



# Microbiology Laboratory Handbook

**Microbiology Laboratory  
North Tyneside General Hospital  
Rake Lane  
North Shields  
Tyne & Wear  
NE29 8NH**

**This SOP supersedes all previous versions**

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## INTRODUCTION AND SCOPE

The Microbiology laboratory for Northumbria Healthcare NHS Foundation Trust is located at North Tyneside General Hospital serving a population of over 550,000 within the Northumberland and North Tyneside areas.

The department provides a diagnostic service to Northumbria Specialist Emergency Care Hospital (NSECH), Wansbeck General Hospital (WGH), Hexham General Hospital (HGH) and the community Hospitals.

The Microbiology department is committed to providing a quality service and as such is accredited by the United Kingdom Accreditation Service (UKAS) to ISO 15189 standards. This is the national accreditation body for the UK ensuring laboratories meet the required national standard for Medical laboratories necessary for quality and competence. The department was awarded UKAS accreditation on the 13<sup>th</sup> October 2017. As part of the on-going requirement to maintain compliance with ISO 15189 standards UKAS will undertake annual surveillance visits with a full inspection every 4 years.

Not all tests in the laboratory repertoire fall under the scope of accreditation therefore it is recommended that the UKAS website is checked for an up to date list of all tests covered

[https://www.ukas.com/wp-content/uploads/schedule\\_uploads/00007/9693%20Medical%20Single.pdf](https://www.ukas.com/wp-content/uploads/schedule_uploads/00007/9693%20Medical%20Single.pdf)

The test repertoire includes diagnostic testing for bacteriology, serology, virology, parasitology and mycology. We also provide semen analysis for post vasectomy samples, and pregnancy testing.

We provide this service to local hospitals, General Practitioners, Health Protection Unit, private companies and individuals. We also provide infection control services.

Immunology investigations are referred to the Immunology Department at Queen Elizabeth Hospital, Gateshead. Results are then reported by the Microbiology Laboratory at North Tyneside General Hospital.

Where we are unable to offer in house testing as outlined in our test repertoire samples are prepared and processed by the laboratory prior to referral to the most appropriate referral laboratory. Once we are in receipt of the results the Microbiology Laboratory at North Tyneside General Hospital will issue a report to the requestor.

The efficiency of the service provided is reliant on the cooperation of all service users ensuring the necessary requirements are met as outlined in this user manual. It is important to follow the guidelines in relation to all aspects of health and safety, patient and specimen identification, specimen collection and transport, as well as providing us with essential clinical details.

The intended use of this document is by users of our service, such as clinicians, General practitioners and other healthcare professionals. Advice on specimen collection is given in this manual but must be explained to patients by a healthcare professional.

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Advice on antibiotic treatment and infection control is not covered in this user manual. Appropriate advice can be located on the Trust intranet page or by contacting a Consultant Microbiologist or Infection control team.

Please refer to the following guidelines for further information:

- Guide to the use of antimicrobials - [adult and paediatric guidance:](https://viewer.microguide.global/NHCT)  
<https://viewer.microguide.global/NHCT>
- North of Tyne Area Prescribing Committee, Primary Care Guidelines for the Management of Infection:  
<http://intranet2.northumbria.nhs.uk/home/antibiotics/files/2018/06/Primary-Care-Antibiotic-Guidelines-APC-August-2012.pdf>

## OVERVIEW OF SERVICES OFFERED

The Microbiology laboratory offers a wide range of diagnostics tests including bacteriology, serology, virology, parasitology, mycology, semen analysis and pregnancy testing. In addition the department carries out screening for infection control purposes including Methicillin Resistant *Staphylococcus aureus* (MRSA) *Clostridium difficile* (C. diff), and Carbapenemase Resistant Enterobacteriaceae (CPE). We also screen for seasonal infections such as Norovirus and Influenzae.

Requests for CPE and Norovirus screening must either be authorised by a Consultant Microbiologist or an Infection control Nurse.

Clinical advice is provided by Consultant Microbiologists and technical advice is given by Biomedical Scientists.

## LOCATING AND CONTACTING THE LABORATORY

The Microbiology laboratory for Northumbria Healthcare NHS Foundation Trust is located at North Tyneside General Hospital.

### Directions and transport

#### Address:

North Tyneside General Hospital  
Rake Lane  
North Shields  
Tyne & Wear  
NE29 8NH

North Tyneside General Hospital is situated on the A191 approximately 8 miles east of Newcastle.

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By road: From the A19 Northbound, go through the Tyne Tunnel (toll) and leave the A19 after 2 miles, to join the A191 toward North Shields & Tynemouth. Continue over the next 5 roundabouts and at the 6th turn right.

From the A19 Southbound, follow A19 Southbound and join the A191 toward North Shields & Tynemouth. Continue over the next 5 roundabouts and at the 6th turn right.

By bus: For up to date bus information, please use the Traveline service

By rail: The closest railway station is Newcastle Central Station. Check The Trainline for timetables of all services.

For more information, and to view an external and internal map of the hospital please visit the hospital web site: <https://www.northumbria.nhs.uk/our-locations/north-tyneside-general-hospital>

### Microbiology laboratory opening hours

The Microbiology department provides a diagnostic service and technical advice 24 hours, 7 days a week.

For all **urgent** specimens where results will affect patient management, following collection of the sample please contact the laboratory by telephone to arrange for the sample to be processed urgently. Results will be telephoned to the requestor once they are available.

The main Pathology Specimen reception at North Tyneside General Hospital is open from 08:30 to 21:30 Monday to Friday and is closed at weekends to the general public; however the microbiology laboratory is still contactable via telephone.

### Enquiries for results

Please check ICE or electronic GP links for diagnostic test results, before telephoning the laboratory.

Please note that we need to establish the caller's identity before giving results over the telephone and you may be required to provide a password. Passwords are assigned to GP surgeries and are confidential to their healthcare professionals.

The laboratory is unable to give results directly to patients or their relatives. Patients should contact their GP or the requesting doctor for their results.

These policies are in place for data protection, confidentiality and clinical risk. Results must only be given to healthcare professionals bound by these policies to ensure the protection, safety and care of all patients.

## Visitors

All visitors must report to Pathology specimen reception where they must sign into the department and receive a visitor's badge. Whilst in the department, visitors must wear the badge so that it is visible to all staff.

## Microbiology contact telephone numbers

Non- urgent result and general enquiries	Direct Internal	0191 293 2528 ext.: 32528
Urgent results	Direct Internal	0191 293 2528 ext.: 34617
	Or bleep the Biomedical Scientist by contacting switchboard extension 31100 or 0344 8118111.	
Bacteriology laboratory	Direct Internal	0191 293 2528 ext.: 32528
Serology & Virology laboratory, Immunology enquiries	Direct Internal	0191 2932528 ext.: 34689
Consultants and Microbiology Secretary Val Twizell Email: <a href="mailto:Valerie.twizell@nhct.nhs.uk">Valerie.twizell@nhct.nhs.uk</a>	Direct Internal	0191 293 2538 ext.: 32538
Chief Biomedical Scientists (BMS3) Jennifer Challoner Email: <a href="mailto:Jennifer.challoner@nhct.nhs.uk">Jennifer.challoner@nhct.nhs.uk</a>	Direct Internal	0191 293 4173 ext.: 34173
Jane Haswell Email: <a href="mailto:Jane.haswell@nhct.nhs.uk">Jane.haswell@nhct.nhs.uk</a>	Direct Internal	0191 293 4173 Ext: 34173
Senior Chief Biomedical Scientist (BMS4) Karen Morris Email: <a href="mailto:Karen.morris@nhct.nhs.uk">Karen.morris@nhct.nhs.uk</a>	Direct Internal	0191 293 4005 ext.: 34005
Pathology Operational Services Manager Ange Brown Email: <a href="mailto:Ange.brown@nhct.nhs.uk">Ange.brown@nhct.nhs.uk</a>	Direct Internal	0191 293 4005 ext.: 34005
Pathology Quality Manager Jonathan Boxshall Email: <a href="mailto:Jonathan.boxshall@nhct.nhs.uk">Jonathan.boxshall@nhct.nhs.uk</a>	Direct Internal	0191 293 4005 ext.: 34005

## Clinical advice

Clinical advice is available regarding the appropriateness of tests and diagnostic investigations, management of patients and the use of antimicrobials.

There is a Northumbria Healthcare NHS Foundation Trust Consultant Microbiologist on duty each day Monday to Friday between the hours of 09:00 – 17:00 and 09:00 – 12:30 Saturday, Sunday and bank holidays.

Contact the Trust switchboard internal on extension 31100 or externally on 0344 8118111 and ask for the on duty Microbiologist.

For advice weekday evenings after 17:00 and before 09:00 and weekends including bank holidays after 12:30 and before 09:00, clinical advice is available from the extended clinical microbiology network from Northumbria Healthcare NHS Foundation Trust and Newcastle Hospitals Trust (RVI, FRH).

Contact the hospital switchboard internal 31100, external 0344 8118111 and ask for the first on-call medical Microbiologist.

In the event of a major incident or outbreak situation, please contact the Northumbria Healthcare NHS Foundation Trust Consultant Microbiologist on call, via the Trust switchboard 0344 811 8111.

## Clinical Microbiology service telephone numbers

Northumbria Healthcare NHS Foundation Trust Switchboard	0344 811 8111	
Dr David Tate, Clinical Lead and Director of Infection Prevention & Control Email: <a href="mailto:david.tate@nhct.nhs.uk">david.tate@nhct.nhs.uk</a>	Direct Internal Mobile	0191 293 4067 (NTGH) ext: 34067 (NTGH) 07825935591
Dr Surya Banerjee Consultant Microbiologist Email: <a href="mailto:Suryabrata.Banerjee@nhct.nhs.uk">Suryabrata.Banerjee@nhct.nhs.uk</a>	Direct Internal Mobile	0191 293 4314 ext: 34314 07828626574
Dr Tamsin Oswald (Part-time) Consultant Microbiologist Trust wide Lead for Antibiotic Use Email: <a href="mailto:Tamsin.oswald@nhct.nhs.uk">Tamsin.oswald@nhct.nhs.uk</a>	Direct Internal Mobile	0191 293 4316 ext: 34316 07977579595
Dr Sheetal Sundeep (Part-time) Consultant Microbiologist Email: <a href="mailto:Sheetal.sundeep@nhct.nhs.uk">Sheetal.sundeep@nhct.nhs.uk</a>	Direct: Internal Mobile	0191 293 4317 ext: 34317 07966490946
Dr Jayanta Sarma Consultant Microbiologist Email: <a href="mailto:Jayanta.sarma@nhct.nhs.uk">Jayanta.sarma@nhct.nhs.uk</a>	Direct: Internal Mobile	0191 293 4315 ext: 34315 07424146636
Specialist Registrars Based at North Tyneside General Hospital	Internal	ext: 34172



## Infection Control Advice including outbreaks

For infection control advice out-of-hours contact the Northumbria Healthcare NHS Foundation Trust medical Microbiologist on call, through the Trust switchboard.

## Infection control team telephone numbers

In addition to the Consultant Microbiologists:

Diane Sisterson Lead Nurse Trust wide	Mobile Internal	07824 409223 ext.: 32368 or 32385 (NTGH)
Ruth Henein Lead Nurse Trustwide	Mobile Internal	07796997195 ext.: 32368 or 32385 (NTGH)
Janet Wendt Clinical Nurse NSECH	Mobile Internal	07770908347 ext.: 72632 (NSECH)
Ania Swann Senior Nurse WGH	Mobile Internal	07824 408877 ext.: 33742 (WGH)
Shelley Goodson Clinical Nurse NSECH	Mobile Internal	07970789505 ext.: 72632 (NSECH)
Rachel Carr Clinical Nurse WGH	Mobile Internal	07966397157 ext.: 33742 (WGH)
Karen Carter Clinical Nurse NTGH	Mobile Internal	07876391386 ext.: 32367 (WGH)

Susan Westgarth Clinical Nurse Community	Mobile Internal	07920245106 ext.: 32367 (NTGH)
Susan Besbrode Clinical Nurse Community	Mobile Internal	07500 552979 ext.: 33742 (WGH)
Alison Knowles Clinical Nurse Community	Mobile Internal	07920298056 ext.: 32367 (NTGH)
Gillian Steele Clinical Nurse Community	Internal	07899067793 Ext: 33742 (WGH)

Mandy Devine Clinical Nurse Community	Mobile Internal	07771 388508 ext.: 32367 (NTGH)
Heather Lawson Clinical Nurse Community	Mobile Internal	07799075296 ext.: 33742 (WGH)
Arlene Pattern Clinical Nurse Community	Mobile Internal	07785778470 ext.: 32367 (WGH)

### Infection Control Secretary

Aimée Joyce (NTGH)	Internal	ext.: 34327
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### Infection Control Admin

Nicole Hogg (WGH)	Internal	ext.: 33397
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## Information Support

Giles Idle (NTGH)	Internal	ext.: 32973
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## CONSENT, COLLECTION AND TRANSPORT OF SPECIMENS

### Request forms

In line with Trust Policy and to comply with the Safer Practice Notice from the National Patient Safety Agency (NPSA/2009/SPN002) the laboratory will only accept request forms with the following essential patient information:

All request forms **MUST** include the following:

**Full patient name or coded identifier**

**Date of birth**

**NHS number (or CHI number if a Scottish resident)**

And should have the following:

**Gender**

**Requesting Doctor/Practitioner or Consultant/GP**

**Location/destination of report**

**Date and time of specimen collection**

**Identity of person collecting the specimen**

**Type of primary sample and/or anatomical site of origin**

**Examinations requested**

All of these requirements are met by using ICE order communications to select and request Microbiology tests.

By using ICE requesting it ensures the essential information is on the request form.

ICE also has added benefits:

- Essential patient and request information is sent electronically to Microbiology preventing transcription errors that can occur with manual written request forms.
- Request form and specimen labels printed at the same time.
- Gives users guidance on tests, specimen containers and types of sample to be taken.
- Mandatory fields to complete to ensure the correct investigations are carried out on the samples.
- Mandatory fields to complete to ensure the samples are processed at the correct containment level to ensure the safety of laboratory staff and the general public.

In the event that it is not possible to use electronic ICE requesting a manual request form is available on the back of the ICE request forms, this should be submitted along with the sample. It is **IMPORTANT** to ensure that the manual request form includes the essential information as detailed above.

If handwriting a request form, please be clear and legible to prevent errors.

Request forms failing to meet the above essential acceptance criteria **WILL NOT** be processed and will be rejected. You will receive notification of this, if you have provided a name and location on the request form.

### Special exceptions to the acceptance criteria:

**GUM clinics** - patient identities are kept confidential. Patients are given a unique identifier which **MUST** be provided on the request form, with the patient's correct date of birth.

**Prisons** – Full name and date of birth **MUST** be provided, however an individual's prison number can be provided instead of an NHS number.

### Clinical details

When sending a sample for diagnostic purposes, it is VERY IMPORTANT that the laboratory is given sufficient, relevant, clinical information. This is to determine the type of examination required and at what containment level the sample should be processed:

- Certain pathogens require special techniques and may not be detected in the routine examination of a sample. Failure to include clinical information may result in an inaccurate result and could compromise patient care.
- Certain pathogens can be high risk to laboratory staff and others in the vicinity of the laboratory, and therefore need to be processed in a specially contained facility. Failure to do this will put staff and the general public at risk of infection.

Very important details:

#### ➤ Foreign travel and activities

Due to increased travel and broader worldwide destinations it is very important to tell us where a patient has travelled to and any activities they have done, as they may have come into contact with high risk or more unusual infections.

**\*\*Danger of infection stickers MUST be placed on each SAMPLE and the REQUEST FORM for any patient that has or may have been in contact with a high risk organisms or travelled to a high risk country/area\*\***

If after sending samples to the laboratory, it becomes apparent that a patient may or is high risk, then you **MUST** telephone the laboratory immediately to notify them.

**\*\*IF TRAVEL TO AFRICA TO A HIGH RISK AREA OR IF EBOLA/ VHF IS SUSPECTED OR YOU HAVE ANY CONCERNS, YOU MUST CONTACT A MEDICAL MICROBIOLOGIST BEFORE ANY SAMPLES ARE COLLECTED\*\***

Relevant clinical details may include:

Types of symptoms  
Other recent infections

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Date of onset of illness

Underlying conditions e.g. diabetes, immunocompromised, cystic fibrosis

Pregnancy

Previous stay in hospital

Antibiotic treatment; previous, current or to have

Mention of antibiotic therapy in diarrhoea will alert the laboratory to the possibility of *C.difficile*.

It is important that wherever possible specimens should be taken before the commencement of antibiotic therapy.

An important exception to this is when a patient is suspected of having meningitis where antibiotics should always be given as soon as possible as it may be lifesaving.

### Patient consent

It is important to ensure patient consent has been obtained prior to submitting specimens for testing where there are clinical grounds for suspecting HIV, Hepatitis B and Hepatitis C infections.

Patients must understand what they are being tested for, and pre and post counselling MUST be offered for HIV tests.

**Indication that consent has been given must be made clear on the request form. This can be done by ticking the appropriate box when making a request via ICE, or hand written on the request form.**

### Private patients – Non NHS tests

All tests that are classed as either Category 2 or private are not covered by the NHS and will incur a charge. These are essentially tests which are not performed for **diagnostic** reasons. Tests requested under the following categories are normally classed as non NHS work incurring a charge:

- Occupational Health screens for your own employees or required by the patient's employer
- Emigration screens
- Pre-employment screens
- Dental screens
- University screens
- Private medicals
- Insurance medicals
- Travel checks
- Screening for foreign nationals

For the categories listed above please ensure the 'Private' category is selected when requesting a test using the ICE system. If requesting a test manually please ensure the request form clearly states that this is a 'private' test.

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Patients must be made aware that all non-NHS tests will incur a charge. For all non-NHS test requests the Trust will invoice the **requestor/GP practice** directly for full payment unless an alternative arrangement has been made in advance.

Please note where the patient is to be charged directly, payment **MUST** be paid in advance of the test being requested. Please contact the laboratory prior to requesting the test in order to arrange for payment to be made.

For Microbiology tests there is a standard charge of £65 per test inclusive of VAT and consultant authorisation.

### Specimens

All **specimens** **MUST** be labelled with the following:

**Full patient name or coded identifier**

**Date of birth**

**NHS number (or CHI number if a Scottish resident)**

and should have the following:

**Date and time of specimen collection**

All of these requirements are met by using ICE order communications to select and request Microbiology tests.

By using ICE requesting it ensures the essential information is on the specimen by providing printed stickers with the essential information to be stuck to the specimen container.

ICE also has added benefits:

- Essential patient and request information is sent electronically to Microbiology preventing transcription errors that can occur with manual written request forms.
- Request form and specimen labels are printed at the same time.
- Gives users guidance on tests, specimen containers and types of sample to be taken.

**Unlabelled or inadequately labelled specimens WILL NOT be processed and will be rejected. You will receive notification of this, if you have provided a name and location on the request form.**

The laboratory will **NOT** accept any specimen that has less than the 3 essential patient identifiers:

**Full patient name or coded identifier**

**Date of birth**

**NHS number (or CHI number if a Scottish resident)**

**\*\*Danger of infection stickers MUST be placed on each SAMPLE and the REQUEST FORM for any patient that has or may have been in contact with a high risk organisms or travelled to a high risk country/area\*\***

### For Occupational Health requests

If the patient is not already registered as an ICE patient, a hand written request form must be written stating the patient's full name, date of birth and the patient's COHORT number (this is a unique number given to each patient registered on the occupational health system). The COHORT number must be written in place of the patient's NHS number, alternatively, it can be written in the clinical details section of the request form.

### Special exceptions to the acceptance criteria

**GUM clinics** - patient identities are kept confidential. Patients are given a unique identifier which MUST be provided on the request form, with the patient's correct date of birth.

**Prisons** – Full name and date of birth MUST be provided, however an individual's prison number can be provided instead of an NHS number.

### Multiple specimen requirements

The laboratory requires a primary blood sample for any blood test. If a patient requires multiple tests for Microbiology, Clinical Chemistry, Haematology, Immunology or a specific referred test then please ensure a separate sample is taken where appropriate for each specific speciality.

If only one tube is received for multiple testing including Clinical Chemistry, Microbiology/ Immunology investigations only the Clinical Chemistry assays will be performed and a repeat samples will be requested.

If Microbiology and Immunology/referred test are requested, then the Microbiology test will be performed and repeat samples for the other tests will be requested.

### High risk specimens and safety

Include those from known or suspected cases of:

- *Bacillus anthracis* (Anthrax)
- *Brucella* species (Brucella)
- *Burkholderia mallei* (Glanders)
- *Burkholderia pseudomallei* (Meliodiosis)
- *Chlamydomphila psittici*
- *Clostridium botulinum* (Botulism)
- **Coronavirus – SARS-CoV-2/ COVID-19**
- *Coxiella burnetti* (Q-fever)
- *Eschericia coli*; verotoxigenic strains (e.g 0157:H7 or 0103)
- *Francisella tularensis* (Tularemia)
- *Mycobacterium tuberculosis* (TB)
- CJD (Creutzfeldt Jakob)
- Rickettsia species
- *Salmonella typhi*, *Salmonella paratyphi* A, B, or C
- *Shigella dysenteriae*
- *Yersinia pestis* (The Plague)
- *Histoplasma capsulatum*
- *Coccidioides* species

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- *Paracoccidioides brasiliensis*
- *Blastomyces dermatitidis*
- *Penicillium marneffe*
- Talaromyces (prev P. marneffe)
- Cladophialophora species
- Fonsecea species
- *Rhinocladiella mackenziei*
- *Xylohypha bantiana*

All other Hazard group 3 and 4 organisms (Advisory Committee on Dangerous Pathogens)

**\*\*Danger of infection stickers MUST be placed on each SAMPLE and the REQUEST FORM for any patient that has or may have been in contact with a high risk organisms or travelled to a high risk country/area\*\***

The form must be folded inwards to ensure confidentiality. The specimen must be sealed in the plastic transport bag. The specimen must then be placed in a second plastic bag and sealed.

Samples from patients with BBVs HIV, Hepatitis B and C, and in particular blood samples, it is advisable that Danger of infection stickers are used to highlight the potential risk to laboratory staff, however this is not essential.

If following sending samples to the laboratory, it becomes apparent that a patient may or is high risk, then you MUST telephone the laboratory immediately to notify them.

### Health and safety

When preparing to obtain specimens, always follow local health and safety guidelines to protect patients and healthcare professionals. Always practice good hand hygiene and wear appropriate personal protective equipment (PPE).

Investigations on high risk samples should be kept to the minimum required for diagnosis and management of the patient.

Care **MUST** be taken when using needles and other sharps, and they **MUST** be disposed of immediately after use into a sharps container. Any spillages of blood, body fluids or tissue **MUST** be disposed of in clinical waste and appropriate disinfectant used to decontaminate the area. It is essential that specimens are not contaminated with disinfectant as this may affect the result; please contact the laboratory for advice if required.

### Specimen Ordering on ICE/Electronic Requesting - Guidance for Use

There are comprehensive manuals built into ICE, available to all users. Shorter guides and demonstrations are also available on the Trust Intranet training pages.

External link: [http://intranet/it\\_training/icedesktop.htm](http://intranet/it_training/icedesktop.htm)



## Contact Names for ICE

For Pathology Trust wide, please email [application.management@nhct.nhs.uk](mailto:application.management@nhct.nhs.uk) or telephone the Application Management Computer Services on 0191 3499611, or contact Computer services help desk internally on extension: 31311

If you wish to request any special requirements, changes or have concerns regarding the Microbiology test requesting on particular ICE pages then please contact the following:

Hospital wards/ departments/ clinics: Gordon Clay on extension: 39621 or email [Gordon.clay@nhct.nhs.uk](mailto:Gordon.clay@nhct.nhs.uk)

## Specimen collection – Microbiology and Virology

Before collecting any specimen from a patient, you **MUST** determine the correct identity of the patient, and verify any important information that may affect the specimen collection or test results, for example medication status. If it is still applicable to collect the sample, then record any pertinent information in the clinical details section of the request form.

It is important that the laboratory receives the correct specimen type in the correct container. Specimens for bacteriological investigation should be collected into a sterile, laboratory specified container. This ensures that there are no contaminating organisms that may interfere with the interpretation of the investigation and that there are no substances present in the container which may affect the culture of any microorganisms.

- Use sterile containers for microbiological investigations as indicated in the table below.
- Specimens should be obtained before antimicrobial agents have been administered whenever possible. An important exception to this is when a patient is suspected of having meningitis where antibiotics should always be given as soon as possible as it may be lifesaving.
- An adequate quantity of material should be obtained for complete examination unless otherwise stated.
- Always send pus rather than a swab of the pus.
- The specimen taken should be representative of the disease process.
- Care must be taken to avoid contamination of the specimen by micro-organisms normally found on the skin and mucus membranes. Sterile equipment and aseptic technique must be used for collecting specimens, particularly for those from normally sterile sites.

Specimens must be transported to the laboratory as soon as possible, ideally within the same day. Fastidious organisms may not survive storage or may be overgrown by less fastidious organisms before culturing.

The maximum time for which samples may be stored before examination commences is indicated in the table below, to ensure the integrity of the sample, however it is preferable that transport to the laboratory is as soon as possible. When taking



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samples, requestors should refer to the laboratory specimen reception opening hours and availability of transport for samples, particularly on evenings and weekends to prevent unnecessary delays

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TEST	SPECIMEN TYPE	SPECIFIED CONTAINER	SPECIFIC VOLUME	ALTERNATIVE CONTAINER	MAXIMUM STORAGE
<b>Blood culture</b>	Blood	Adults: BD aerobic and anaerobic bottles  Paediatric: BD Paed bottle	Adults: 8-10 mls of venous blood into each bottle  Paeds: 3ml or less of venous blood	NA	NA – <b>MUST</b> be sent to the laboratory immediately. Bottles <b>MUST</b> be loaded onto the analyser within 4 hours of collection.
<b>Chlamydia PCR</b>	Endocervical, Rectal, Throat, Neonatal Eye swabs  Urethral swab  Urine	Aptima Orange Multitest swab collection kit  Aptima Purple unisex swab collection kit  Aptima Yellow Urine collection kit	NA  NA  Fill tube to between the two black lines using the pipette provide	NA  NA  NA	60 days at room temperature for swab  60 days at room temperature for swab  30 days at room temperature for urine
<b>Carbapenemase detection by PCR</b>	Rectal swab	Pink topped liquid transport swab	NA	NA	Refrigeration or room temperature for 3 days
<b>COVID-19/ SARS-CoV-2 virus</b>	Nose/throat swab, nasopharyngeal secretions, LRT sputum (Do not induce)	Green topped liquid transport swab	NA	NA	NA – should be sent to the laboratory immediately.
<b>CSF for microscopy, culture, Virology, TB, CJD (prions)</b>	Cerebrospinal fluid	Sterile white topped universal supplied in packs	NA	NA	NA – <b>MUST</b> be sent to the laboratory immediately.
<b>Faeces: bacterial and viral pathogens including Norovirus</b>  <b>Parasites</b>  <b>C. difficile</b>  <b>H. pylori</b>	Faeces	Blue screw cap container with spoon	¼ of the container <b>MUST</b> be filled	NA	Refrigeration 24 hours
<b>Flu PCR – Influenzae A &amp; B</b>	Nose/throat swab	Green topped liquid transport swab	NA	NA	NA – should be sent to the laboratory immediately.
<b>Fluids (culture and microscopy)</b>	Ascitic/ Peritoneal Synovial BAL Pleural	Sterile white topped universal container	NA	NA	NA – should be sent to the laboratory immediately.

# NHS GENERAL

TEST	SPECIMEN TYPE	SPECIFIED CONTAINER	SPECIFIC VOLUME	ALTERNATIVE CONTAINER	MAXIMUM STORAGE
<b>Crystals</b>	Synovial				Refrigeration 24 hours
<b>Fungal</b>	Nails and clippings Skin scrapings Hair	Demapack collection kit	NA	NA	Room temperature
<b>Gonorrhoea PCR</b>	Endocervical, Rectal, Throat, Neonatal Eye swabs	Aptima Orange Multitest swab collection kit	NA	NA	60 days at room temperature for swab
	Urethral swab	Aptima Purple unisex swab collection kit	NA	NA	60 days at room temperature for swab
	<b>Urine</b>	<b>Aptima Yellow Urine collection kit</b>	<b>Fill tube to between the two black lines using the pipette provide</b>	NA	30 days at room temperature for urine
<b>Herpes PCR (HSV I and II)</b>	Swab of vesicle fluid/lesion	Aptima Orange Multitest swab collection kit	NA	Green topped liquid transport swab	Refrigeration or room temperature for 3 days
<b>Infant respiratory screen – RSV, Flu A &amp; B</b>	Nasopharyngeal secretions (NPS)	Sterile white topped universal container	NA	Green topped liquid transport swab - Nose/throat swab	NA – should be sent to the laboratory immediately.
<b>Legionella antigen test</b>	Urine	Sterile white topped container	1ml	NA	Refrigeration 24 hours
<b>MRSA screening</b>	Nose and groin swab	White topped dual liquid swab (pack includes a red swab for swabbing groin area. Please note the white swab used for the nose must be snapped off into the container)	Take groin swab with red swab and mix in liquid and then discard. Take nose swab with white swab and snap this off into the liquid.	NA	Refrigeration 24 hours
<b>Pneumococcal antigen test</b>	Urine	Sterile white topped container	1ml	NA	Refrigeration 24 hours
<b>Pus – any site</b>	Pus	Sterile white topped container	NA	NA	Refrigeration 24 hours
<b>Pus - intraoperative</b>	Pus	Sterile white topped container	NA	NA	NA – should be sent to the laboratory immediately.
<b>Sputum for respiratory pathogens including TB</b>	Sputum	Sterile silver screw cap 60ml universal	NA	NA	Refrigeration 24 hours

# NHS GENERAL

TEST	SPECIMEN TYPE	SPECIFIED CONTAINER	SPECIFIC VOLUME	ALTERNATIVE CONTAINER	MAXIMUM STORAGE
<b>Staph aureus screening</b>	Nose and groin swab	White topped dual liquid swab (pack includes a red swab for swabbing groin area. Please note the white swab used for the nose must be snapped off into the container)	Take groin swab with red swab and mix in liquid and then discard. Take nose swab with white swab and snap this off into the liquid.	NA	Refrigeration 24 hours
<b>Swabs (culture) for bacterial/fungal pathogens including GC</b>					
<b>Eye, Ear, Nose, Throat, Mouth</b>	Swab of the affected area, taking care not to contaminate with commensal/colonising organisms	Pink topped liquid culture swab	NA	NA	Refrigeration 24 hours
<b>Endocervical, HVS, Urethral, Penile</b>					
<b>Wounds</b>					
<b>Swab for Pin worm</b>	Saline swab of Perianal area	Cotton wool swab in saline *collection kit available from Microbiology	NA	NA	Refrigeration or room temperature for up to 48 hours.
<b>Whooping cough</b>	Per nasal swab	blue topped charcoal trans-swab with fine metal shaft	NA	NA	NA – should be sent to the laboratory immediately.
<b>Line tips</b>	Tip	Sterile silver screw cap 60ml universal	5 cms	Sterile white topped container	Refrigeration 24 hours
<b>Theatre Tissue</b>	Tissue Orthopaedic samples	Sterile white topped container	Tissue from the affected area	NA	NA – should be sent to the laboratory immediately.
<b>Trichomonas PCR</b>	High vaginal swab	Aptima Orange Multitest swab collection kit	N/A	N/A	60 days at room temperature.
<b>Urine for culture</b>	Urine	Adults: Red topped 25ml boric acid universal container  Paediatric/elderly/ small sample volumes: Red topped 5ml boric acid container	Fill to the black line  Fill to the black line	NA  NA	Refrigeration 24 hours
<b>Urine for Casts</b>	Urine	Universal white topped container	10 mls	Red topped Boric acid container	Refrigeration

## NHS GENERAL

TEST	SPECIMEN TYPE	SPECIFIED CONTAINER	SPECIFIC VOLUME	ALTERNATIVE CONTAINER	MAXIMUM STORAGE
Urine for TB	3 separate Early morning urine (EMU)	White topped sterile universal container	3 separate EMU - Fill to the black line	NA	Refrigeration
Urine for Parasites	Urine	Sterile white topped container	10mls to be collected between 10:00 – 14:00 when ova may be at its highest		Refrigeration preferable if transport is going to be delayed
Pregnancy test	Early Morning Urine	Sterile white topped container	1ml	NA	Refrigeration 24 hours

**Please note that the highlighted specimens are volume dependant and will be rejected if the minimum volume of sample is not provided as results cannot be guaranteed.**

Specimens delayed in transport will have a comment added to the report which states 'The date on the request form/specimen does not match the date when the sample was handed in. The result must be interpreted with caution'

### Specimen collection – Serology

The date of onset is critical to interpreting serological tests. Serum should be taken as early as possible in the illness and during convalescence, 10 to 14 days later, in order to detect rising antibody levels.

The following containers are available for Serology investigations:

SPECIMEN CONTAINER	TYPE	VOLUME	MAXIMUM STORAGE
Clotted blood	Yellow topped vacutainer	Adults: 5 mls minimum Paed: 1 ml minimum	Refrigeration 24 hours
EDTA	Purple topped vacutainer	Adults: 5 mls minimum Paed: 1 ml minimum	Refrigeration 24 hours

All blood samples must be mixed after collection to ensure any additive is mixed. It is recommended that the tubes should be gently inverted 180° and back 8-10 times.

Severe haemolysis of blood or lipaemic specimens may compromise the results of serology assays.

Fresh blood should be left at room temperature to clot.

Do not freeze or overcool any whole blood samples.

### Specimen collection – QuantiFERON Gold

SPECIMEN CONTAINER	TYPE	VOLUME	MAXIMUM STORAGE
Clotted blood	Green – TB1	Exactly 1ml of blood. The level <b>MUST</b> be within the thick black line printed on the side of each tube	<p>NA – should be sent to the laboratory immediately and be received within 16 hours of sample collection otherwise samples will be rejected.</p> <p>To arrive at the laboratory no later than 17:00 on the same day of collection Monday - Friday</p>
	Yellow – TB2		
	Grey – Nil		
	Purple - Mitogen		

Please note that these specimens will be rejected if the minimum volume of sample is not provided as this will affect the test and may give inaccurate results.

Instructions for sample collection are provided with each QuantiFERON kit.










### Specimen collection – Semen analysis

TEST	SPECIMEN TYPE	SPECIFIED CONTAINER	SPECIFIC VOLUME	ALTERNATIVE CONTAINER	MAXIMUM STORAGE
Post vasectomy screen	Semen sample 16 weeks post op and following at least 20 ejaculates	TOXICITY TESTED - Sterile red screw cap 125ml semen collection container	NA	NA	Urgent – must be transported to the laboratory within 4 hours

A Post vasectomy guidance leaflet is provided with each specimen collection kit

## NHS GENERAL

### Specimen containers:

 <p><b>Blood cultures:</b> Aerobic – Blue capped Anaerobic – purple capped Paediatric – pink capped</p>	 <p><b>Pink topped liquid swab - culture</b></p>
  <p><b>Urine – Red topped boric acid universal; 25ml and 5ml</b></p>	 <p><b>White topped liquid swab – MRSA screening</b></p>
 <p><b>Sterile white topped universal container</b></p>	 <p><b>Green topped liquid swab – Virology</b></p>
 <p><b>Blue topped screw cap with spoon</b></p>	 <p><b>Sterile silver topped screw cap universal</b></p>

# NHS GENERAL



**Dermapak**



**Per nasal swab**



**Aptima Multitest swab collection kit**



**Aptima Unisex swab collection kit**



**Aptima Urine collection kit**



**QuantiFERON-Gold (All 4 tubes)**



**Clotted blood - yellow topped vacutainer**



**EDTA - purple topped vacutainer**



## NHS GENERAL

### Packaging routine specimens for microbiology

All specimens for Microbiology, Serology or Immunology **MUST** be placed into a blue specimen bag and sealed. The request form should be folded and slotted into the back pocket and then sealed.



Place the labelled specimens in a **BLUE** coloured ICE pouch and seal on the ward/dept. or surgery.  
Slot the folded ICE request form into the back pocket and seal.

All specimens for Microbiology, Serology or Immunology **MUST** be placed into a BLUE transport bag, and sealed ready for transport to the laboratory.



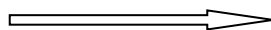
Place all BLUE ICE pouches into a **BLUE** transport bag, ready for collection and transportation.  
If transportation is to be delayed, store appropriately – see previous table with storage details and times

## NHS GENERAL

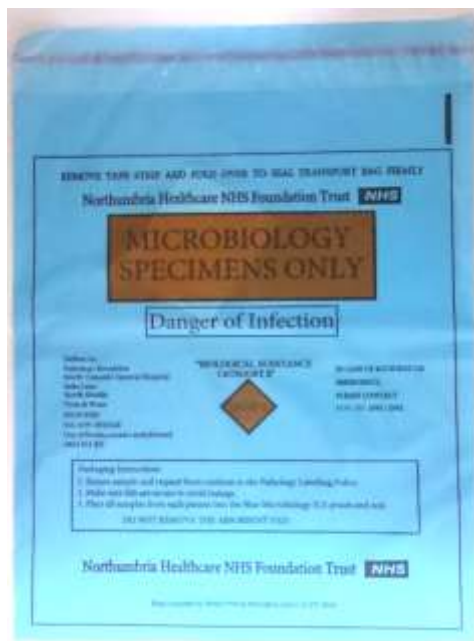
### Packaging urgent specimens for microbiology

All urgent specimens for Microbiology **MUST** be placed into a BLUE ICE pouch, sealed, with the request form folded and slotted into the back pocket, and also sealed.

All urgent Microbiology specimens **MUST** be placed into a BLUE transport bag and sealed.



Place sealed transport bags into transport box and close zip. Ensure the transport box is labelled with the correct destination.



Secure zip with plastic seal

Take the urgent specimen, secured in the transport bag, to the collection point and place into a transport box. Close the zip and secure with plastic seal. Ensure the correct destination is attached to the transport box.

### COVID-19

Samples from patients confirmed or suspected of having COVID-19, taken at any of our hospital sites **MUST** have a danger of infection sticker and placed in a category B box before being sent to specimen reception by the above usual methods. These boxes should then be placed in a blue specimen bag before being sent to Microbiology at NTGH.

**Transport of specimens to microbiology**

Once appropriately sealed and packaged, samples for Microbiology require safe transportation to the Microbiology laboratory at NTGH.

**At NTGH**

A pneumatic tube system is installed for the rapid transportation of samples to Pathology specimen reception. This system operated 24/7 and samples **MUST** be secured and sealed in a Blue ICE pouch and placed in the appropriate container for transport in the pneumatic tube pod.

**\*\*Samples NOT** suitable for transport in the pneumatic tube system are: CSF, ASF and high risk samples. [This includes samples from patients suspected or confirmed as having COVID-19.](#)

Glass **MUST** never be transported in the pneumatic tube system.

Alternatively please arrange for a porter to collect and deliver samples.

**At NSECH, WGH and HGH**

There are scheduled transport times from each location to the Microbiology at NTGH. Please see details on next page of when the courier vans operate.

**Urgent transport of specimens from NSECH, WGH AND HGH**

Always contact the Microbiology department if a sample requires urgent processing. Please give the laboratory the following information:

- Patient name
- Patient DOB
- Patient NHS or trust number
- Specimen type
- Contact name and telephone/bleep number for results

**NB: Where urgent sample are taken outside of core hours and there are no imminent scheduled vans to transport the sample, contact the Microbiology department to enable them to arrange transport of the specimen to NTGH.**

**[PLEASE NOTE DURING THE COVID-19 PANDEMIC CRISIS, THERE IS HOURLEY TRANSPORT, 24/7, FROM NSECH TO NTGH MICROBIOLOGY DEPT.](#)**

## **Transport times for Microbiology Specimens from NSECH**

For specimens going to NTGH for processing send the samples to Pathology at NSECH for collection.

### **Scheduled van runs from NSECH Pathology to NTGH**

**Monday to Friday: 08:20/ 09:40/ 11:00/ 11:30/ 12:50/ 13:10/ 14:10/ 15:35/ 16:40/ 18:35**

**Saturday/ Sunday & Bank Holiday: 07:40 / 09:15 / 10:00 / 10:35 / 11:15 / 12:25 / 13:35 / 14:15 / 15:35 / 16:15/ 18:35**

For any urgent Microbiology samples, including blood cultures which are to be sent outside of these scheduled times please contact the Microbiology laboratory. Please send the sample **immediately** to Pathology NSECH for collection.

## **Transport times for Microbiology Specimens from WGH**

### **Scheduled van runs from WGH Pathology to NTGH**

**Monday to Friday- 10:00/ 11:00 /14:40 / 15:00/ 16:00 - from Pathology**

**\*\*Saturday/ Sunday & Bank Holiday - 09:30/ 12:05/ 13:05/ 17:40/ 18:50 from Pathology GOING TO NSECH. Samples will then be forward to NTGH**

**NB From 16:00 to midnight the collection point is in the ECC-7 days per week  
From Midnight to 08:00 contact the Night Nurse practitioner to arrange a collection.**

**NB:** For any urgent Microbiology samples, including blood cultures which are to be sent outside of these scheduled times please contact the Microbiology laboratory and they will arrange transport. The requestor **MUST** ensure samples are packaged and taken to the collection point for transport. This is located at the reception desk in ECC (the former A&E reception desk).

## **Transport times for Microbiology Specimens from HGH**

### **Scheduled van runs from HGH Pathology**

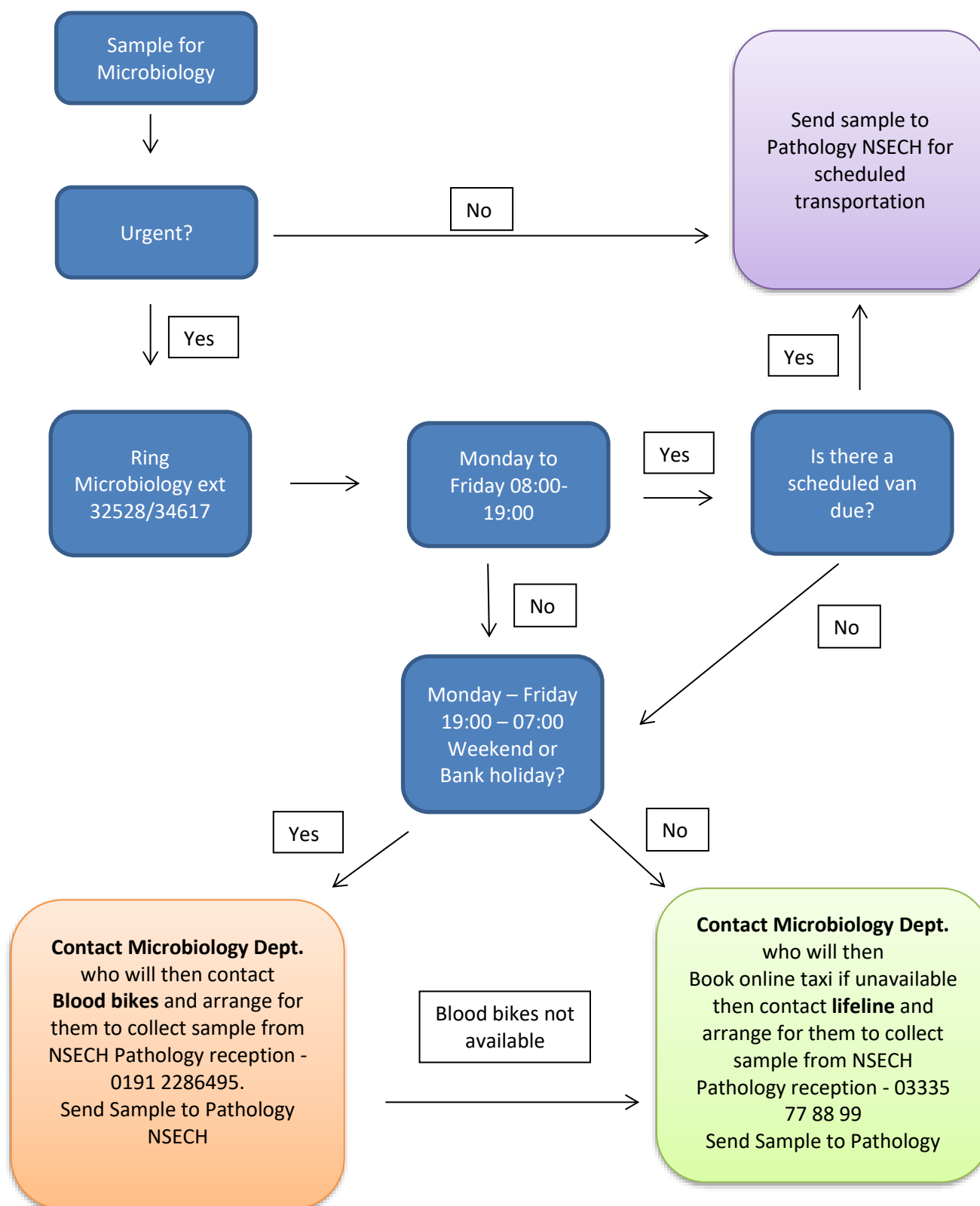
**Monday to Friday- 09:30 / 13:20 / 17:15/ 19:30 - from Pathology**

**\*\*Saturday/ Sunday & Bank Holiday – 11:20 from Pathology GOING TO NSECH. Samples will then be forward to NTGH**

**NB From 19:30 to midnight the collection point is in the ECC – 7 days per week. From midnight to 08:00 contact the Night Nurse Practitioner to arrange a collection.**

**NB:** For any urgent Microbiology samples, including blood cultures which are to be sent outside of these scheduled times please contact the Microbiology laboratory and they will arrange transport. The requestor **MUST** ensure samples are packaged and taken to the collection point for transport.

## Transportation of urgent Microbiology samples from NSECH to NTGH



## Courier contact details

### Blood bikes:

Blood Bikes are available from 7pm to 7am Monday to Friday and at weekends on **0191 228 6495**

If Blood Bikes are contacted; there is no necessity for a Taxi slip. Request a category 2 transport for an urgent request. Clearly state where the sample is to be collected from and where it is to be delivered to. Samples may be sent to Pathology at NSECH or the collection point at WGH and HGH for collection. The driver will give you a completed collection/delivery receipt on arrival

### Connection Express:

If there are no blood bikes then contact Connection on **0191 2130659**, the samples should be sent to Pathology at NSECH or the collection point at WGH and HGH for collection with an accompanying signed taxi slip. Complete a taxi booking form and give the blue copy to the driver with the transport box.

### Taxis:

If Blood Bikes are not available please make an online booking for a taxi. Request urgent transport and clearly state where to collect the sample from and where to deliver it to.

### Life line:

If there are no blood bikes or taxi's available then contact Lifeline on **03335 77 88 99**, the samples should be sent to Pathology at NSECH or the collection point at WGH and HGH for collection with an accompanying signed taxi slip. Complete a taxi booking form and give the blue copy to the driver with the transport box.

### GP surgeries

There are regular scheduled van runs to all GP surgeries through the day Monday to Friday, transporting samples to Microbiology at NTGH. Information is available on request from the [Pathology managers office on 0191 2934005](tel:01912934005).

## Additional tests

If additional examinations are required after the sample has been received by the laboratory please contact the department who will advise accordingly.

Additional tests requests will be dependent upon the length of initial time taken for the sample to arrive in the laboratory, the sample type and the volume of sample stored.

A new request form will be required for additional tests. Please indicate in the clinical details of the request form that the specimen has already been sent to the laboratory and is being stored.

### Microbiology supplies

All supplies including request forms, specimen containers and transport bags are issued by the local Pathology specimen reception departments at NTGH, WGH and HGH. It is important to ensure that requests for supplies are made between the hours of 9am - 4pm Monday to Friday.



## NHS GENERAL

### **Wansbeck General Hospital: Monday – Friday 9am - 4pm**

- By telephone: (01670) 521212 ext. 33758. If no one is available please leave a message on the answer-phone.
- By completion of a laboratory supplies requisition form which may be either emailed or posted.

### **Hexham General Hospital: Monday – Friday 9am - 4pm**

- By telephone (01434) 605001
- By completion of a laboratory supplies requisition form. This may be posted in or faxed to (01434)655017

### **North Tyneside General Hospital: Monday – Friday 9am - 4pm**

- By Telephone : 0344 811 8111 ext. 32031 (Pathology Specimen Reception)
- By completion of a laboratory supplies requisition form This may be posted in.

### **Northumbria Specialist Emergency Care Hospital: Monday - Friday 9am – 4pm**

- By telephone: (01670) 521212 ext. 33758. If no one is available please leave a message on the answer-phone
- By completion of a laboratory supplies requisition form which may be posted or email to [PathologySuppliesNSECH@northumbria-healthcare.nhs.uk](mailto:PathologySuppliesNSECH@northumbria-healthcare.nhs.uk)

**\*\*Please note there is no local provision of supplies at NSECH, supplies are provided from the WGH site. If supplies are required outside of the ordering times, please contact specimen reception at NSECH as they may be able to provide limited supplies but this not guaranteed. Please ensure you have enough supplies in your ward and departmental areas.**

### **General Practitioners: Monday – Friday 9am – 4pm**

- By telephoning your local hospital Pathology Specimen reception.
- By completion of a laboratory supplies requisition form which may be posted or faxed as appropriate to your local hospital Pathology Specimen reception.

## NHS GENERAL

### TEST REPERTOIRE

#### MICROBIOLOGY INVESTIGATIONS

Type of Investigation	Container/Volume	Storage	Investigation Time	Comments	Reference Ranges (where applicable)
Blood culture	Adults: BD aerobic and anaerobic bottles 8-10 mls of venous blood into each bottle  Paediatric: BD Paed bottle 3ml or less of venous blood	NA – should be sent to the laboratory immediately.	Negative culture: 5 - 7 days  Positive culture: 2 days  **Orthopaedic joint fluids in blood culture bottles: 5 – 10 days	Positive cultures will be telephoned to either the ward nursing staff or medical staff.  If clinical advice is required contact a medical Microbiologist.	NA
Chlamydia PCR	Endocervical, Rectal, Throat, Neonatal Eye swab Aptima Multitest swab collection kit	60 days at room temperature for swab	3 days		NA
	Urethral swab Aptima unisex swab collection kit	60 days at room temperature for swab			



# NHS GENERAL

Type of Investigation	Container/Volume	Storage	Investigation Time	Comments	Reference Ranges (where applicable)
	Urine Aptima Urine collection kit	30 days at room temperature for urine	3 days	Fill tube to between the two black lines using the pipette provide. If less volume is received then the specimen will be rejected.	
Carbapenemase PCR	Rectal swab Purple topped liquid transport swab	Refrigeration or room temperature for 3 days	1 day	NA	Must be discussed and authorised by a Microbiologist or Infection Control nurse.
CSF for microscopy and culture	Cerebrospinal fluid Sterile white topped universal bottle pack – available from the Pathology laboratory	<b>URGENT</b> - MUST be sent to the laboratory immediately.	Microscopy including WCC/RBC and cell differential if appropriate, gram stain for organisms processed urgently and results telephoned within 2 hours of receipt  Culture 3 days	Microscopy results will be telephoned to the requester. Cell counts will not be reported and withheld if the specimen is more than 4 hours old on receipt in the laboratory.	<b>**Please telephone the Microbiology lab before sending to arrange urgent processing</b>
Faeces: bacterial and viral pathogens	Blue screw cap container with spoon. At least ¼ of the container MUST be filled	Refrigeration 24 hours	2 - 3 days	¼ of the container MUST be filled or the specimen will be rejected.	NA
Ova, Cysts and Parasites (including Cryptosporidia)			2 - 3 days	Infection control are informed of ALL	

# NHS GENERAL

Type of Investigation	Container/Volume	Storage	Investigation Time	Comments	Reference Ranges (where applicable)
<i>C. difficile</i> (GDH screening)			1 day	Positive <i>C. difficile</i> and Norovirus screens	
<i>H. pylori</i> Stool Antigen			2 days	<b>GDH testing is not covered by the current scope of UKAS accreditation</b>	
Norovirus			1 day		
Fluids: Culture and Microscopy	Ascitic Sterile white topped universal container	URGENT - should be sent to the laboratory immediately.	Microscopy URGENT	Microscopy results will be telephoned to the requester.	<b>**For ascitic fluids please telephone the Microbiology lab before sending to arrange urgent processing</b>
	Peritoneal Sterile white topped universal container		2 - 3 days	Cell counts will not be reported and withheld if the specimen is more than 4 hours old on receipt in the laboratory.	
	Synovial Sterile white topped universal container				
	BAL Sterile white topped universal container		3 days	NA	
	Pleural Sterile white topped universal container				
Fluids: Crystals	Synovial Sterile white topped universal container	URGENT - should be sent to the laboratory immediately.	Microscopy URGENT	Microscopy results will be telephoned to the requester.	

# NHS GENERAL

Type of Investigation	Container/Volume	Storage	Investigation Time	Comments	Reference Ranges (where applicable)
				<b>Crystals is not covered by the current scope of UKAS accreditation</b>	
Fungal	Nails and clippings Skin scrapings Hair  Dermapak collection kit	Room temperature	Microscopy 2 days  21 - 28 days	An interim report will be issued with the Microscopy result.	NA
Gonorrhoea culture and sensitivity	Endocervical and Urethral swabs, Neonatal eye swabs/ Purple topped liquid culture swab	Refrigeration 24 hours	2 - 4 days	Preferably send to laboratory same day as organism is fastidious and may not survive storage	NA
Gonorrhoea PCR	Endocervical, rectal and throat swab. Neonatal eye swab/ Aptima Multitest swab collection kit	60 days at room temperature for swab	3 days	Urine tube MUST be filled with urine using pipette provided to between the two black lines. If less volume is received then the specimen will be rejected.	NA
	Urethral swab/ Aptima unisex swab collection kit	60 days at room temperature for swab			
	Urine/ Aptima Urine collection kit	30 days at room temperature for urine			
Legionella antigen test	1ml Urine/ Sterile white topped container	Refrigeration 24 hours	2 days	Urgent tests can be arranged – please	NA

# NHS GENERAL

Type of Investigation	Container/Volume	Storage	Investigation Time	Comments	Reference Ranges (where applicable)
				telephone the laboratory	
Line tips	4 cms of Tip/ Sterile silver screw cap 60ml universal	Refrigeration 24 hours	2- 3 days	NA	NA
MRSA screening	Nose and groin swab/ White topped dual liquid swab (includes a red swab to take groin swab, then a white swab for nose to be snapped off into the container)	Refrigeration 24 hours	1 - 3 days	Take groin swab with red swab and mix in liquid, and then discard. Take nose swab with white swab and snap off into the liquid.  Infection control is informed of ALL Positive screens.	NA
Orthopaedic samples	Tissue or fluid from the affected area / Sterile white topped container	NA – should be sent to the laboratory immediately.	3 - 7 days	NA	NA
Pneumococcal antigen test	1ml Urine/ Sterile white topped container	Refrigeration 24 hours	2 days	Urgent tests can be arranged – please telephone the laboratory	NA
Pus: Microscopy and culture	Pus - Intra-operative/ Sterile white topped container	URGENT - should be sent to the laboratory immediately.	Microscopy same day  3 - 4 days	NA	*Pus is the preferred sample type to a swab if possible.

# NHS GENERAL

Type of Investigation	Container/Volume	Storage	Investigation Time	Comments	Reference Ranges (where applicable)
	Pus – any other site/ Sterile white topped container	Refrigeration 24 hours			
Sputum: culture and sensitivity	Sputum/ Sterile silver screw cap 60ml universal	Refrigeration 24 hours	3 days	Mucoid samples will be discarded.	NA
Sputum: Microscopy for AFB and TB investigations	Sputum/ Sterile silver screw cap 60ml universal	Refrigeration 24 hours	Microscopy for AFB provisional result within 1 day	Microscopy for AFB and ALL TB culture/PCR are referred to PHE Newcastle (see referred work)	NA
Staph aureus screening	Nose and groin swab/ White topped dual liquid swab (includes a red swab to take groin swab, then a white swab for nose to be snapped off into the container)	Refrigeration 24 hours	1 - 3 days	Take groin swab with red swab and mix in liquid, and then discard. Take nose swab with white swab and snap off into the liquid.	NA
Swabs: culture and sensitivity	Ears, Eyes, wounds/ Purple topped liquid culture swab	Refrigeration 24 hours	2 – 3 days	Swab of the affected area, taking care not to contaminate with commensal/ colonising organisms.	NA
	Throat, mouth		2 days		
	Nose		2 – 3 days		

# NHS GENERAL

Type of Investigation	Container/Volume	Storage	Investigation Time	Comments	Reference Ranges (where applicable)
	Endocervical (CX) and High Vaginal (HVS)		2 – 3 days	CX examined for <i>N. gonorrhoea</i> ONLY HVS examined for routine bacteriology including candida, and Clue cells (BV)	
	Urethral and penile		2 – 3 days	Examined for routine bacteriology including <i>N. gonorrhoeae</i>	
Saline swab	Perianal area	Refrigeration or room temperature up to 48 hours.	3 days	Investigations of Pin worm/ Threadworm ( <i>Enterobius vermicularis</i> )  <b>Not covered by the current scope of UKAS accreditation</b>	NA
Theatre Tissue	Tissue from the affected area / Sterile white topped container	NA – should be sent to the laboratory immediately.	3 - 4 days	NA	NA
Trichomonas PCR	High Vaginal Swab Aptima Multitest swab collection kit	60 days at room temperature for swab	7 days	<b>Not covered by the current scope of UKAS accreditation</b>	N/A

# NHS GENERAL

Type of Investigation	Container/Volume	Storage	Investigation Time	Comments	Reference Ranges (where applicable)
Urine for culture	Adults: Red topped 25ml boric acid universal container/ Fill to the black line	Refrigeration 24 hours	1 – 3 days		Culture:  Doubtful positive culture: 10-100 colonies( $10^4$ CFU/mL)  Positive culture: >100 colonies ( $10^5$ CFU/mL)
	Paediatric, elderly or small sample volumes: Red topped 5ml boric acid container/ Fill to the black line				
Urine for Casts	Urine in a universal container	Refrigeration 24 hours	2 days	<b>Not covered by the current scope of UKAS accreditation</b>	NA
Urine for parasites	Urine in a sterile universal container NOT boric acid.	Examination preferably within 1 hour of collection.  Refrigeration 24 hours if transport to lab delayed.	3 days	Investigation of Schistosomiasis  Collect all urine between 10am and 2pm Alternatively, 24hr collection of terminal urine samples are occasionally taken which may be helpful  <b>Not covered by the current scope of UKAS accreditation</b>	NA



## NHS GENERAL

Type of Investigation	Container/Volume	Storage	Investigation Time	Comments	Reference Ranges (where applicable)
Urine for TB investigations	3 separate Early morning urine (EMU)/sterile white topped universal	Refrigeration 24 hours	Culture: 2 – 12 weeks	**Referred to PHE Newcastle – see referred tests	
Whooping cough ( <i>Bordetella pertussis</i> )	Per nasal swab/ blue topped charcoal trans-swab with fine metal shaft	NA – should be sent to the laboratory immediately.	7 days	Telephone laboratory for Per nasal swabs A blood test for pertussis antibodies is available – see serology tests	NA

## SEROLOGY INVESTIGATIONS

Type of Investigation	Container/Volume	Storage/transport	Investigation Time	Comments	Reference Ranges (where applicable)
Bordetella pertussis toxin IgG/IgM	5-10ml clotted blood	4°C overnight	7 days	Test batched	Reference ranges as advised by reference laboratory <40 IU Negative >100 IU Positive in the absence of vaccination. >40 - 100 IU a repeat sample may be required depending upon date of onset.
Borrelia IgM/IgG (Lyme Disease)	5-10ml clotted blood	4°C overnight	1 – 3 days	Sample must be taken 6 weeks after tick bite.  Reactive specimens sent to reference laboratory for confirmation	N/A

# NHS GENERAL

Type of Investigation	Container/ Volume	Storage/ transport	Investigation Time	Comments	Reference Ranges (where applicable)
CMV IgG, IgM  Avidity testing referred to Newcastle PHE	5-10ml clotted blood	4°C overnight	4 days	Avidity testing may be performed dependent upon the IgG/IgM result and patient information (Avidity testing referred to Newcastle PHE)	N/A
Epstein Barr virus	5-10ml clotted blood	4°C overnight	4 days		N/A
Erythrovirus B19 IgG/IgM (Parvovirus – slapped cheek)	5-10ml clotted blood	4°C overnight	7 days.	Telephone if urgent. If pregnant please give details of pregnancy, date and nature of contact with erythrovirus infection.	Reference ranges as per manufactures guidelines: Parvovirus IgG <3 IU/ml = Not Detected 3 - 5 IU/ml = Equivocal >5 IU/ml = Detected  Parvovirus IgM <10 IU/ml = Not Detected 10-15 IU/ml = Equivocal >15 IU/ml = Detected
Gentamicin assay	5-10ml clotted blood	4°C overnight	1 day	Telephone if urgent. Test batched twice daily.	See Adult Antimicrobial Guide on the intranet <a href="https://viewer.microguide.global/guide/1000000068#content,28b8d096-6809-4f4d-beca-2dad7fc5e6ac">https://viewer.microguide.global/guide/1000000068#content,28b8d096-6809-4f4d-beca-2dad7fc5e6ac</a>
Hepatitis A IgG/IgM (HAV)	5-10ml clotted blood	4°C overnight	4 days		N/A

# NHS GENERAL

Type of Investigation	Container/ Volume	Storage/ transport	Investigation Time	Comments	Reference Ranges (where applicable)
Hepatitis C antibody (HCV)	5-10ml clotted blood	4°C overnight	2 days	Reactive specimens sent to Reference Laboratory for confirmation	N/A
Hepatitis B surface Antigen (HBsAg)	5-10ml clotted blood	4°C overnight	2 days  Urgent results if required in about 4 hours during the normal working day	Reactive specimens sent to Reference Laboratory for confirmation	N/A
Hepatitis B surface Antibody	5-10ml clotted blood	4°C overnight	2 days		Reference ranges as per manufactures guidelines <10 IU/ml = Not Detected 10-100 IU/ml = Detected >100 IU/ml = Detected
Hepatitis B core total	5-10ml clotted blood	4°C overnight	2 days	Reactive specimens sent to Reference Laboratory for confirmation.	
HIV	5-10ml clotted blood	4°C overnight	2 days  Urgent results in about 4 hours during the normal working day.	Reactive specimens sent to reference laboratory for confirmation. Always obtain informed consent and indicate on form	N/A

# NHS GENERAL

Type of Investigation	Container/ Volume	Storage/ transport	Investigation Time	Comments	Reference Ranges (where applicable)
Measles - IgG	5-10ml clotted blood	4°C overnight	3 days		N/A
Pneumococcal and Haemophilus (HIB), antibody test	5-10ml clotted blood	4°C overnight	7 days	Any concerns please contact Consultant Microbiologist	Reference ranges as advised by reference laboratory Pneumococcal antibody protective level: >35 mg/L  HIB antibody protective level: >1.5 mg/L
Procalcitonin (PCT)	5-10ml clotted blood	4°C overnight	1 day	Test performed Monday – Sunday 8am – 5pm. MUST be authorised by Consultant Microbiologist	Please refer to: PROCALCITONIN (PCT) GUIDANCE Diagnosis and Monitoring of Sepsis Available on the intranet
Rubella IgG	5-10ml clotted Blood	4°C overnight	4 days		Reference ranges as per manufactures guidelines <10 IU/ml = Not Detected >10 IU/ml = Detected
Syphilis serology (Treponema)	5-10ml clotted blood	4°C overnight	2 days	Reactive specimens referred to Reference Laboratory for confirmation	N/A
Toxoplasma	5-10 ml clotted blood	4°C overnight	4 days	Positives sent to Reference Laboratory for confirmation	N/A
Varicella zoster	5-10 ml clotted blood	4°C overnight	3 days	NA	NA

## NHS GENERAL

### VIROLOGY INVESTIGATIONS

Type of Investigation	Container/ Volume	Storage	Investigation Time	Comments	Reference Ranges (where applicable)
COVID-19/ SARS-CoV-2 virus	Green topped liquid swab Nose/throat swab	NA – should be sent to the laboratory immediately.	1 day	A PHE request form MUST be submitted with each specimen: <a href="#">request form for requesting COVID-19 acute respiratory disease testing (E28)</a> ,	NA
Herpes PCR (HSV I and II)	Aptima Multitest swab OR Green topped liquid swab of vesicle fluid/ lesion	Refrigeration or room temperature for 3 days	7 days	NA	NA
Influenzae A & B	Green topped liquid swab Nose/throat swab	NA – should be sent to the laboratory immediately.	1 day	NA	NA
Infant respiratory screen – RSV, Flu A & B	Naso -pharyngeal secretions (NPS) Sterile white topped universal container OR Green topped liquid swab Nose/throat swab	NA – should be sent to the laboratory immediately.	1 day	NA	NA

### OTHER/MISCELLANEOUS INVESTIGATIONS

Type of Investigation	Container/ Volume	Storage	Investigation Time	Comments	Reference Ranges (where applicable)
Pregnancy test	Sterile white topped universal 1ml EMU	4°C overnight	2 days	Tested routinely at 25 IU/Litre HCG	Reference ranges as per manufactures guidelines ≥25 IU/L = Positive

## NHS GENERAL

					<25 IU/L = Negative
Semen analysis - Post vasectomy screen	TOXICITY TESTED - Sterile silver screw cap 60ml universal (available from the laboratory) Semen 16 weeks post op and following 20 ejaculates	Urgent – must be transported to the laboratory within 4 hours	1 day	ONLY tested Monday to Friday 08:30-16:30  Semen analysis is not covered by the current scope of UKAS accreditation	NA

## NHS GENERAL

### Tests referred to other laboratories

Test	Referral laboratory	Sample Type	Sample Volumes	Storage of sample until being sent to lab	Comments
<b>16S PCR</b>	Great Ormond Street Hospital	Any sample from a normally sterile site.	0.5 ml fluid or 50mg tissue	Fridge until transport	<b>Do not add any saline, water or other sterile fluids to samples being sent for 16s PCR, no transport media</b>
<b>Acetyl Choline Receptor antibody (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Adenovirus PCR</b>	Microbiology, Freeman Hospital, Newcastle.	Adult: EDTA blood Paediatric: EDTA, stool or urine	Adult: 2 ml Paed: 1 ml	Whole blood EDTA	
<b>Amoebic IFAT serology</b>	Hospital for Tropical Diseases London	Clotted blood (Gold top)	0.5ml minimum	Fridge until transport	
<b>Anti adalimumab</b>		N/A	N/A	N/A	This is a Biochemistry test
<b>Anti –Adrenal antibodies (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	*Referred to Sheffield
<b>Anti infliximab ab</b>		N/A	N/A	N/A	This is a Biochemistry test
<b>Anti- MUSK antibodies (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Anti TNF</b>		N/A	N/A	N/A	This is a Biochemistry test
<b>Anti-Cardiac antibodies (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	*Referred to Sheffield
<b>Antifungal Levels (Itraconazole and Voriconazole)</b>	PHE South West (Myology Ref Unit)	<b>RED TOPPED SERUM TUBE – DO NOT use serum separator tubes with gel plugs</b> (the gel plug absorbs azole drugs and can give false results.)	1-2 mls	Fridge until transport	<p>Tubes are available as Biochemistry use these tubes for some of their tests.</p> <p><b>**Samples MUST be taken at appropriate times:</b></p> <p>Voriconazole (Oral &amp; IV): Pre-dose after 3-5 days</p> <p>Itraconazole (Oral &amp; IV):Pre-dose after 7 days</p>



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Test	Referral laboratory	Sample Type	Sample Volumes	Storage of sample until being sent to lab	Comments
<b>Anti-GAD antibodies (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Anti-Gastric parietal (GPC) (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Anti-Histone antibody</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Anti-Neutrophil Cytoplasmic antibodies (ANCA) (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Anti-nuclear antibody (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Anti-Ovarian antibodies (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>AP100 (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	2 mls	Fridge until transport	MUST be organised in advance – is referred to Newcastle
<b>Aquaporin 4 antibodies (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>ASO (anti-streptolysin-0)</b>	Microbiology, Freeman Hospital, Newcastle.	Clotted blood (Gold top)	2ml adult, 1ml paed	Fridge until transport	
<b>Aspergillus galactomannan Serology</b>	Microbiology, Freeman Hospital, Newcastle.	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Aspergillus precipitins Serology</b>	Cumberland Infirmary	Clotted blood (Gold top)	6 ml	Fridge until transport	
<b>Avian precipitins Serology</b>	Cumberland Infirmary	Clotted blood (Gold top)	6ml	Fridge until transport	

## NHS GENERAL

Test	Referral laboratory	Sample Type	Sample Volumes	Storage of sample until being sent to lab	Comments
<b>Bartonella Serology (Cat scratch)</b>	Norfolk and Norwich University Hospital	Clotted blood (Gold top)	0.5 ml minimum	Fridge until transport	
<b>Bilharzia (Schistosomiasis) Serology</b>	Hospital for Tropical Diseases London	Clotted blood (Gold top) or CSF	0.5ml minimum	Fridge until transport	
<b>BK Virus PCR</b>	PHE Bristol	EDTA (Purple top), Urine	Blood - 5ml adult, 1ml paed	Fridge until transport	
<b>Bordetella confirmation and serotyping</b>	Colindale, PHE, Bacteriology reference department (BRD)	Growth from a plate on swab in charcoal transport medium	N/A	N/A	
<b>Bordetella pertussis PCR</b>	Microbiology, Freeman Hospital, Newcastle.	Blue capped Dry per nasal or throat swab, Green topped viral throat swab  Nasal pharyngeal aspirate if under 12 month	N/A	Fridge until transport	
<b>Borrelia serology (Lyme disease)</b>	Porton Down, PHE	Clotted blood (Gold top)	Minimum 0.5 ml serum	Fridge until transport	
<b>Brucella antibodies</b>	Brucella reference unit. Liverpool PHE	Clotted blood	5ml adult, 1ml paed	Fridge until transport	
<b>C. diphtheriae biotyping and toxigenicity</b>	Colindale, PHE, Bacteriology reference department (BRD)	Pure culture Heavy on Nutrient agar, do not incubate sample send straight away	N/A	N/A	
<b>COVID-19/Coronavirus/SARS-CoV-2 PCR</b>	Microbiology, Freeman Hospital, Newcastle	Green topped viral swab	300uL minimum volume	Fridge until transport	** some sample are currently being referred to another laboratory whilst supply of testing kits is difficult.
<b>Coryne Diphtheria serology</b>	Colindale, PHE, Bacteriology reference department (BRD)	Clotted blood (Gold top)	No less than 200µl	Fridge until transport	
<b>Coxsackie Virus Antibody serology</b>	NHS LABORATORIES NO LONGER PROVIDE THIS TEST. PLEASE DISCUSS WITH A CONSULTANT MICROBIOLOGIST AS TO WHETHER ENTEROVIRUS PCR IS SUITABLE FOR YOUR DIAGNOSTIC REQUIREMENTS.				
<b>C.diff Ribotyping</b>	Leeds	Faeces	n/a		

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Test	Referral laboratory	Sample Type	Sample Volumes	Storage of sample until being sent to lab	Comments
<b>Candida mannan antibodies</b>	PHE South West	Clotted blood (Gold top)	1-2 ml serum	Fridge until transport	
<b>CH50/CH100 (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	2 mls	Fridge until transport	MUST be organised in advance – is referred to Newcastle
<b>Chikungunya Serology</b>	Porton Down, PHE	Clotted blood (Gold top)	Minimum 0.6 ml serum	Fridge until transport	Please include relevant travel information in clinical details. .
<b>Chlamydia pneumoniae serology</b>	PHE Bristol	Clotted blood (Gold top)	200ul	Fridge until transport	
<b>Chlamydia psittaci serology</b>	PHE Bristol	Clotted blood (Gold top)	200ul	Fridge until transport	
<b>CJD CSF</b>	National Creutzfeldt-Jakob Disease Surveillance Unit, Edinburgh	CSF	At least 0.5ml of clear and colourless CSF, if it is blood-stained in anyway this invalidates the test. They do not accept CSF sample with a RCC of greater than 150.	See CJD SOP  It should be frozen within 2-3 hours. A normal -20°C freezer is acceptable but if the lab has a -70°C/-80°C that is better.  Advice from unit: <a href="https://www.cjd.ed.ac.uk/sites/default/files/collectionandstorage.pdf">https://www.cjd.ed.ac.uk/sites/default/files/collectionandstorage.pdf</a>	Ward completes request form and sends this direct to Edinburgh. Edinburgh contacts us when they receive this to organise collection.
<b>CMV avidity (Serology)</b>	Microbiology, Freeman Hospital, Newcastle.	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>CMV PCR</b>	Microbiology, Freeman Hospital, Newcastle.	EDTA (Purple top), or Urine from child (NOT Boric acid)	5ml adult, 1ml paed	Whole EDTA	A white topped urine is required, Boric acid is NOT suitable.
<b>Coccidioides serology</b>	PHE Bristol	Clotted blood (Gold top)	1-2 ml serum	Fridge until transport	
<b>Coeliac – Tissue Transglutminase (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Cryptococcal antigen (Serology)</b>	Microbiology, Freeman Hospital, Newcastle.	CSF or Clotted blood (Gold top)	(Blood) 5ml adult, 1ml paed	Fridge until transport	**Please note patients with positive results will be monitored and tested every 48 hours.
<b>Cryptosporidium genotyping for epidemiology (PCR)</b>	Cryptosporidium Reference Unit, Singleton Hospital	Faeces	Quarter pot	Fridge until transport	

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Test	Referral laboratory	Sample Type	Sample Volumes	Storage of sample until being sent to lab	Comments
<b>Cyclic citrillated peptide (CCP) (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Dengue fever Serology</b>	Porton Down, PHE	Clotted blood (Gold top)	Minimum 0.6 ml serum	Fridge until transport	Please include relevant travel information in clinical details.
<b>ds-DNA (DNA binding)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>E.coli 0157 confirmation, phage typing, vero cyto toxin gene detection</b>	Colindale, PHE, Bacteriology reference department (BRD)	Culture on nutrient agar slope.  Faeces	N/A	N/A	
<b>Ebola (and other VHF) PCR</b>	Porton Down, PHE	EDTA (Purple top)	4.5ml	<b>**IF VHF IS SUSPECTED YOU MUST CONTACT A MEDICAL MICROBIOLOGIST BEFORE ANY SAMPLES ARE COLLECTED**</b>	For paediatric samples, the minimum sample is 1 mL of blood for VHF testing (either screw top bottles or vacutainers are acceptable). However, a full imported infections screen at RIPL may not be possible with this amount and a larger volume is still preferred if possible. Ideally, a urine sample as well. Testing should not be delayed to obtain a urine sample
<b>Echinococcus serology/Hydatid Serology</b>	Hospital for Tropical Disease	Clotted blood (Gold top) and CSF	0.5ml minimum	Fridge until transport	
<b>Endocrine Antibody's</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Entamoeba histolytica serology</b>	Hospital for Tropical Disease	Clotted blood (Gold top)	0.5ml minimum	Fridge until transport	
<b>Enterobacteriaceae further sensitivities if required</b>	Colindale, PHE, Bacteriology reference department (BRD)	Culture on nutrient agar slope.	N/A	N/A	

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Test	Referral laboratory	Sample Type	Sample Volumes	Storage of sample until being sent to lab	Comments
<b>Epstein-Barr Virus PCR</b>	Microbiology, Freeman Hospital, Newcastle.	EDTA (Purple top)	5ml adult, 1ml paed	Whole EDTA, refrigerate 2-8oC	
<b>Ethambutol assay</b>	Cardiff Toxicology	EDTA (Purple top)	2ML	Fridge until transport	
<b>Extractable nuclear antigens (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Farmers lung</b>	Cumberland Infirmary	Clotted blood (Gold top)	6ml	Fridge until transport	
<b>Ganglioside antibody (GM1 and GQ1B) (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	QEH refer to Oxford.
<b>Glomerular basement membrane(GBM) (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	Indication: Rapidly progressive glomerulonephritis (RPGN) and Goodpasture's Syndrome  Can be done urgently – We must ring Gateshead when we receive these to prepare them.
<b>Group A b-haemolytic streptococci (Str. Pyogenes sero typing)</b>	Colindale, PHE, Bacteriology reference department (BRD)	Culture on Chocolate agar slope.	N/A	N/A	
<b>H.influenza serotyping</b>	Colindale, PHE, Bacteriology reference department (BRD)	Culture on Chocolate agar slope.	N/A	N/A	
<b>H.pylori culture</b>	Colindale, PHE, Bacteriology reference department (BRD)	Culture, or Gastric biopsies in sterile saline	N/A	N/A	Check with a microbiologist before sending. Avoid sending samples on Friday.
<b>Hepatitis B confirmation Serology and Hepatitis B core/markers serology</b>	Microbiology, Freeman Hospital, Newcastle.	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	On Saturday the FRH transport tin. The tin is placed in the Stores Reception.
<b>Hepatitis B viral load/core DNA (PCR)</b>	Microbiology, Freeman Hospital, Newcastle.	EDTA (Purple top)	5ml adult, 1ml paed	Fridge until transport	<b>Send ASAP – if storage in fridge/transit exceeds 72 hours test cannot be performed – spin, separate and freeze.</b>
<b>Hepatitis C confirmation Serology IGG</b>	Microbiology, Freeman Hospital, Newcastle.	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	

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Test	Referral laboratory	Sample Type	Sample Volumes	Storage of sample until being sent to lab	Comments
<b>Hepatitis C PCR</b>	Microbiology, Freeman Hospital, Newcastle.	EDTA (Purple top) or Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Hepatitis C Genotype</b>	Microbiology, Freeman Hospital, Newcastle.	EDTA (Purple top)	5ml adult, 1ml paed	Fridge until transport	<b>Send ASAP</b>
<b>Hepatitis D PCR</b>	Colindale, PHE, Virus reference department (VRD)	EDTA plasma (Purple top)	300ul	Fridge until transport	<b>URGENT</b>
<b>Hepatitis D Serology IGG</b>	Colindale, PHE, Virus reference department (VRD)	clotted blood serum (gold top) or EDTA plasma (purple top)	200ul	Fridge until transport	Only send if patient is HBSAG positive
<b>Hepatitis E PCR</b>	Colindale, PHE, Virus reference department (VRD)	EDTA (Purple top) or Clotted blood (Gold top)	300ul	Fridge until transport	Only on medical staff request and IGM positive patients.  <b>URGENT – send ASAP</b>
<b>Hepatitis E Serology IGG and IGM</b>	Colindale, PHE, Virus reference department (VRD)	clotted blood serum (gold top)	100ul	Fridge until transport	
<b>Herpes PCR</b>	Microbiology, Freeman Hospital, Newcastle.	EDTA (Purple top) or CSF	1 ml blood EDTA 400µl CSF	Fridge until transport	
<b>Herpes Simplex 1/2 Antibody (type specific IgM and total antibody)</b>	Microbiology, Manchester University NHS Foundation Trust	Clotted blood (Gold top)	2mL minimum volume of sample	Fridge until transport Delays of over 48hr are undesirable.	
<b>Histoplasma serology</b>	PHE South West	Clotted blood (Gold top)	1-2 ml serum	Fridge until transport	
<b>HIV confirmation Serology</b>	Microbiology, Freeman Hospital, Newcastle.	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>HIV Therapeutic Drug Monitoring</b>	Cambridge, Lab 21	EDTA or Li-Hep plasma	Greater than 2 mls	URGENT	<b><u>We Centrifuge within 4 hours of collection and send plasma – will be rejected if whole blood submitted</u></b>  Request form for Referral lab to be completed by Service user. If submitting more than one sample for the same patient please complete separate test request forms for each time point.

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Test	Referral laboratory	Sample Type	Sample Volumes	Storage of sample until being sent to lab	Comments
<b>HIV Viral Load (PCR)</b>	Microbiology, Freeman Hospital, Newcastle.	EDTA (Purple top)	5ml adult, 1ml paed	Fridge until transport	
<b>HIV-1 Viral Resistance (Protease and Reverse Transcriptase gene analysis)</b>	Cambridge, Lab 21	EDTA plasma (Purple top)	Greater than 2mls	Fridge until transport	Request form for Referral lab to be completed by Service user
<b>HLA-B 5701 (genetic markers for pharmacogenic)</b>	Cambridge, Lab 21	EDTA Whole (Purple top)	Greater than 2mls	Fridge until transport	Request form for Referral lab to be completed by Service user
<b>Human herpes virus 8 - (HHV 8) PCR</b>	Colindale, PHE, Virus reference department (VRD)	EDTA (Purple top) Whole blood unseparated, other samples by arrangement of lab.	5ml adult, 1ml paed	Fridge until transport	Speak to a Microbiologist before sending.
<b>Human Papilloma virus (HPV) screening PCR</b>	Manchester, PHE, molecular microbiology	Cervical smear, swabs, biopsies, paraffin wax sections in Surepath container	600ul	Ambient or Fridge	
<b>Human Papilloma virus (HPV) Genotyping PCR</b>	Manchester, PHE, molecular microbiology	Virus Transport Medium in CE marked leak proof container	N/A	Ambient or Fridge	
<b>Human T-lymphotropic virus (HTLV I and II) Antibody</b>	Colindale, PHE, Virus reference department (VRD)	Clotted serum blood (Gold top)	300ul	Fridge until transport	
<b>IgG Insulin antibodies (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Islet Cell antibody (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Isoniazid assay</b>	Cardiff Toxicology	EDTA Plasma / Serum - no gel	2ml	Fridge until transport	
<b>Legionella species sero typing</b>	Colindale, PHE, Bacteriology reference department (BRD)	Dense suspension in sterile distilled water  Sputum	N/A	n/a	



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Test	Referral laboratory	Sample Type	Sample Volumes	Storage of sample until being sent to lab	Comments
<b>Legionella urine Ag positive</b>	Colindale, PHE, Bacteriology reference department (BRD)	Urine	2ml	Fridge until transport	
<b>Leishmania Serology</b>	Hospital for Tropical Disease	Clotted blood (Gold top)	0.5ml minimum	Fridge until transport	
<b>Leptospiral antibodies (Serology)</b>	Porton Down, PHE,	Clotted blood (Gold top)	Minimum 0.6 ml serum	Fridge until transport	
<b>LGV (Lymphogranuloma, venereum) chlamydia PCR</b>	Colindale, PHE, Virus reference department (VRD)	PCR swab	Minimum of 500µl residual NAAT swab transport medium, or a fresh dry swab	N/A	Patient must be Chlamydia positive
<b>Listeria PCR</b>	Colindale, PHE, Bacteriology reference department (BRD)	Culture on Chocolate agar slope.	N/A	N/A	
<b>Liver auto antibody screen (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Liver specific antigens (Liver Cytosol antibody) (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Mannose binding lectin (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Measles IgM</b>	Microbiology, Freeman Hospital, Newcastle.	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>MOG (Myelin Oligodendrocyte Glycoprotein Abs) (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	QEH refer to Oxford.
<b>MRSA Whole Genome sequencing</b>	Colindale, PHE, Bacteriology reference department (BRD)	Culture on nutrient agar	N/A	N/A	Part of enhanced surveillance for Bacteraemia cases in England.
<b>Mumps IgM and IGG antibody serology</b>	Microbiology, Freeman Hospital, Newcastle.	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Mumps PCR</b>	Colindale, PHE, Virus reference department (VRD)	Oral fluid (Oracol), throat swabs, NPA, urine or CSF	150µl – urine or CSF	Fridge until transport	

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Test	Referral laboratory	Sample Type	Sample Volumes	Storage of sample until being sent to lab	Comments
<b>Mycoplasma genitalium PCR (MgPa/gap genes/macrolide resistance &amp; sequencing*</b>	Colindale AMRHA1	Urine  Unprocessed NAAT swabs/ genital/rectal swabs	3 ml minimum  400µl minimum	10-25oC for no longer than 72 hours	
<b>Mycoplasma total antibody and IGM</b>	Microbiology, Freeman Hospital, Newcastle.	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Myositis antibodies (R052)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>N. Gonorrhoea susceptibility testing</b>	Colindale, PHE, Bacteriology reference department (BRD)	Culture on Chocolate agar slope.	N/A	N/A	
<b>N. Meningitidis PCR</b>	Manchester Royal Infirmary, Meningococcal Reference unit	EDTA Whole blood (Purple top), CSF, pleural fluid.  <b>If CSF is being sent this should be in a small 2ml container not a universal.</b>	Minimum 400µl	Fridge until transport	
<b>N. meningitidis strain characterisation Serotyping</b>	Manchester Royal Infirmary, Meningococcal Reference unit	Culture of organism on Chocolate slope.	n/a	N/A	
<b>Neisseria Meningitidis antibodies serology</b>	Manchester Royal Infirmary, Meningococcal Reference unit	Clotted blood (Gold top)	Minimum 500µl	Fridge until transport	We do not refer for MEN C antibodies. Discuss with a Microbiologist
<b>Neuronal Nuclear antibody screen (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>NMDA – receptor antibodies (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	

# NHS GENERAL

Test	Referral laboratory	Sample Type	Sample Volumes	Storage of sample until being sent to lab	Comments
<b>Orf virus (sore mouth infection) Electron microscopy</b>	Colindale, PHE, Virus reference department (VRD)	Biopsy specimens are preferable for suspected orf. Suitable alternative specimens are either smears of vesicle fluid dried onto a microscope slide, or a piece of crust or biopsy of the lesion placed in a dry sterile container. Please note swabs of skin lesions in liquid media are not recommended for electron microscopy.	N/A	N/A	
<b>Parvovirus IGM confirmation</b>	Colindale, PHE, Virus reference department (VRD)	Clotted blood (Gold top) or EDTA (Purple top)	200ul	Fridge until transport	
<b>Parvovirus PCR</b>	Colindale, PHE, Virus reference department (VRD)	Clotted blood serum (Gold top) or EDTA plasma (Purple top)	150ul	Fridge until transport	<b>URGENT</b>
<b>PCP PCR</b>	Microbiology, Freeman Hospital, Newcastle.	BAL	n/a	Fridge until transport	
<b>Pemphigus / Pemphigoid Epidermal antibody (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Pituitary Gland antibody (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Pneumococcal PCR</b>	Manchester Royal Infirmary, Meningococcal Reference unit,	EDTA blood (Purple top), CSF, pleural fluid	Blood 5ml adult, 1ml paed	Blood, CSF and pleural fluid: Fridge until transport	
<b>Purkinje Cell antibody Part of the neuronal antibody screen) (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	

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Test	Referral laboratory	Sample Type	Sample Volumes	Storage of sample until being sent to lab	Comments
<b>Q Fever/Coxiella (Serology)</b>	Porton Down,PHE,	Clotted blood (Gold top)	Minimum 0.6 ml serum	Fridge until transport	
<b>Quantiferon gold (Interferon gamma release assay)</b>	Microbiology, Freeman Hospital, Newcastle.	Blood packs collect from Lab.	Exactly 1m of blood each tube.	Fridge until transport	Specific blood collection packs to be received at lab by 17:00 on the same day. Mon- Fri only  Must be received within 16 hours of sample collection.
<b>Rabies Serology</b>	Addlestone , APHA ,	Clotted blood (Gold top)	2ML	Fridge until transport	Only send if patient works with bats.
<b>RAST (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	Must specify which allergens on the request form.
<b>Rickettsia Serology</b>	Porton Down,PHE,	Clotted blood (Gold top)	Minimum 0.6 ml serum	Fridge until transport	Information on antibiotic treatment should accompany requests for rickettsial and bacterial studies.
<b>Rifampicin assay</b>	Bristol, southmead,	Clotted blood (Gold top)	5ML	<b>URGENT SEND TO LAB ASAP</b>	
<b>Rubella IgM serology</b>	Microbiology, Freeman Hospital, Newcastle.	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Salmonella species serotyping and phage typing</b>	Colindale, PHE, Bacteriology reference department (BRD)	Culture on nutrient agar slope.	N/A	N/A	
<b>Schistosomiasis – see Bilharzia</b>					
<b>Shigella species identification by molecular typing via whole genome sequencing</b>	Colindale, PHE, Bacteriology reference department (BRD)	Culture on nutrient agar slope.	N/A	N/A	
<b>Soluble Liver antigen antibody (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Staph aureus virulence gene detection (including PVL)</b>	Colindale, PHE, Bacteriology reference department (BRD)	Culture on nutrient agar.	Culture on nutrient agar slope	N/A	

## NHS GENERAL

Test	Referral laboratory	Sample Type	Sample Volumes	Storage of sample until being sent to lab	Comments
<b>Striated Muscle antibody (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Strongyloides serology</b>	Hospital for Tropical diseases London	Clotted blood (Gold top)	0.5ml minimum	Fridge until transport	
<b>Syphilis confirmation Serology (Adult)</b>	Microbiology, Freeman Hospital, Newcastle.	Clotted blood (Gold top)	5ml adult	Fridge until transport	
<b>Syphilis Serology (Paediatric)</b>	Microbiology, Freeman Hospital, Newcastle.	Clotted blood (Gold top)	1ml paed	Fridge until transport	NOT tested in house
<b>Syphilis Full panel (GUM samples)</b>	Microbiology, Freeman Hospital, Newcastle.	Clotted blood (Gold top)	5ml adult	Fridge until transport	
<b>TB Culture</b>	Microbiology, Freeman Hospital, Newcastle.	BAL, bone marrow, CSF, fluids, biopsy, sputum, gastric lavage fluid, urine  Lithium Heparin blood (Green)	5ml adult, 1ml paed	Fridge until transport	
<b>TB PCR</b>	Great Ormond Street Hospital	Any sample from a normally sterile site.	0.5 ml fluid or 50mg tissue	Fridge until transport	Must not have any additional fluid or transport media added.
<b>Teicoplanin Assay</b>	Bristol, Southmead	Clotted blood (Gold top)	5ML	<b>URGENT – SEND TO LAB ASAP</b>	
<b>Tetanus antibodies (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	Indication: Immunodeficiency and vaccine responses.
<b>Tobramycin assay</b>	Microbiology, Freeman Hospital, Newcastle.	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	On Saturday the FRH transport tin. The tin is placed in the Stores Reception.
<b>Toxocara antibodies serology</b>	Hospital for Tropical Disease	Clotted blood (Gold top)	0.5ml minimum	Fridge until transport	
<b>Toxoplasma avidity</b>	Public health Wales, Swansea	Clotted blood (Gold top)	1ml serum is preferred. (Neonates 200µl).	Fridge until transport	<b>Request form must have date of onset and duration of illness.</b>
<b>Toxoplasma IgM</b>	Microbiology, Freeman Hospital, Newcastle.	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	

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Test	Referral laboratory	Sample Type	Sample Volumes	Storage of sample until being sent to lab	Comments
<b>Treponemal/H.ducreyi/ Herpes PCR (Triplex test)</b>	Colindale, PHE, Virus reference department (VRD)	Fresh dry swab or swab in viral transport medium is optimal taken from genital or oral ulcer.  Aptima swabs are accepted.	N/A	Fridge until transport	
<b>Vancomycin Assay</b>	Microbiology, Freeman Hospital, Newcastle.	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	On Saturday the FRH transport tin. The tin is placed in the Stores Reception.
<b>Varicella IgG serology</b>	Microbiology, Freeman Hospital, Newcastle.	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	CMV negative or equivocal samples only
<b>Vibrio species confirmation and serotyping</b>	Colindale, PHE, Bacteriology reference department (BRD)	Culture on nutrient agar slope.	N/A	N/A	
<b>Viral PCR (CSF) (VZ, HSV I and II, Enterovirus and Parachovirus)</b>	Microbiology, Freeman Hospital, Newcastle.	CSF minimum of 200µl	N/A	Fridge until transport	
<b>Viral PCR (Sputum/BAL) Respiratory panel</b>	Microbiology, Freeman Hospital, Newcastle.	Sputum or BAL/ETS/ other Resp sample in sterile container	5ml adult, 1ml paed	Fridge until transport	VPCR on SP/BAL not yet UKAS accredited
<b>Voltage gated calcium antibodies (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>Voltage Gated Potassium antibodies (Immunology)</b>	Immunology Queen Elizabeth hospital, Gateshead	Clotted blood (Gold top)	5ml adult, 1ml paed	Fridge until transport	
<b>VZV (Varicella) IgM</b>	FROM 1 <sup>ST</sup> MAY 2019 THIS TEST IS NO LONGER OFFERED BY THE REFERRAL LABORATOY. PLEASE CONSIDER TAKING A SWAB USING A GREEN TOPPED VIRAL SWAB OF THE AFFECTED AREA; CHICKEN POX OR SHINGLE LESION FOR VZV PCR– SEE BELOW				
<b>VZV (Varicella) PCR</b>	Microbiology, Freeman Hospital, Newcastle.	Viral Swab	N/A	Fridge until transport	

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Test	Referral laboratory	Sample Type	Sample Volumes	Storage of sample until being sent to lab	Comments
<b>Zika PCR</b>	Porton Down,PHE,	EDTA (purple top)  Pregnant women EDTA and Urine sample	4.5ml	Fridge until transport	For symptomatic pregnant women or men whose partners are pregnant, urine (500 µl minimum volume) should be submitted for PCR testing in addition to EDTA plasma.  Relevant travel information to be included.
<b>Zika serology (IGM and IGG)</b>	Porton Down,PHE,	clotted blood (Gold top)	Minimum 0.6 ml serum	Fridge until transport	Relevant travel information to be included



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### Referral laboratory address and contact details

Referral Laboratory contact details	Tests Microbiology Refer to this Laboratory ( <i>and relevant form number if necessary</i> )	UKAS number	Request form information
<b>Animal and plant health agency (APHA)</b>  APHA Weybridge Laboratory Services Department Woodham Lane New Haw Addlestone Surrey KT15 3NB  Tel: 01932 341111 Fax: 01932 347046  DX: 6730602 WEYBRIDGE 90 KT	<ul style="list-style-type: none"> <li>Rabies Serology</li> </ul>	UKAS 1769	
<b>Antimicrobial Reference Laboratory</b>  Level 2, Phase 1, Pathology Sciences Building Southmead Hospital Westbury-on-Trym Bristol BS10 5NB  Tel: 0117 414 6220  DX: 6121302 WESTBURY TRYM 90 BS	<ul style="list-style-type: none"> <li>Teicoplanin assay</li> <li>Rifampicin assay.</li> </ul>	UKAS 8099	

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Referral Laboratory contact details	Tests Microbiology Refer to this Laboratory ( <i>and relevant form number if necessary</i> )	UKAS number	Request form information
<b>Cardiff Toxicology Laboratories</b>  The Academic Centre University Hospital Llandough Penarth Vale of Glamorgan CF64 2XX  Tel: 029 2071 6894 Fax: 029 2035 0142  DX: 6070403 Penarth 90 CF	<ul style="list-style-type: none"> <li>Ethambutol level</li> <li>Isoniazid level</li> </ul>	UKAS 8989	Ensure following information is provided:  Sample Date  Sample Time  Details of Current Medication
<b>Clostridium difficile ribotyping service, Leeds,</b>  CDRN Reference Laboratory c/o Infection Control Laboratory Department of Microbiology, Old Medical School, Leeds General Infirmary, Leeds LS1 3EX  Tel: 0113 392 6775  DX 6281505 LEEDS 91 LS	<ul style="list-style-type: none"> <li>Clostridium difficile, Ribotyping</li> </ul>	UKAS 8157	
<b>Cryptosporidium Reference Unit</b>  Public Health Wales Microbiology ABM Singleton Hospital Sgeti Swansea SA2 8QA  Tel: 01792 285341  DX 6070300 Swansea 90 SA	<ul style="list-style-type: none"> <li>Cryptosporidium Typing</li> </ul>	UKAS 9510	
<b>Cumberland Infirmary</b>  Microbiology Cumberland Infirmary Newton Road Carlisle CA2 7HY Microbiology Tel: (01228) 814642 Virology/Immunology Tel: (01228) 814649  DX: 6940100 CARLISLE 90 CA	<ul style="list-style-type: none"> <li>Aspergillus precipitins Serology</li> <li>Avian precipitins Serology</li> <li>Farmer lung (Serology)</li> </ul>	UKAS 8874	

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Referral Laboratory contact details	Tests Microbiology Refer to this Laboratory ( <i>and relevant form number if necessary</i> )	UKAS number	Request form information
<b>HSL Analytics LLP</b> <b>Department of Clinical Parasitology</b> Hospital for Tropical Diseases Third Floor Mortimer Market Centre Mortimer Market London, WC1E 6JB  Tel: 02073079400 (switchboard) DX: 6640701 Exchange: TOTTENHAM CT RD 91 WC	<ul style="list-style-type: none"> <li>Echinococcus serology/Hydatid Serology</li> <li>Entamoeba histolytica serology</li> <li>Leishmania Serology</li> <li>Toxocara antibodies serology</li> <li>Amoebic IFAT serology</li> <li>Bilharzia (Schistosomiasis) Serology</li> <li>Strongyloides Serology</li> </ul>	UKAS 9702	
<b>Great Ormond Street Hospital</b> Microbiology and Virology Department Level 4 Camelia Botnar Laboratories Great Ormond Street Hospital Great Ormond Street London WC1N 3JH  Tel : 0207 829 8661  DX 6640203 Bloomsbury 91WC	<ul style="list-style-type: none"> <li>TB PCR</li> <li>16s PCR</li> </ul>	UKAS 8675	

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Referral Laboratory contact details	Tests Microbiology Refer to this Laboratory ( <i>and relevant form number if necessary</i> )	UKAS number	Request form information
<b>Immunology, Gateshead.</b>  Clinical immunology Queen Elizabeth Hospital Queen Elizabeth Avenue Sheriff Hill Gateshead Tyne and Wear NE9 6SX  Tel: 0191 4453298  DX 6360701 LOWFELL 90 NE	<ul style="list-style-type: none"> <li>• Immunology Test</li> <li>• Acetyl Choline Receptor antibody</li> <li>• Anti- GAD antibodies</li> <li>• Anti-Adrenal antibodies</li> <li>• Anti-Cardiac antibodies</li> <li>• Anti-Gastric parietal (GPC)</li> <li>• Anti-Histone antibody</li> <li>• Anti-MUSK antibodies</li> <li>• Anti-Neutrophil Cytoplasmic antibodies (ANCA)</li> <li>• Anti-nuclear antibody</li> <li>• Anti-Ovarian antibodies</li> <li>• AP100</li> <li>• Aquaporin 4 antibodies</li> <li>• CH50 (CH100)</li> <li>• Coeliac – Tissue Transglutminase (TTG)</li> <li>• Cyclic citrullinated peptide (CCP)</li> <li>• Ds-DNA (DNA binding)</li> <li>• Extractable nuclear antigens</li> <li>• Ganglioside antibody (GM1 and GQQ1B)</li> <li>• Glomerular basement membrane antibody (GBM)</li> <li>• IgG Insulin antibodies</li> <li>• Islet Cell antibody</li> <li>• Liver auto antibody screen</li> <li>• Liver specific antigens</li> <li>• (Liver Cytosol antibody)</li> <li>• Mannose binding lectin</li> <li>• MOG (Myelin Oligodendrocyte Glycoprotein Abs)</li> <li>• Myositis antibodies (R052)</li> <li>• Neuronal antibody screen</li> <li>• NMDA receptor antibodies</li> <li>• Pemphigus / Pemphigoid (Epidermal antibodies)</li> <li>• Pituitary Gland antibody</li> <li>• Purkinje Cell antibody (Part of neuronal nuclear antibody)</li> <li>• RAST</li> <li>• Soluble Liver antigen antibody</li> <li>• Striated Muscle antibody</li> <li>• Tetanus antibodies</li> <li>• Voltage Gated Calcium antibodies</li> <li>• Voltage Gated Potassium antibodies</li> </ul>	UKAS 9133	

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Referral Laboratory contact details	Tests Microbiology Refer to this Laboratory ( <i>and relevant form number if necessary</i> )	UKAS number	Request form information
<b>Lab 21 Ltd.</b>  Park House, Winship Road, Milton, Cambridge. CB24 6BQ  Tel: 01223 395 450 Fax: 0 1223 395 451  DX:6055300 CAMBRIDGE 94 CB	<ul style="list-style-type: none"> <li>HLA-B 5701</li> <li>HIV 1 – Viral resistance</li> <li><b>HIV Therapeutic Drug Monitoring</b></li> </ul>	UKAS 9325	HIV TDM NOT accredited  Service user completes request form and sends it to Microbiology with samples.  <a href="https://lab21.com/wp-content/uploads/sites/5/2018/12/CLFM-639-v03-Virology-Services-TRF.pdf">https://lab21.com/wp-content/uploads/sites/5/2018/12/CLFM-639-v03-Virology-Services-TRF.pdf</a>  <a href="https://lab21.com/wp-content/uploads/sites/5/2018/08/TDM-Test-Request-Form.pdf">https://lab21.com/wp-content/uploads/sites/5/2018/08/TDM-Test-Request-Form.pdf</a>
<b>Meningococcal Reference Unit, PHE, Manchester</b>  <b>Meningococcal Reference unit,</b> Manchester Medical Microbiology Partnership, Clinical Sciences Building 2, Manchester Royal Infirmary, Oxford Road, Manchester, M13 9WL  Tel: 0161 276 6757  Meningococcal Reference Unit DX 6962410 Manchester 90 M	<ul style="list-style-type: none"> <li>N. Meningitidis PCR</li> <li>N. meningitidis strain characterisation Serotyping</li> <li>Neisseria Meningitidis antibodies serology</li> <li>Pneumococcal PCR</li> </ul>	UKAS 10175	

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Referral Laboratory contact details	Tests Microbiology Refer to this Laboratory ( <i>and relevant form number if necessary</i> )	UKAS number	Request form information
<b>Mycology Reference Laboratory</b> <b>PHE South West Laboratory</b>  <b>Science Quarter</b> <b>Southmead Hospital</b> <b>Bristol</b> <b>BS10 5NB</b>  <b>Telephone: 0117 414 6222</b>  DX:6120200 BRISTOL 90 BS	<ul style="list-style-type: none"> <li>Coccidioides Serology</li> <li>Histoplasma Serology</li> <li>Candida Mannan Serology</li> <li>Antifungal assays (Itraconazole and Voriconazole)</li> </ul>	UKAS 8043	A red topped serum tube <b>MUST</b> be used <b>NOT</b> a yellow topped gel tube.
<b>National Creutzfeldt-Jakob Disease Surveillance Unit</b>  The National Creutzfeldt-Jakob Disease Research & Surveillance Unit Bryan Matthews Building Western General Hospital Crewe Road Edinburgh EH4 2XU  Tel: 0131 537 1980	<ul style="list-style-type: none"> <li>CJD (CSF)</li> </ul>	NOT accredited	Service user on ward completes request form. They send this directly to the National Creutzfeldt-Jakob Disease Surveillance Unit.  The National Creutzfeldt-Jakob Disease Surveillance Unit then contacts lab and they arrange a courier to collect sample.
<b>EPA Microbiology Department</b>  Norfolk & Norwich University Hospital Microbiology Department NRP Innovation Centre Norwich Research Park Colney Norwich NR4 7GJ  Tel: 01603 288587	<ul style="list-style-type: none"> <li>Bartonella Serology (cat scratch)</li> </ul>	UKAS 10296	
<b>Rare and Imported Pathogens laboratory, Porton Down</b>  PHE Microbiology Services Porton Down, Salisbury Wiltshire SP4 0JG  Tel: 01980 612348 (9am - 5pm) Tel:01980 612100 (Oncall)  DX 6930400 Salisbury 92 SP	<ul style="list-style-type: none"> <li>Chikungunya Serology</li> <li>Dengue fever Serology</li> <li>Ebola (and other VHF) PCR</li> <li>Leptospiral antibodies (Serology)</li> <li>Q Fever/Coxiella (Serology)</li> <li>Rickettsia Serology</li> <li>Zika serology</li> <li>Zika PCR</li> <li>Lymes disease (Borrelia serology)</li> </ul>	UKAS 9304	



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Referral Laboratory contact details	Tests Microbiology Refer to this Laboratory ( <i>and relevant form number if necessary</i> )	UKAS number	Request form information
<b>Virology Reference Laboratory</b> <b>PHE South West Laboratory</b>  Science Quarter Southmead Hospital Bristol BS10 5NB  Telephone: 0117 414 6222  DX: 6121302 WESTBURY TRYM 90 BS	<ul style="list-style-type: none"> <li>BK Virus PCR</li> <li>Chlamydia psittaci serology</li> <li>Chlamydia pneumoniae serology</li> </ul>	UKAS 8043	
<b>Toxoplasma reference laboratory</b>  Public Health Wales Microbiology ABM Singleton Hospital Sgeti Swansea SA2 8QA  Tel: 01792 285058  DX 6070300 Swansea 90 SA	<ul style="list-style-type: none"> <li>Toxoplasma avidity</li> </ul>	UKAS 9510	Request form must have date of onset and duration of illness.
<b>Virus Reference Department (VRD)</b> 61 Colindale Avenue London NW9 5HT  Tel: 020 8327 6017  PHE Colindale Viral Reference DX 6530006 Colindale NW	<b>Blood borne viruses unit (BBVU) Colindale PHE</b> <ul style="list-style-type: none"> <li>Hepatitis D PCR</li> <li>Hepatitis E PCR</li> </ul> <b>Human papillomavirus and hepatitis C virus reference unit (HPHCU)</b> <ul style="list-style-type: none"> <li>Orf virus (sore mouth infection)</li> <li>Electron microscopy</li> </ul> <b>Immunisation and diagnosis unit (IDU)</b> <ul style="list-style-type: none"> <li>Parvovirus PCR</li> </ul> <b>Clinical Services unit (CSU)</b> <ul style="list-style-type: none"> <li>LGV ( lymphogranuloma venereum) chlamydia PCR</li> <li>Treponemal PCR</li> <li>Hepatitis D Serology IGG</li> <li>Hepatitis E Serology IGG and IGM</li> <li>Parvovirus IGM confirmation</li> <li>Human T-lymphotropic virus (HTLV I and II) Antibody</li> <li>Human herpes virus 8 - (HHV 8) PCR</li> <li>Mumps PCR</li> </ul>	UKAS 8825	

## REPORTING OF RESULTS

### Urgent results

Urgent test results, such as Microscopy on a CSF sample, will be telephoned immediately after processing to the requestor and an interim report sent out.

### Written reports

Hard copies of reports are printed and dispatched each day to destinations that still require or receive hard copies.

### Electronic reports

Authorised reports are reported through ICE every 5 minutes, and available for users to view.

Authorised reports reported to MESH every 15 minutes. Each GP surgery has their own schedule as to how often they receive results from MESH, and therefore it may take a period of time for these results to appear on the third party GP lab link system. It is therefore recommended to check ICE for patient results as the system is configured to update at more regular intervals.

### Referred tests reports

Reports from referral laboratories will be copied and transcribed onto the LIMS system and will include all essential information supplied by the referral laboratory including test result, comments and name of the laboratory performing the test. Checking procedures are in place to ensure accuracy of transcription. The report will then be sent to the requestor electronically, a written report will be made available if required.

### Interim reports

Interim reports may be issued under the following circumstances:

1. Paediatric blood cultures 48 hours after receipt of sample.
2. Gram stains results for Positive Blood cultures.
3. Referred specimens
4. Fungal microscopy
5. Notifying user when a report is delayed which could compromise patient care.
6. Urgent Gram stain and cell count results.

Interim reports give the user initial information that may affect patient management, whilst a final report is still pending.

### **Final reports:**

Final reports are released for ALL samples when ALL tests and investigations are complete.

### **Additional reports**

- Outstanding or further technical work has been completed
- When requested by a user
- Results are received from a reference laboratory

### **Amended reports**

Amended reports will be issued when:

- Where an error has been discovered in the original report content.  
A comment will be added to these reports to notify the user that the report has been amended with details of the changes to the report.  
In all of these circumstances the laboratory will contact the user to inform them of the amended report and request that any hard copies of the original report with errors are discarded.

Original electronic reports on ICE will be hidden from users by the laboratory.

\*please note that in the event of an amended report the laboratory is unable to remove or hide original reports with errors on GP lab links and Blithe Lillie GUM links.

### **Requests for duplicate previously authorised reports**

Duplicate authorised reports may be reissued when:

- Requested by the user
- Original report has not been received by the user
- Report needs to be sent to another location
- Audit purposes

### **Result enquiries**

Please check electronic GP lab links or ICE before contacting the laboratory for results.

If you are unable to locate the result you require and it is essential that you have the result to make a decision on the management of a patient, and then contact the laboratory as detailed in the contacts section of this Handbook.

### **Interpreting laboratory results**

Interpretation of results, and the reference range (where appropriate), is given as a comment on the report. If further advice is required please contact the laboratory.

Please refer to the test repertoire tables for individual test information, reference ranges and interpretation where applicable.

### **Uncertainty of measurement and results**

The laboratory must ensure that there are no adverse effects which may compromise the certainty of results obtained within Microbiology. There are various factors that can

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influence the precision of the microbiological results and require appropriate quality control procedures to minimise variation. Sources which may have an effect on the microbiology results include:

- Sampling and transportation – The method of sampling must be appropriate to the specimen type as stated in this user Handbook. The sample must be transported to the laboratory in a timely manner under suitable conditions. Any delay in the receipt of the sample arriving in the laboratory may affect the quality of the result.
- Storage time and temperature of sample - the sample must be suitably stored on receipt until the analysis is performed.
- Method of analysis – All methods used within the laboratory have been appropriately validated and verified. The laboratory subscribes to a number of External Quality Assurance schemes to ensure the proficiency of testing.
- Culture media and reagents –internal quality control is performed on all reagents used within the laboratory to ensure consistency of performance. There are performance sheets available for all culture media used in the laboratory. Daily temperature monitoring is undertaken to ensure that media and reagents are stored under the correct conditions and expiry dates are monitored on a weekly basis.
- Analysis of samples – internal quality control is performed on all reagents and kits prior to use within the laboratory.
- Equipment – all equipment including analysers are regularly maintained, calibrated where appropriate and quality controlled to ensure the accuracy and precision of the results.
- Personnel – all Biomedical Scientists undertake regular competency assessments appropriate to their grade to ensure they are proficient in the testing repertoire. They are all registered with the Health and Care Profession Council (HCPC) and undertake Continuous Professional Development (CPD) and can be audited by the HCPC at any time.

### Factors that may affect results

Delay in transport:

May affect the viability of pathogens and allow overgrowth of normal flora or contaminating organisms. Morphological appearance of cells may also be affected.

Excessive temperatures:

#### **Serology**

Leave fresh blood at room temperature to clot. Do not freeze or overcool any whole blood samples.

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### **Bacteriology**

Increases in temperature may increase bacterial activity leading to misleading high counts for pathogens (fluids) or overgrowth of normal or contaminating flora (swabs). Excessive high or low temperatures may kill the target organisms.

Inappropriate specimen, site or transport medium:

If the specimen is taken from the wrong site (e.g. vaginal rather than cervical), or it is the wrong type of specimen (e.g. swab rather than pus), or it is placed into the wrong transport medium (e.g. viral transport rather than bacterial transport) then optimal recovery of the target organisms will not be possible.

Clinical Information:

It is essential that appropriate clinical information is supplied. This will include the specific anatomical site, the nature of the sample, and history of foreign travel, occupation if relevant, and contact with animals. Failure to provide relevant information may mean that the most appropriate investigation is not performed.

Haemolysis:

Severe haemolysis may compromise the results of serology assays.

Onset of illness:

There are some serology tests where the onset of illness needs to be specified as this will affect results and interpretation of results.

The Pathology Dept. has a [Procedure for the determination of Measurement uncertainty in Pathology QP-PAT-GEN-G-013](#) and an [annual Review of measurement of uncertainty for Microbiology QD-MIC-GEN-N-002](#) which provides contemporary data as to current figures, which is available on request.

## **QUALITY ASSURANCE AND GOVERNANCE**

### **Quality Assurance:**

The Microbiology laboratory aims to provide the highest quality service to our users, in the timeliest manner possible. The laboratory is registered with External Quality Assurance Schemes (EQA) for all tests offered in the test repertoire. Internal quality control is performed on all tests and kits.

**Accreditation status:**

The Microbiology department is accredited by the United Kingdom Accreditation Service (UKAS) to ISO 15189 standards for the repertoire of tests unless otherwise indicated, the national accreditation body for the UK. This is a national standard for Medical laboratories to ensure the service meets the requirements necessary for quality and competence. For more information on the accreditation process please visit the UKAS website: <http://www.ukas.com/services/accreditation-services/medical-laboratory-accreditation-iso-15189/>.

Where feasible referred samples are sent to a UKAS accredited laboratory for diagnostic or confirmatory testing. Accreditation status of referral laboratories are regularly checked to ensure they remain compliant with the accreditation process as well as ensuring their EQA performance is satisfactory.

When the department or referral laboratory changes a test or procedures it may result in that test having to be taken out of scope until UKAS have undertaken an assessment of the test to allow it to be included in the scope. In the event that this does occur the laboratory will notify the user and any report issued will indicate that the current test is not currently in scope and therefore not accredited.

Information regarding the department's verification and validation process of the test repertoire is available on written request from the Pathology Quality Manager.

**Information Governance**

The management of information security and confidentiality is essential and important to the service provided.

All data and information received, processed and produced within the laboratory is subject to the Data Protection Act 2002, Northumbria Healthcare NHS Trust confidentiality policies and Caldicott guidelines. The Trust has a Caldicott guardian and the Pathology department has a Clinical Governance lead.

The Trust has policies and procedures in place to cover all Information Governance areas including security of information and data protection, the use of email and internet, confidentiality and risk management.

All employees of the Trust and therefore individuals pertaining to the laboratory are subject to these strict policies concerning information governance and confidentiality. If an employee were to breach these policies in any form thereby disclosing personal information to unauthorised individuals, this would be gross misconduct and disciplinary action will be taken. The laboratory and individual staff members can be prosecuted.

**Concerns and Complaints**

The trust has a Complaints Policy and Procedure for raising Concerns Policy (RMP14). Concerns and complaints can be raised verbally or in writing with the Pathology Operational Services Manager, departmental manager or via the Patients Services:

## NHS GENERAL

- Patient Advice and Liaison Service (PALS)
  - Email: [northoftynepals@nhct.nhs.uk](mailto:northoftynepals@nhct.nhs.uk)
  - Telephone: 0800 0320202
  - Address: Freepost PALS
  
- Northumbria Healthcare NHS Foundation Trust
  - Email: [complaints.patientservices@northumbria.nhs.uk](mailto:complaints.patientservices@northumbria.nhs.uk)
  - Telephone: 0191 2031340
  - Address: Freepost PATIENT SERVICES

The department encourages users to raise any concerns to ensure the continued provision of the highest quality service possible. We endeavour to resolve any issues raised as quickly as possible.

### Changes to our service

In the event that there are changes to the test repertoire, reference ranges of tests or procedures, the department will inform Users via the Trust's communications bulletin and distribution of memos.

This Handbook is regularly review and updated to reflect any changes that may have occurred.

## REFERENCES

1. European committee on Standardisation. Medical laboratories – Requirements for quality and competence (ISO 15189:2012). British Standards Institution. 1-50. 2012.
2. Public Health England. (2016) National user manual template. UK standards for Microbiology investigations. U 1 Issue 1. <https://www.gov.uk/uk-standards-for-microbiology-investigations-smi-quality-and-consistency-in-clinical-laboratories>