSA Bristol Myrtle Road Kingsdown	8043
B-d-glucan	MRCM Wythenshawe	Mycology Reference Centre Manchester Wythenshawe Hospital	10196
Giardia	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	1389
HHV6/7 antibodies / PCR	UKHSA Colindale	Virus Reference Department Microbiology Services UKHSA Colindale 61 Colindale Avenue	8825

		London NW9 5HT	
HHV8 PCR	UKHSA Colindale	Virus Reference Department Microbiology Services UKHSA Colindale 61 Colindale Avenue London NW9 5HT	8825
Hantavirus	RIPL, Porton Down	UKHSA Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG	9304
HBV viral load (Health Care Workers)	Gartnavel, Glasgow	West of Scotland Specialist Virology Centre, Main Specimen Reception (Level 4), New Lister Building, Glasgow Royal Infirmary 10-16 Alexandra Parade, Glasgow G31 2ER, Scotland.	9319
Hepatitis C genotyping	UKHSA Colindale	Virus Reference Department Microbiology Services UKHSA Colindale 61 Colindale Avenue London NW9 5HT	8825
Hepatitis E	UKHSA Colindale	Virus Reference Department Microbiology Services UKHSA Colindale 61 Colindale Avenue London NW9 5HT	8825
Herpes simplex resistance phenotypic	UKHSA Colindale	Virus Reference Department Microbiology Services UKHSA Colindale	8825

		61 Colindale Avenue London NW9 5HT	
Herpes simplex resistance genotypic	UKHSA Colindale	Virus Reference Department Microbiology Services UKHSA Colindale 61 Colindale Avenue London NW9 5HT	8825
Histoplasmosis	UKHSA Mycology Bristol	UKHSA Bristol Myrtle Road Kingsdown	8043
HIV2 PCR/VL	UCL	Virology Laboratory, Clinical Microbiology and Virology University College London Hospitals NHS Foundation Trust 60 Whitfield Street London W1T 4EU	8825
HTLV-1/2 Antibodies/ PCR/ viral load	Colindale/ Colindale/ Imperial	Virus Reference Department Microbiology Services UKHSA Colindale 61 Colindale Avenue London NW9 5HT	8825
HPV Genotyping	Scottish HPV Reference Laboratory (SHPVRL)	Royal Infirmary of Edinburgh 51 Little France Crescent Edinburgh EH16 4SA	9546
Hydatid Cysts (Echinococcus) antibodies	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases	7512

		Mortimer Market Capper Street London WC1E 6JB	
Leptospira antibodies / PCR	RIPL, Porton Down	UKHSA Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG	9304
Leishmania	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	7512
Lymphogranuloma Venereum PCR	UKHSA Colindale	Virus Reference Department Microbiology Services UKHSA Colindale 61 Colindale Avenue London NW9 5HT	8825
Lyme Disease	RIPL	UKHSA Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG	9304
Malaria antibodies / PCR	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market	7512

		Capper Street London WC1E 6JB	
MRSA typing	UKHSA Centre for Infections	AMRHAI UKHSA Colindale Bacteriology 61 Colindale Avenue LONDON NW9 5HT Tel: 020 8200 4400 ext: 6511	8197
Mumps PCR	UKHSA Colindale	Virus Reference Department Microbiology Services UKHSA Colindale 61 Colindale Avenue London NW9 5HT	8825
Mycobacterium identification and sensitivity	Birmingham UKHSA	UKHSA Regional Centre for Mycobacterioloy Public Health Laboratory Birmingham B9 5SS	8213
Nocardia	UKHSA Colindale	Department for Bioanalysis& Horizon Technologies UKHSA Colindale 61 Colindale Avenue LONDON NW9 5HT	8197
Ovine Chlamydia antibodies / PCR	Bristol UKHSA / AHVLA, Weybridge Laboratory Services.	UKHSA Bristol Myrtle Road Kingsdown	8043
Pertussis antibodies	UKHSA Colindale	Virus Reference Department	

		Microbiology Services UKHSA Colindale 61 Colindale Avenue London NW9 5HT	8825
Polio antibodies	UKHSA Colindale	Virus Reference Department Microbiology Services UKHSA Colindale 61 Colindale Avenue London NW9 5HT	8825
Posaconazole Level	MRCM Wythenshawe	Mycology Reference Centre Manchester Wythenshawe Hospital	10196
Q Fever antibodies / PCR	Bristol UKHSA / RIPL	UKHSA Bristol Myrtle Road Kingsdown	8043
Rabies antibodies / PCR	AHVLA, Weybridge Laboratory Services	Central Veterinary Laboratory Weybridge	UKAS 0941 ISO17025
Rickettsia serology / PCR	RIPL, Porton Down	UKHSA Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG	9304
Rubella PCR	UKHSA Colindale	Virus Reference Department Microbiology Services UKHSA Colindale 61 Colindale Avenue London NW9 5HT	8825
Salmonella serotyping	UKHSA Colindale	Gastrointestinal bacterial reference unit (GBRU)	8197

		UKHSA Colindale Bacteriology 61 Colindale Avenue LONDON NW9 5HT Tel: 020 8200 4400	
Severe Acute Respiratory Syndrome	UKHSA Colindale	Virus Reference Department Microbiology Services UKHSA Colindale 61 Colindale Avenue London NW9 5HT	8825
Schistosomiasis antibodies	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	7512
Shigella/Salmonella	UKHSA Colindale	Gastrointestinal bacterial reference unit (GBRU) UKHSA Colindale Bacteriology 61 Colindale Avenue LONDON NW9 5HT Tel: 020 8200 4400	8197
Strongyloides antibodies	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market	7512

		Capper Street London WC1E 6JB	
Toxocara	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	7512
Trichinosis	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	7512
Trypanosomiasis	Hospital for Tropical Diseases	Clinical Parasitology Department 3rd Floor The Hospital for Tropical Diseases Mortimer Market Capper Street London WC1E 6JB	7512
VZ antibodies / typing	Great Ormond Street Hospital	Great Ormond Street Hospital NE Thames Regional Genetics Service Laboratories	
West Nile Virus	RIPL, Porton Down	UKHSA Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG	9304

Yersinia	UKHSA Colindale	Gastrointestinal bacterial reference unit (GBRU) UKHSA Colindale Bacteriology 61 Colindale Avenue LONDON NW9 5HT	8197
Yellow Fever	RIPL, Porton Down	UKHSA Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG	9304

8.0 FEEDBACK ON OUR PATHOLOGY SERVICES

8.1 COMPLAINTS PROCEDURE

The laboratory is committed to ensuring patients well being, safety and rights are the primary consideration. The laboratory is committed to providing a high-quality service to all service users and patients. Should any aspect of our service not meet your requirements please make a complaint in writing to one of the Clinical or Laboratory Managers – please make any reservations you may have about the quality of any aspect of the service known to us as soon as possible: we take your complaints very seriously.

Any suggestions from users on how this user guide could be improved would be welcome for inclusion in future edtions. Please forward suggestions to Ben Kirkman, Quality Manager (ben.kirkman@mft.nhs.uk) or ben.kirkman@ukhsa.gov.uk or to the following address:

Ben Kirkman
Quality Manager
Manchester Medical Microbiology Partnership
Clinical Sciences Building
Manchester Royal Infirmary
Oxford Road
Manchester M13 9WZ

8.2 SERVICE DEVELOPMENT

The laboratory is committed in providing opportunities for patients and laboratory users to provide helpful information to aid the laboratory in the selection of examination methods and develop new services. Any consultant, clinical team, or patient wanting to introduce a new laboratory test for use in the screening, diagnosis or management of patients should complete a new test application form. The form is available in the Laboratory Medicine section on Staffnet. This form must be completed electronically and sent by email as an attachment to DLM Headquarters at dlm.directoratehq@mft.nhs.uk

9.0 PATIENT CONSENT DISCLOSURE

9.1 Some pathogens are notifiable, and information will be disclosed to relevant external authorities, such as public health teams, and stored in secure databases.

While several hundred laboratory tests are performed on site, for some rare or complex tests patient specimens may be sent to specialist laboratories elsewhere which have 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. We regularly check their accreditation status, which gives us assurance that they have procedures in place for the protection of information.
We also have specialist laboratories within the DLM and we receive specimens from

around the country. Therefore our laboratories have procedures in place for the protection of information.
When specimens are sent to a referral laboratory we need to send some 'patient identifiers' such as name and date of birth. In some tests it is essential to send further information, for example, symptoms or travel information, to allow the referral laboratory to interpret the results for the individual patient. In some tests ethnic origin and family details may need to be shared with the referral laboratory.

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).

Laboratory Policy on Protection of Personal Information

The laboratory adheres to Manchester University Hospital Foundation Trust's policies on data protection and disclosure. The following policy can be found on the Trust intranet site:

Confidentiality Code of Conduct and Information Disclosure Policy ON4-3437.

Further information for patients can be found at Information for Patients

9.2 THE HUMAN TISSUE ACT AND THE MMMP

Manchester University Hospitals NHS Foundation Trust is licensed by the HTA to undertake examinations of post mortem samples submitted by clinical consultants and pathologists – the MMMP falls within this scope. 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 to MMMP 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, when consent has not been obtained for any other work this would be outside the scope of the licence. It will be assumed that the coroner has not asked for any other examinations to be performed

If additional work on samples from the deceased is thought necessary by the medical microbiologist or virologist they must obtain written confirmation of consent from the sending departments.

All relevant material is stored securely and, where possible, under conditions which maintain the integrity of the sample. Patient confidentiality is maintained in compliance with Caldicott principles as are all samples received into the Partnership.

If the sender of relevant material requests tests not performed by the MMMP or a UKHSA Reference Laboratory the sending clinician or pathologist may request the return of the material within 2 months. The MMMP will dispose of any residual material 2 months after all testing has been completed, unless ethical approval has been sought to retain the material for further research. Any residual material will be disposed of according to the Manchester University NHS Foundation Trust policy for sensitive dipsosal of samples from the deceased.

Medico – legal specimens

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

9.3 Uncertainty of Measurement

Any test or procedure performed in the laboratory may be subject to a variety of factors that may influence the outcome of the test. These may occur at one of 3 stages;

- Pre-examination
- Examination stage
- Post-examination

By recognising those factors which could adversely influence the outcome of the test e.g. transport, correct specimen requirements, storage conditions pre-testing etc and implementing control measures to reduce or remove them the outcome can be relied on to be accurate and hence provide assurance to service users of the quality of the results produced by the laboratory. In addition, there can be a level of variability associated with quantitative results that the laboratory can calculate and monitors to provide continuous information on the performance of procedures. Upon request, the laboratory can provide further details on the measurement uncertainty of quantitative tests.

10.0 RESEARCH & DEVELOPMENT

Research and development are key parts of the activity of MMMP and contribute to the scientific basis of the advice and services that the Partnership provides, both for clinical and public health microbiology. Current R&D activity spans:

- Vaccine evaluation for clinical trials performed under MHRA GCLP: e.g. meningococcal, pneumococcal, HPV.
- Serosurveyseg measles, mumps, rubella, varicella, pneumococcal.
- Technology: e.g. techniques for rapid diagnosis and molecular epidemiology.

- Evaluation of new platforms eg MesoScale Discovery Quickplex.
- Public health microbiology: e.g. collaborative projects on meningococcal infections and gastrointestinal infections.

Appendix 1 EQA schemes

Molecular EQA	NEQAS	QCMD	Other
Adenovirus		Adenovirus DNA	
Aspergillus		Aspergillus DNA	
BK Virus		BK DNA	
Bordetella pertussis		B pertussis DNA	
Candida		Candida DNA	
Chlamydia	CT NG	Chlamydia trachomatis	
CMV	CMV DNA	CMV DBS, CMV whole blood	
CMV drug resistance		CMV drug res	
Coronovirus		Coronovirus RNA	
EBV EBNA IgG, EBV IgM and EBV IgG.	EBV DNA	EBV whole blood, EBV DNA	
Enteric	Gastroenteritis	Gastroenteritis, Norovirus	
Enterovirus	Viruses in CSF	Enterovirus RNA	
Flu A		Flu A	
Flu B		Flu B	
Gastroenteritis		Parasitic, Bacterial, virology	
HBV PCR	HBV DNA	HBV DNA	
HBV drug resistance		HBV drug resistance	
HBV genotype		HBV geno	
HCV PCR	HCV RNA	HCV RNA HCV DBS	

Molecular	NEQAS	QCMD	Other
HCV genotype	HCV RNA	HCV geno	
HHV6		HHV6 DNA	
Haemophilus influenza b			IMRP
HIV PCR	HIV RNA	HIV RNA	
HIV resistance		ENVA, HIV drug resistance	
HIV integrase		ENV INT	
HPV	HPV	HPV	
HSV	Viruses in CSF	HSV	
Influenza		Influenza RNA	
JC virus		JC DNA	
Measles		Measles and Mump	Colindale panel
Meningococcal PCR		Central Nervous System II - for N. meningitidis).	
MERS		MERS	
Metapneumovirus		MPV	
Mycoplasma pneumoniae		MP	
N gonorrhoeae	CT NG	Neisseria gonorrhoeae	
Norovirus		Norovirus RNA	
Parainfluenzavirus		Paraflu RNA	
Parechovirus		Parechovirus RNA	
Parvovirus		Parvovirus B19 DNA	

Pneumocystis jirovecii pneumoniae		Pneumocyctis DNA	
Pneumococcal PCR		Central Nervous System II - for Streptococcus pneumoniae	
Rhinovirus		Rhinovirus	
Respiratory syncytical virus		RSV RNA	
SARS-CoV-2		SCV2	
Syphilis		Syphilis	
Toxoplasma gondii		Toxoplasma DNA	
Trichomonas	CTNG	TV	
VZV	Viruses in CSF	VSV DNA	

Serology EQA	NEQAS	Labquality	Instand
AHBS	(Anti-HBs)		
Anti HBc	(HBV serology)		
ASO/ASD	(Exanthem)		
Blood donor screen			
Chlamydia Trachomatis			CT IgG
CMV avidity		CMV	
CMV IgG	(Immunity screen)	CMV	
CMV IgM	(Hepatitis screen)	CMV	
CONH	(HBV serology)		
Cryptococcal Ag	(Cryptococcal Ag detection)		Myco serology 02
EBV	(Hepatitis screen)		
HAV IgG	(Immunity screen)		
HAV IgM	(Hepatitis screen)		
HBsAg	(HBV serology)		
Anti-HBc, Anti-HBc IgM, HBe Ag, Anti-HBe	(HBV serology)		
HCV	(Hep C serology)		
Hepatitis D			Hepatitis D virus Ab
Hepatitis E	(Hep E serology)		Hepatitis E virus Ab
HIV	(HIV serology)		
HIV p24			HIV1 P24
HSV 1/2 IgG		HSV 1 & 2	

Serology EQAS	NEQAS	Labquality	Instand
HSV 1/2 IgM		HSV 1 & 3	
HTLV	(Blood donor)		
Legionella Ag	(Urinary antigens)		
Lyme disease	(CSQC, via NEQAS)		
Measles IgG	(Measles, Mumps IgG)		
Measles IgM		Measles	
Mumps IgG	(Measles, Mumps IgG)		
Mumps IgM		Mumps	
Parvo IgG	Parvovirus B19		
Parvo IgM	(Exanthem)		
Pneumo Ag	(Urinary antigens)		
RPR	(Syphilis)		
Rubella IgG	(Rubella IgG)		
Rubella IgM	(Exanthem)		
STS	(Syphilis)		
SYM	(Syphilis)		
Syph blot	(Syphilis)		
Toxo IgG & IgM	(Toxoplasma)		
TPHA	(Syphilis)		
VZV IgG	(Immunity screen)		VZV IgG
VZV IgM		VZV	VZV IgM

Bacteriology EQA	Scope	Provider
AAFB Microscopy	Presence and absence of AAFB bacilli using ZN or immunofluorescence	UKNEQAS
Antifungal Susceptibility testing	Identification and determination of antifungal susceptibilities	UKNEQAS
Antimicobial Susceptibility testing	Identification and determination of antimicrobial susceptibilities	UKNEQAS
Bacterial Culture	General bacteriology (identification)	UKNEQAS
Bacterial identification	General bacteriology (identification)	UKNEQAS
Blood cultures	General bacteriology (identification). Isolation and Identification of bacterial pathogens	UKNEQAS
Cell Count	Cell count	Lab Quality
C. difficile	Detection of toxogenic Clostridium difficile	UKNEQAS
Crypto /Giardia	Antigen detection	LGC
Genital Pathogens	Isolation, identification, and if appropriate, determination of antimicrobial susceptibilities	UKNEQAS
Helicobacter pylori	Antigen detection in faceces	Lab Quality
MRSA screening	Detection of MRSA by culture methods	UKNEQAS
Mycobacteria – culture	Detection of Mycobacterium by Culture	UKNEQAS
Molecular detection and resistance testing of mycobacteria	Direct and post culture detection of mycobacteria and rifampicin resistance genes using molecular methods	UKNEAS
Mycology	Mycology	UKNEQAS
Parasitology (Faeces & occasional fluid/tissues)	Faecal parasitology	UKNEQAS
Surveillance culture for multidrug resistant bacteria	VRE	Lab Quality
Surveillance culture for multidrug resistant bacteria	CPE, ESBL, multidrug resistant Acinetobacter, Ps.aeruginosa	Lab Quality
Blood culture	Gram stain,	Lab Quality
Urinary antigens	Detection of Legionella pneumophila and Pneumococcal antigens in urine	UKNEQAS