



## Microbiology and Specialist Virology Services User Handbook





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## About our services

The department of infection provides a full clinical service for the diagnosis of infection, which includes bacteriology, virology, serology, parasitology, mycology, molecular epidemiological studies to UHS, other NHS Trusts, general practitioners and local authorities.

Specialist sections include:

- antimicrobial chemotherapy, carrying out antibiotic assays and sensitivity tests on clinical isolates
- mycology, providing diagnostic mycology, medical parasitology and fungal serology services
- molecular diagnostics unit providing rapid identification of bacterial pathogens directly from various patient specimens, by detection of DNA
- microbiological and epidemiological information, advice and support to consultants in communicable disease control and their colleagues in Public Health Medicine; local surveillance and special studies in infectious disease
- microbiological support for the control of infection function; investigation and support in the community and during national outbreaks of infection.
- The Southampton specialist virology centre (SSVC) offers specialist virology diagnostic testing

## Core Service Hours

Monday to Sunday including bank holidays, 09:00 to 17.30

During normal laboratory hours please telephone urgent requests to the main enquiry number and the call will be directed to the appropriate member of staff in the laboratory to ensure priority processing. Either bring the specimen to the laboratory reception yourself or arrange urgent transport. Details of the out of hours service may be found below.


## Out of hours service

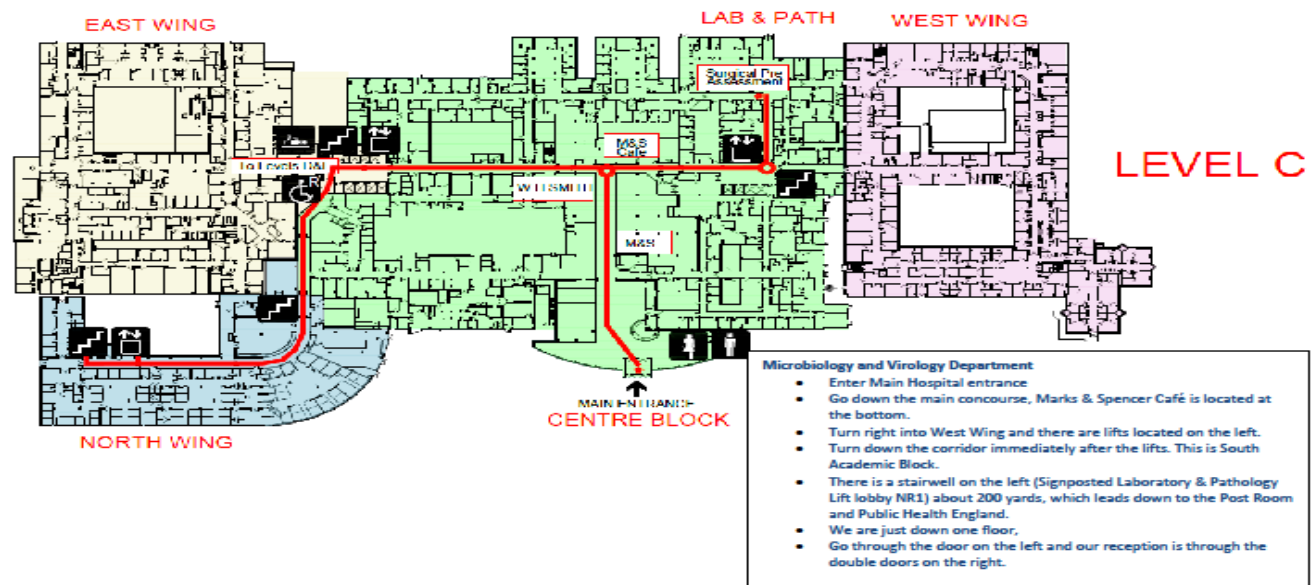
- There is a small team of staff on site to process some clinically urgent samples
- Urgent specimens can be processed if requested and agreed criteria satisfied, depending on availability of competent staff
- These requests need to be phoned and discussed directly with the laboratory on a case-by-case basis



## Location of laboratory

### C LEVEL HOSPITAL MAP

University Hospital Southampton 





### Key contacts:

All Enquiries: **023 8120 6408**

|  |                        |
|--|------------------------|
| UHS clinical services lead for the department of infection / consultant medical microbiologist & infectious diseases / microbiology/ID training programme director for Wessex. | Dr Julian Sutton       |
| Laboratory manager   | Rebecca Allen          |
| Laboratory lead for bacteriology / consultant medical microbiologist   | Dr Kordo Saeed         |
| Consultant medical microbiologist  | Dr Sarah Glover        |
| Consultant medical microbiologist / Infection control doctor   | Dr TatShing Yam        |
| Consultant medical microbiologist & infectious diseases  | Dr Andrew Rosser       |
| Consultant medical microbiologist  | Dr Nitin Mahobia       |
| Consultant medical microbiologist  | Dr Tom Cusack          |
| Laboratory lead for Virology/Consultant medical virologist   | Dr Emanuela Pelosi     |
| Consultant medical virologist  | Dr Eleri Wilson-Davies |

### Availability of Clinical Advice

Consultation about investigation and management of infection is welcomed.

- For advice on diagnosis and the interpretation of microbiology results and antimicrobial use contact the main enquiry number
- A senior member of medical staff is always available
- Outside normal hours of service medical staff may be contacted through the hospital switchboard



## Completion of the request form

Microbiology and virology tests can only be carried out when the appropriate request forms are used. N.B. Additional tests in other disciplines, e.g. for histological testing, require that a separate sample and the appropriate form are sent for that purpose.

A request form must accompany all specimens sent to the laboratory and should clearly state the following information:

- NHS number
- Patient name and full address
- Date of birth
- Sex
- GP/Consultant code (preferred) or name
- Surgery/Ward code (preferred) or name
- Type of specimen
- Date and time specimen taken
- Tests required
- All relevant clinical details including any antimicrobial treatment (recent, current and intended) and foreign travel. Also, indicate if patient is pregnant and if so provide EDD
- Risk status of patient should be clearly stated
- Date of onset and duration of illness, particularly for serology
- Signature of requester
- For antimicrobial assays: provide date of last dose of antimicrobial and time given and dose
- For wound specimens: detail anatomical site from which "wound" specimens were taken
- Supply useful epidemiological information e.g. with children and ? shigella sonnei -give the name of the school  
with adults and ? salmonella -give the place of work and occupation
- ? Campylobacter, Giardia, Cryptosporidium – state if contact with livestock or external water sources e.g. recreational or work related

## Specimen collection

The best results are obtained when an appropriate, correctly taken specimen, in the proper container, is delivered to the laboratory promptly and relevant clinical information is provided on the request form.

Guidelines on specific samples may be found in **A to Z of diagnostic tests and investigations (Appendix)**, but in general:

- Do not send specimens in non-sterile containers
- Containers should be leak proof and CE marked
- Specimens should be obtained before antimicrobial agents have been administered
- An adequate quantity of material should be obtained for complete examination
- Always send pus rather than a swab of the pus



- The specimen taken should be representative of the disease process. For example, material swabbed from the opening of a sinus tract is more likely to yield commensal micro-organisms on the skin than would material obtained by curettage or biopsy of the base of the tract
- Care must be taken to avoid contamination of the specimen by micro-organisms normally found on the skin and mucus membranes. Sterile equipment and aseptic technique must be used for collecting specimens, particularly for those from normally sterile sites
- Material must be transported promptly to the laboratory. Fastidious organisms may not survive prolonged storage or may be overgrown by less fastidious organisms before culturing
- Please contact the laboratory if there is any doubt about the best specimen to take or concerning the availability of a test
- Occasionally further tests are required on samples that have already been received by the laboratory. The laboratory uses 'The Retention and Storage of Pathological Records and Specimens (5th Edition 2012)' for guidance on retaining samples for testing. However, depending on the nature of the sample and its viability after storage some clinically important samples are kept for longer e.g.CSF

### Tests - key responsibilities

1. Ensure the appropriate test has been requested for the suspected infection
2. Ensure the correct amount of the correct specimen in the correct container is sent for any given test (see A-Z of Tests)
3. Ensure the details on request form and specimen correspond
4. Ensure prompt transportation of specimen to laboratory
5. Ensure high risk specimens are appropriately marked and transported
6. Ensure that the laboratory is notified in advance about urgent specimens
7. Ensure the specimen request form contains all appropriate information, full clinical details and correct contact details
8. Ensure tests are not requested in duplicate
9. It is the responsibility of the requestor to check results in a timely fashion

### High risk specimens and safety

- a. Specimens are regarded as HIGH RISK if taken from patients known to be infected with a serious infectious disease such as tuberculosis or typhoid, or from those at risk of being infected by one of these agents. These specimens must be labelled as HIGH RISK on the container and the request form.
- b. The appropriate yellow sticker 'DANGER OF INFECTION' must be used. The specimen must be placed in a biohazard bag.
- c. Great care must be taken in obtaining specimens. Equipment such as needles and blades must be immediately disposed of safely in approved sharps boxes.



- d. Should a spillage occur of blood, fluids, tissues, or other specimens, this should be made safe and disposed of no matter what the risk status of the patient is.
- e. Specimens should be transported to the laboratory as rapidly as possible after collection to allow for the most accurate interpretation of results
- f. Ensure appropriate action is taken for abnormal results and seek senior/ microbiological advice in interpretation of test results/ treatment if unsure.
- g. Turnaround times will vary depending on the test
- h. For best results, please ensure the correct type of specimen is sent in the correct container
- i. Please note that availability for some tests is restricted and requires prior discussion/ authorisation by a microbiologist/ virologist
- j. For electronic requesting via e-QUEST: we have endeavoured to provide e-QUEST testing codes [in brackets] where possible
- k. If unsure as to how to interpret a result, contact us. Please be ready with a full clinical history, up to date clinical data and recent antimicrobial treatment details before you call

### **Why has my specimen been rejected?**

Specimens are only rejected for valid reasons:

- Inadequately labelled/unlabelled specimen
- Labelling error/discrepancy (for example, between specimen and request form)
- Unsuitable specimen or unsuitable specimen container
- Leaked specimen
- Contaminated specimen
- Lack of/no relevant clinical information on request form

### **Transportation of samples**

- Specimens should be placed in the appropriate container which must be securely fastened. This must be placed in a clear plastic bag and sealed and transported to specimen reception in an approved secondary container together with absorbant material
- Hand written request forms should be placed in the side compartment with the card folded inwards to help preserve request confidentiality
- Request forms must not be placed in the same compartment as the sample
- All high risk specimens should be placed in a biohazard bag
- If a specimen is to be posted the packaging must comply with postal regulations <https://www.hse.gov.uk/biosafety/blood-borne-viruses/transportation-of-infectious-substances.htm>
- Specimens are transported to level D pathology reception before being distributed to the microbiology/virology laboratory





- Specimens may not be suitable for testing if they are so inadequately labelled that the patient's identification is in doubt, or if they have leaked, been contaminated or if no relevant clinical information is given with the request
- Rapid inpatient e.g. COVID samples may need to be brought directly to the laboratory

### Results reporting

- Validated results are reported electronically to results server at UHS.
- Electronic reports are produced for GP sources every hour for delivery via EDI PMIP services.
- Hard copy reports for valid locations are printed and dispatched every working day, including Saturdays. Apart from negative urines which can be reported after one working day, most bacteriology culture results are reported after 2-5 days, depending on the investigation. Serology/immunology, virology and reporting depends on the frequency of testing and the urgency of the request.
- In order to provide the most clinically beneficial, operationally efficient and cost effective service, the laboratory employs a number of multiplex assays and it is normal practice to use these even when not all tests within the multiplex are requested. It is our policy to report all results along with the requested result to provide as much information as possible to aid diagnosis.

### Telephoning of Urgent and Significant results

Results of urgent requests and results which may aid the immediate patient management will be telephoned. This includes all likely true positive blood cultures and CSFs. Certain results may be rapidly available, and to aid the management of certain infections will be telephoned when they become available. Examples are:

- Gram stain on CSF, pus from abscesses or empyema
- Ziehl-Neelsen or phenol-auramine stain for acid and alcohol-fast bacilli
- Direct immunofluorescence test for pneumocystis carinii in broncho alveolar lavage specimens

### CSF/fluid/tissue/pus etc

- At the time of request, the requester will be informed that the result will be on the computer system as soon as possible after receipt. No results will be telephoned. The result will be entered onto the computer and the following laboratory comment will be added: 'Sample processed on-call. Please refer to empiric guidelines if treatment required. If unsure what action to take please consult a senior member of your clinical team in the first instance. A senior member of the clinical team should contact an infection/microbiology doctor via switchboard if they require further advice.'
- For advice on diagnosis and the interpretation of microbiology results, antimicrobial use, infection control including the use of containment facilities, contact the duty NHS medical microbiologist via the Southampton General Hospital switchboard



### **Quality assurance**

Samples from National Quality Assurance schemes are analysed routinely within the department. The laboratory is assessed by UKAS to the ISO15189 accreditation number: 8403

There is a quality management system in place and the department participates fully in this process.

The microbiology laboratory is accredited for the training of biomedical scientists by the Institute of Biomedical Science (IBMS).

### **Patient confidentiality**

All staff working for Pathology have a legal duty to keep information about patients and staff members confidential and to protect the privacy of individuals. All staff adhere to the Trust's data protection and confidentiality policy and are mandatorily required to perform annual Information governance training.

### **Complaints handling procedure**

University Hospital Southampton complaints team, comprised of a complaints manager and complaints coordinators, can be contacted via email at [complaints@uhs.nhs.uk](mailto:complaints@uhs.nhs.uk) or via email at [pals@uhs.nhs.uk](mailto:pals@uhs.nhs.uk). Contact telephone number is 02381206325 or write to Patient advice and liaison service (PALS), Mailpoint 81, Southampton General Hospital, Tremona Road, Southampton, SO16 6YD



## A to Z of diagnostic tests and investigations (Appendix)

# Diagnostic tests and investigations

- This is an alphabetical listing of all the diagnostic tests offered by the laboratory
- This consists of tests performed onsite and tests that are referred to a reference laboratory

| Test  | Specimen   | Container               | Required volume | Laboratory | Turnaround time | Additional information   |
|---|--|-------------------------|-----------------|------------|-----------------|--|
| Adenovirus PCR<br>(Qualitative assay)   | Respiratory secretions (NPA, Throat Swabs, BAL), Eye swabs, Blood(serum) | Sterile Universal       | Minimum 200 µl  | SGH        | 3 days          |  |
| AFB (acid-fast bacilli)   | See under <a href="#">Mycobacteria</a>                                   |                         |                 |            |                 |  |
| Amikacin assay  | See under <a href="#">Antibiotic Assays</a>                              |                         |                 |            |                 |  |
| Amoebic serology [e-QUEST: Amoebiasis Reference Test]   | Blood (serum)  | Clotted blood (red-top) | 5-10 ml         | Reference  | 28 days         | .  |
| Ano-genital ulcer PCR   | Swab   | Swab in VTM             |                 | SGH        | 2 days          |  |
| Antenatal serology [e-QUEST: Antenatal screen] (Full screen consists of: Syphilis IgG, Hepatitis BsAg, HIV) | Blood (serum)  | Clotted blood (red-top) | 5-10 ml         | SGH        | 7 days          | Equest ordering:<br>- Select [Partial Antenatal screen] for patients declining HIV test<br><br>- Select [Minimal Antenatal] for patients declining HIV and HepBsAg |



|   |  |  |                 |           |        |  |
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| Anthrax (serology/ isolation/ PCR)  | Blood (serum)  | Clotted blood (red-top)  | 5-10 ml (blood) | Reference | 5 days | Consult microbiology to arrange & discuss request  |
| <b>Antibiotic Assays</b>  | <ul style="list-style-type: none"> <li>• Please <b>HANDWRITE</b> on the request form, the exact time that blood is drawn.</li> <li>• Vancomycin, gentamicin and tobramycin levels are processed in biochemistry 24 hours-a-day.</li> <li>• Other antibiotic assays are NOT performed on-call [2000-0900 hours].</li> </ul> |  |                 |           |        |  |
| <b>Amikacin</b> pre-dose (trough) & post-dose (1 hour after drug has been given)  | Blood (serum)  | Clotted blood (red-top)  | 5-10 ml         | Reference | 7 days | Conventional 2-3 times daily dosing: aim for a pre-dose of <10mg/l, post-dose of <30mg/l.<br><br>Once daily dosing: aim for a pre-dose of <5mg/l |
| <b>Teicoplanin</b> pre dose. Post-dose and random levels are NOT routinely needed. Loading dose regimen essential and wait for one week before testing level. | Blood (serum)<br><br>Equest ordering:<br><br>Select a<br><br>[Teicoplanin pre dose]  | Clotted blood (red-top)  | 5-10 ml         | Reference | 7 days | Aim for pre-dose of 20-25mg/l but <60mg/l.<br><br>Typical dosing not less than 6-8mg/kg daily.   |
| <b>Antibiotic Assay (OTHER)-not listed above</b>  | Blood  | Clotted blood (red-top)<br><br>or Sodium Oxalate Tube (Grey Top) for Isoniazid | 5-10 ml         | Reference | 7 days | Consult microbiology to arrange & discuss request.<br><br>For Isoniazid sampling <u>please refer to guidelines</u>                               |
| Anti DNase B<br><br>[e-QUEST: Anti- DNase B titre]  | Blood (serum)  | Clotted blood (red-top)  | 5-10 ml         | SGH       | 3 days | Please state date of onset.  |



|  |  |  |                               |           |                 |   |
|--|--|--|-------------------------------|-----------|-----------------|---|
| ASO titre<br>[e-QUEST:Anti streptolysin O titre]   | Blood (serum)                                      | Clotted blood (red-top)                          | 5-10 ml                       | SGH       | 3 days          | Please state date of onset.   |
| Antral washings  | Washings   | Sterile Universal                                | 1 ml minimum                  | SGH       | 3 days          | Please specify if fungal culture needed.  |
| Ascaris microscropy  | See under <a href="#">Faecal Parasitology/ OCP</a> |  |                               |           |                 |   |
| Aspergillus PCR/ antigen (galactomannan)   | Blood (serum)                                      | EDTA blood (purple top)                          | 5-10 ml                       | Reference | 3 days          | Consult microbiology to arrange & discuss request   |
| Aspirates (eg joint)   | Aspirate/ fluid                                    | Sterile Universal                                | 1 ml minimum                  | SGH       | 3 days for MC&S | Please specify if mycobacterial investigations needed.  |
| <b>Arboviral serology and PCR</b><br>Comprises:<br><br>Alphaviruses<br><br>Barmah Forest, Chikungunya, Ross River, Sindbis, Western, Eastern & Venezuelan equine encephalitis<br><br>Flaviviruses<br><br>Yellow fever, Dengue, Japanese encephalitis, St Louis encephalitis, Murray Valley | Blood (serum)<br><br>+/- CSF                       | Clotted blood (red-top)<br><br>Sterile Universal | 5-10 ml<br><br>Minimum 200 µl | Reference | 12 days         | A full travel history and immunisation details is essential for test interpretation.<br><br>Please discuss cases with a virologist. |



|   |   |   |         |           |         |   |
|---|---|---|---------|-----------|---------|---|
| encephalitis, West Nile, Tick-borne encephalitis complex                                    |   |   |         |           |         |   |
| Reoviruses  |   |   |         |           |         |   |
| Colorado tick fever   |   |   |         |           |         |   |
| Phleboviruses   |   |   |         |           |         |   |
| Rift Valley fever, Sandfly fever  |   |   |         |           |         |   |
| Bunyaviruses  |   |   |         |           |         |   |
| California encephalitis   |   |   |         |           |         |   |
| Arenavirus serology and PCR (Lassa Fever virus & LCMV)                                      | Lassa Haemorrhagic Fever: See under <a href="#">Viral Haemorrhagic Fever</a><br>Lymphocytic Choriomeningitic virus Meningitis/Encephalitis: Discuss with Virology |   |         |           |         |   |
| Babesia serology  | Blood (serum)   | Clotted blood (red-top)                   | 5-10 ml | Reference | 28 days | .   |
| Bacterial vaginosis   | See under <a href="#">Vaginal swabs</a>   |   |         |           |         |   |
| Bilharzia   | See under <a href="#">Schistosomiasis</a>   |   |         |           |         |   |
| BK virus (PCR)  | Urine/EDTA blood/ tissue  | N/A                                       | 5-10 ml | Reference | 3 days  | Discuss request with virologist   |
| Blastomycosis serology  | Blood (serum)   | Clotted blood (red-top)                   | 5-10 ml | Reference | 7 days  | .   |
| Blood cultures<br>[e-QUEST: Blood culture & sensitivity]<br>(No need for separate requests) | Blood   | BD Bactec Anaerobic/Aerobic culture vials | 8-10 ml | SGH       | 2 days  | Take before antimicrobials are given if possible.<br>Transportation to the laboratory within 2 hours. |



|  |   |                                  |         |           |          |  |
|--|---|----------------------------------|---------|-----------|----------|--|
| for aerobic and anaerobic bottles)   |   |                                  |         |           |          | Stored at room temperature.<br><a href="#">Refer to blood culture sampling guidance</a>  |
| [e-QUEST: Blood culture (multiples)]                                       | Use only if taking only more than one set e.g. different lumens |                                  |         |           |          |  |
| Blood cultures Paediatric  | Blood   | BD Bactec Peds Plus culture vial | 4 ml    | SGH       | 2 days   | Take before antimicrobials are given if possible.<br>Transportation to the laboratory within 2 hours. Stored at room temperature<br><a href="#">Refer to blood culture sampling guidance</a> |
| Bone for MC&S  | See under <a href="#">Fluids</a>                                |                                  |         |           |          |  |
| Bordetella isolation   | Pernasal swab on flexible shaft                                 |                                  | N/A     | SGH       | 4-7 days | .  |
| Bordetella PCR   | Pernasal swab or NPA (child)                                    | Swab or Universal if NPA         | N/A     | SGH       | 2-3 days | Only performed on urgent requests from PICU.   |
| Bordetella serology- ?recent infection<br>[not for assessment of immunity] | Blood (serum)   | Clotted blood (red-top)          | 5-10 ml | SGH       | 2-3 days | For individuals with chronic cough for >2 weeks.   |
| <i>Borrelia</i> serology/ PCR  | See under <a href="#">Lyme disease</a>                          |                                  |         |           |          |  |
| Botulism toxin Bioassay/ PCR   | Blood (serum)- collect before antitoxin given                   | Clotted (red top) 10 ml          |         | Reference | 9 days   | Consult microbiology to  |



|  |               |  |              |           |  |   |
|--|---------------|--|--------------|-----------|--|---|
|  |               |  |              |           |  | arrange & discuss request   |
| Broncho-alveolar lavage (BAL) or washings  | BAL/ washings | Sterile Universal                      | 1 ml minimum | SGH       | 3 days for standard MC&S                             | Please specify if TB, fungal, viral or other test required (eg PCP)   |
| Brucella serology/<br>[e-QUEST: Brucella reference test]   | Blood (serum) | Clotted blood (red-top)                | 5-10 ml      | Reference | 7-14 days  | .   |
| Campylobacter serology<br>[e-QUEST: Campylobacter serology]  | Blood (serum) | Clotted blood (red-top)                | 5-10 ml      | Reference | 14 days  | .   |
| Carbapenemase screen   | Rectal swab   | Sterile swab in Amies transport medium | N/A          | SGH       | 2 days for negative, 3 days for presumptive positive | Specimens are rejected if >48 hrs as sub optimal for the isolation or organism  |
| Cerebrospinal fluid (CSF) MC&S<br>[e-QUEST: CSF for MC&S]<br><br>For cell count, Gram staining and culture send 2 - 3ml of CSF in each of 3 sterile universal containers | CSF           | Sterile Universal 30ml                 | 2-3 ml       | SGH       | 2-4 hrs (Microscopy)<br><br>2 days (Culture)         | If meningitis/ encephalitis is suspected contact the laboratory and send the specimens immediately. Send separate specimens for glucose and protein analysis to the appropriate departments |





|   |   |   |                                |           |               |  |
|---|---|---|--------------------------------|-----------|---------------|--|
| CSF for virological investigations<br>In Equest order:<br>[e-QUEST:Viral Meningitis/enceph.]                                      | CSF   | Sterile Universal 30ml                              | 2-3 ml                         | SGH       | 2 days        | Provide a date of onset, symptoms and travel history.<br><br>Includes:<br>HSV, VZV, Enterovirus. Meningococcal PCR based on clinical details<br><br>If additional tests are required, contact virology |
| CSF for Mycobacteria/ Fungal investigation<br>In Equest order:<br>[CSF for MC&S] and specify additional tests in clinical details | CSF   | Sterile Universal 30ml                              | 2-3 ml                         | SGH       | Up to 8 weeks | Send a separate sample for mycobacteria/ fungi   |
| Chagas' disease   | Send blood films for diagnosis of acute infection, otherwise see <a href="#">Trypanosomiasis serology</a> |   |                                |           |               |  |
| Chickenpox  | See under <a href="#">Varicella</a>   |   |                                |           |               |  |
| Chlamydia trachomatis/ NAATS<br>[e-QUEST:Chlamydia NAATS test]  | Urine/genital/pharyngeal/rectal/eye swab  | Specific collection tube dependent upon sample type | As specified in collection kit | SGH       | 2 days        | Contact laboratory if information regarding specific collection kits is required.  |
| Chlamydia serology  | Blood (serum)   | Clotted blood (red-top)                             | 5-10 ml                        | Reference | 7 days        |  |



|  |   |                            |   |           |                |  |
|--|---|----------------------------|---|-----------|----------------|--|
| [e-QUEST:Chlamydia reference test]<br><i>(C. pneumoniae &amp; C. psittaci)</i> |   |                            |   |           |                |  |
| Clonorchis serology  | See under <a href="#">Fasciola serology</a> |                            |   |           |                |  |
| <i>Clostridium difficile</i> PCR ribotyping                                    | Faeces                                      |                            |   | Reference | 14 days        |  |
| <i>Clostridium difficile</i> toxin testing<br>[e-QUEST:Faeces Clos difficile]  | Faeces                                      | Universal 30 ml faecal pot | 1-2 gm<br>With the spatula provided transfer a plum-sized portion of faeces or equivalent volume of fluid | SGH       | 1 day          | Initial screening performed by PCR.                |
| CMV serology<br>[e-QUEST:CMV IgM antibody, CMV IgG antibody]                   | Blood                                       | Clotted blood (red-top)    | 5-10 ml   | SGH       | 1 day          | .  |
| CMV PCR (Quantitative assay)<br>[e-QUEST:CMV EBV PCR]                          | Blood                                       | EDTA blood                 | 1-5 ml (minimum 200µl/assay)  | SGH       | 2 working days | Discuss interpretation of results with virologist. |



|  |  |                            |   |           |          |  |
|--|--|----------------------------|---|-----------|----------|--|
| Coccidioides serology  | Blood (serum)  | Clotted blood (red-top)    | 5-10 ml   | Reference | 7 days   | Discuss with microbiologist if suspected.                                      |
| Cold agglutinins (Mycoplasma)                                      | Test performed by Haematology- consult Haematology for advice. |                            |   |           |          |  |
| Corneal scrape   | Corneal scrape   | SGH                        |   |           | 3-5 days | Please state clearly if fungal/ mycobacterial or viral investigations required |
| <i>Coxiella burnetii</i> serology [e-QUEST:Q fever reference test] | Blood (serum)  | Clotted blood (red-top)    | 5-10 ml   | Reference | 12 days  | Discuss with microbiologist if suspected.                                      |
| Coxsackie virus serology   | See under <a href="#">Enterovirus IgM</a>                      |                            |   |           |          |  |
| Cryptococcal antigen [Cryptococcus antigen test]                   | Blood (serum)<br>CSF   | Clotted blood (red-top)    | 5-10 ml (blood)<br>1 ml minimum (CSF)   | SGH       | 2 days   | .  |
| <i>Cryptosporidium</i> spp. (see Enteric Pathogens PCR)            | Faeces   | Universal 30 ml faecal pot | 1-2 gm<br>With the spatula provided transfer a plum-sized portion of faeces or equivalent volume of fluid | SGH       | 1 day    | .  |
| CVP tips   | See under <a href="#">Vascular Access Devices</a>              |                            |   |           |          |  |



|   |   |  |        |           |        |   |
|---|---|--|--------|-----------|--------|---|
| Cystic sputum   | See under <a href="#">Sputum (cystic)</a>   |  |        |           |        |   |
| Cysticercosis   | See under <a href="#">Taenia/ Tapeworms</a> |  |        |           |        |   |
| Dengue serology<br>[e-QUEST:Dengue reference test]      | Refer to <a href="#">Arboviral serology</a> |  |        |           |        |   |
| Dermatophytes   | See under <a href="#">Mycology</a>          |  |        |           |        |   |
| Diphtheria isolation                                    | Swab  | Swab in Amies transport medium with charcoal | N/A    | SGH       | 3 days | Discuss with microbiologist if suspected. |
| Diphtheria antibody for determination of immune status. | Blood (serum)                               | Clotted blood (red-top)                      | 5-10ml | Reference |        |   |



| Test  | Specimen   | Container                             | Required volume           | Laboratory     | Turnaround time | Additional information                   |
|---|--|---------------------------------------|---------------------------|----------------|-----------------|--|
| Ear swab<br>[e-QUEST: Wound ear/nose/throat]                                | Swab in Amies transport medium with charcoal.                              | N/A                                   | N/A                       | SGH            | 4 days          |  |
| Ebola virus   | See <a href="#">Viral Haemorrhagic Fever</a>                               |                                       |                           |                |                 |  |
| EBV PCR   | Blood  | EDTA blood (purple top)               | 1-5 ml                    | SGH            | 2 working days  |  |
| EBV serology<br>[e-QUEST: EBV serology]<br>VCA IgG, VCA IgM, EBNA           | Blood (serum)  | Clotted blood (red top tube)          | 5-10 ml                   | SGH            | 1 day           |  |
| Echinococcal (Hydatid) microscopy   | Cyst fluid   | Sterile Universal                     | N/A                       | SGH/ Reference | 1 day           | Please discuss with laboratory           |
| Echinococcal (Hydatid) serology<br>[e-QUEST: Hydatid reference test]        | Blood (serum)  | Clotted blood (red top tube)          | 5-10 ml                   | Reference      | 28 days         |  |
| Ehrlichia (Anaplasma) serology  | Blood (serum)  | Clotted blood (red top tube)          | 5-10 ml                   | Reference      | 10 days         |  |
| Endotracheal aspirate (ETA)   | Respiratory secretions   | Sterile Universal                     | N/A                       | SGH            | 3 days          |  |
| <i>Entamoeba histolytica</i>  | See under <a href="#">Amoebic serology</a> & Send Faecal parasitology/ OCP |                                       |                           |                |                 |  |
| <i>Enterobius vermicularis</i>  | See under <a href="#">Threadworms</a>                                      |                                       |                           |                |                 |  |
| Enterovirus/Parechovirus (Qualitative RT-PCR)<br>[e-QUEST: Enterovirus PCR] | Faeces, CSF,<br>Mouth, Eye, Rash, Skin                                     | Sterile Universal<br>or Swab in viral | 1-2 gm faeces<br>1 ml CSF | SGH            | 2 days          | Minimum required volume for assay: 200µl |



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|  | Swabs in viral transport medium) | transport medium                              |  |           |           |   |
| Enterovirus IgM  | Blood (serum)                    | Clotted blood (red top tube)                  | 1-5 ml   | Reference | 7-14 days | (includes Coxsackie viruses)  |
| <i>Escherichia coli</i> (E.coli) O157 serology   | Blood (serum)                    | Clotted blood (red top tube)                  | 5-10 ml  | Reference | 15 days   | See also Faeces MC&S  |
| Eye swab for MC&S  | Swab                             | Swab in Amies transport medium with charcoal. | N/A  | SGH       | 4 days    | Send a separate chlamydia swab if this is suspected.                  |
| Eye swab for virological investigations (PCR)  | Swab                             | Swab in Viral Transport Medium                | N/A  | SGH       | 4 days    |   |
| Faecal parasitology/ ova, cysts and parasites (OCP)<br>[e-QUEST:Ova cysts & parasites] | Faeces                           | Universal 30 ml faecal pot                    | 1-2 gm<br>With the spatula provided transfer a plum-sized portion of faeces, or equivalent volume of fluid | SGH       | 7 days    | 3 specimens taken within a 5 day period-please give clinical details. |
| Faeces for Viral Pathogens   | Faeces                           | Universal 30ml faecal pot                     | With the spatula provided transfer a   | SGH       | 1 day     |   |



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| (Adenovirus/ Rotavirus/<br>Norovirus/Sapovirus/<br>astrovirus)  |   |                                    | plum-sized<br>portion of<br>faeces, or<br><br>equivalent<br>volume of<br>fluid  |           |         |   |
| Faeces for Enteric Pathogens<br>PCR (includes Giardia &<br>Cryptosporidium)<br><br>[e-QUEST:Enteric Pathogens<br>PCR]<br><br><i>Salmonella</i> spp (inc typhoid,<br>paratyphoid), <i>Shigella</i> spp, <i>E.coli</i><br>0157 PCR positives confirmed<br>by culture.<br><i>N.B.Yersinia</i> spp, <i>Vibrio</i> spp (inc<br>Cholera) confirmed by culture<br>only | Faeces  | Universal<br>30ml<br>faecal pot    | 1-2 gm<br><br>With the<br>spatula<br>provided<br>transfer a<br>plum-sized<br>portion of<br>faeces, or<br><br>equivalent<br>volume of<br>fluid | SGH       | 2 days  | Please do not<br>request for patients<br>who have been in<br>hospital for over 3<br>days                    |
| Fasciola & other intestinal fluke<br>serology (Clonorchis/<br>Paragonimus)  | Blood<br>(serum)  | Clotted<br>blood (red<br>top tube) | 5-10 ml   | Reference | 28 days |   |
| Filarial serology<br><br>[e-QUEST:Filaria reference<br>test]  | Blood<br>(serum)  | Clotted<br>blood (red<br>top tube) | 5-10 ml   | Reference | 28 days |   |
| Fish & Shellfish Poisoning  | Please call to discuss. [Scombroid/ Ciguatera/ PSP/ NSP/ ASP/ DSP]        |                                    |   |           |         |   |
| Flavivirus serology & PCR   | See under <a href="#">Arboviral serology</a>                              |                                    |   |           |         |   |
| <i>Fransicella tularensis</i>   | See under <a href="#">Tularaemia</a>                                      |                                    |   |           |         |   |
| Fluids, tissues, biopsies for<br>microscopy and culture<br><br>[e-QUEST:Fluids+tissue MC&S<br>]   | Fluid/ tissue<br><br>[If biopsy is<br>small add<br>0.5ml of<br>Ringers or | Sterile<br>Universal               | Dependant<br>on<br>specimen<br>type   | SGH       | 3 days  | Please specify if<br>culture for fungi,<br>mycobacteria or<br>other fastidious<br>organisms is<br>required. |



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| (includes aspirates, biopsies, tissue samples/ curettage, heart valves)  | sterile saline to prevent it from drying out. Ensure there is NO preservative or formalin]         |   |                                |     |   |   |
| [e-QUEST:General comment]  | For Equest serology tests when unable to find specific tests- enter request under clinical details |   |                                |     |   |   |
| Genital herpes   | See under <a href="#">Herpes Simplex Virus</a>   |   |                                |     |   |   |
| Genital swab for MC&S<br>[e-QUEST:Genital swab MC&S]   | HVS, LVS, Vulval, Vaginal, Penile  | Swab in Amies medium with charcoal                  | N/A                            | SGH | 3 days  | Send ECS/URE for PID or STD<br><br>Specimens are rejected if >48 hrs as sub optimal for the isolation of organisms. |
| Genital swab for MC&S<br>[e-QUEST:Genital swab MC&S]   | Urethral, Cervical, Endocervical   | Swab in Amies medium with charcoal                  | N/A                            | SGH | 3 days  | Specimens are rejected if >48 hrs as sub optimal for the isolation of organisms.                                    |
| Gentamicin levels  | See under <a href="#">Antibiotic Assays</a>  |   |                                |     |   |   |
| Giardia  | See under Faeces <a href="#">Enteric Pathogens PCR</a>   |   |                                |     |   |   |
| Gonococcal NAATS   | Urine/Genital swab   | Specific collection tube dependent upon sample type | As specified in collection kit | SGH | 2 days  | Contact laboratory if information regarding specific collection kits is required.                                   |
| HACEK organism isolation<br><i>Haemophilus aphrophilus/ paraphrophilus; Actinobacillus actinomycetecomitans;</i> | Blood cultures   | BD Bactec culture vials                             | 8-10 ml                        | SGH | Fastidious organisms require up to 14 days incubation | Please specify HACEK organisms on request form.   |





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| <i>Cardiobacterium hominis;</i><br><i>Eikenella corrodens; Kingella kingae</i>  |   |                              |   |           |        |   |
| <i>Haemophilus ducreyi</i>  | Genital swab  |                              | N/A   | Reference |        | Discuss with Microbiologist   |
| Hantaviruses- serology and PCR<br>H F with renal syndrome (Hantaan v, Puumala v)<br>Hantavirus pulmonary syndrome(Sin Nombre v) | Blood (serum)   | Clotted blood (red top tube) | 5-10 ml   | Reference | 6 days | Discuss with a virologist   |
| Heart valves/ tissue for MC&S   | See under <a href="#">Fluids</a>  |                              |   |           |        |   |
| Helicobacter faecal antigen   | Faeces  | Universal 30ml faecal pot    | > 1 gram should be sent in standard sealed specimen containers. | SGH       | 7 days | Patients <b>MUST NOT</b> have taken any <b>antibiotics or proton pump inhibitors</b> for a minimum of <b>2 weeks</b> prior to specimen collection for testing. Samples should be sent within 3 days of collection |
| Helicobacter serology   | Faecal antigen testing is now the recommended test for the diagnosis of Helicobacter infection. |                              |   |           |        |   |
| Hepatitis A serology [e-QUEST:Hepatitis A total antibody]   | Blood (serum)   | Clotted blood (red top tube) | 5-10 ml   | SGH       | 1 day  | This is for testing for immunity. Please state on form if you suspect acute infection.  |
| Acute Hepatitis serology  | Blood (serum)   | Clotted blood (red top tube) | 5-10 ml   | SGH       | 2 days |   |



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| [e-QUEST:Hepatitis acute /chronic]<br><br>(Hepatitis B surface antigen, Hepatitis C IgG +/- Hepatitis A IgM)   |               |                              |                           |     |           |   |
| Hepatitis (past history) serology<br><br>[e-QUEST:Hepatitis past history]<br><br>(Hepatitis B core antibody, Hepatitis A total antibody, Hepatitis C IgG)  | Blood (serum) | Clotted blood (red top tube) | 5-10 ml                   | SGH | 2 days    |   |
| Hepatitis B serology- individual tests<br><br>[e-QUEST:Hepatitis B core antibody]<br><br>Hepatitis B core IgM<br><br>[e-QUEST:Hepatitis B surface antibody]<br><br>[e-QUEST:Hepatitis B surface antigen]<br><br>[e-QUEST:Hepatitis Bs antigen screen]<br><br>[e-QUEST:Hepatitis Be antibody]<br><br>[e-QUEST:Hepatitis Be antigen] | Blood (serum) | Clotted blood (red top tube) | 5-10 ml                   | SGH | 2 days    | -Send a core antibody for past or ongoing Hep B infection.<br><br>-Send a surface antibody for post-immunisation check.<br><br>-Send a surface antigen screen if current/ ongoing infection is suspected. |
| Hepatitis B DNA/ viral load<br><br>[e-QUEST:Hepatitis B DNA]   | Blood (serum) | Clotted blood (red top tube) | 5-10 ml (min. vol 200 µl) | SGH | 7-10 days | Please note that the viral load assay is time critical. Freshly drawn specimens   |



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| (Only for use on hepatitis B surface antigen positive patients) |               |                              |                           |           |           | (whole blood) may be held at 2-30°C for up to 6 hours prior to centrifugation in the laboratory. After this time there may be degradation of nucleic acid with a resultant reduction of the viral load value.   |
| Hepatitis C serology<br>[e-QUEST:Hepatitis C IgG]               | Blood (serum) | Clotted blood (red top tube) | 5-10 ml                   | SGH       | 2 days    |   |
| Hepatitis C RNA/ viral load<br>[e-QUEST:Hepatitis C RNA]        | Blood (serum) | Clotted blood (red top tube) | 5-10 ml (min. vol 200 µl) | SGH       | 7-10 days | Please note that the viral load assay is time critical. Freshly drawn specimens (whole blood) may be held at 2-30°C for up to 6 hours prior to centrifugation in the laboratory. After this time there may be degradation of nucleic acid with a resultant reduction of the viral load value. |
| Hepatitis C genotype  | Blood (serum) | Clotted blood (red top tube) | 5-10 ml                   | Reference | 14 days   |   |
| Hepatitis D serology (IgM/ IgG) & PCR                           | Blood (serum) | Clotted blood (red top tube) | 5-10 ml                   | Reference | 15 days   |   |



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| Hepatitis E serology (IgM/ IgG)   | Blood (serum) | Clotted blood (red top tube)                        | 5-10 ml  | SGH       | 2 days    |  |
| Hepatitis E PCR   |               |   |          | SGH       | 5 days    |  |
| Herpes simplex virus PCR (HSV1 & HSV2)<br>[e-QUEST:Herpes simplex PCR] see <a href="#">Ano-Genital screen</a> | CSF<br>Swabs  | Sterile universal<br>Swab in Viral Transport Medium | 1 ml CSF | SGH       | 2 days    |  |
| Herpes Simplex virus (HSV 1/2) resistance testing   | Swabs         | Swab in Viral Transport Medium                      | N/A      | Reference | 28 days   |  |
| Herpes simplex virus (HSV 1/2) serology<br>[e-QUEST:Herpes simplex serology]                                  | Blood (serum) | Clotted blood (red top tube)                        | 5-10 ml  | SGH       | 2 days    |  |
| HHV6 & HHV7 Serology  | Blood (serum) | Clotted blood (red top tube)                        | 5-10 ml  | Reference | 7-14 days |  |
| HHV6 & HHV7 PCR   | Blood         | EDTA (purple top)                                   | 1-5 ml   | Reference | 3 days    |  |
| HHV8 PCR  | Blood         | EDTA (purple top)                                   | 1-5 ml   | Reference | 3 days    |  |
| Histoplasma serology<br>[e-QUEST:Histoplasma serology]  | Blood (serum) | Clotted blood (red top tube)                        | 5-10 ml  | Reference | 7 days    |  |
| HIV1/2 antigen/ antibody<br>[e-QUEST:HIV Ag/Ab]   | Blood (serum) | Clotted blood (red top tube)                        | 5-10 ml  | SGH       | 2 days    |  |



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| HIV resistance testing                            | Blood (plasma)                                       | EDTA                         | 10 ml                  | Reference         | 14 days                |   |
| HIV Viral load<br>[e-QUEST:HIV viral load]        | Blood  | EDTA blood (purple top)      | 5-10 ml (min 1 ml)     | SGH               | 7-10 days              | Please note that the viral load assay is time critical. Freshly drawn specimens (whole blood) may be held at 2-30°C for up to 6 hours prior to centrifugation in the laboratory. After this time there may be degradation of nucleic acid with a resultant reduction of the viral load value. |
| Hookworms   | Send <a href="#">Faecal Parasitology/ OCP</a>        |                              |                        |                   |                        |   |
| HTLV 1&2 serology<br>[e-QUEST: HTLV 1+2 antibody] | Blood (serum)  | Clotted blood (red top tube) | 5-10 ml                | SGH               | 2 days                 | PCR: Contact virology   |
| Human Papillomavirus (HPV) testing                | Tissue   | Sterile Universal            | N/A                    | Reference         | 4 days                 |   |
| [e-QUEST: Hydatid reference test]                 | See under <a href="#">Echinococcal serology</a>      |                              |                        |                   |                        |   |
| <b>Test</b>                                       | <b>Specimen</b>                                      | <b>Container</b>             | <b>Required volume</b> | <b>Laboratory</b> | <b>Turnaround time</b> | <b>Additional information</b>   |
| Influenza A/B PCR                                 | See under <a href="#">Respiratory virus PCR/ NPA</a> |                              |                        |                   |                        |   |
| Influenza serology (reference laboratory test)    | Blood (serum)  | Clotted Blood (red top tube) | 5-10 ml                | Reference         | 7-14 days              | Send paired sera (acute and convalescent).  |



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|   |  |                              |          |           |           | Not useful for diagnosis of acute infection.<br>Discuss with a virologist                             |
| Interferon assays for TB  | See under <a href="#">Mycobacteria</a>             |                              |          |           |           |   |
| Intestinal flukes   | See under <a href="#">Fasciola</a>                 |                              |          |           |           |   |
| Intrauterine infection serological tests  | See under <a href="#">TORCH screen (mother)</a>    |                              |          |           |           |   |
| Itraconazole levels   | See under <a href="#">Antibiotic Assays</a>        |                              |          |           |           |   |
| IVF screen<br>[e-QUEST: ivf screen]<br>Includes:<br>HIV Ab/Ag<br>Hepatitis BsAg<br>Hepatitis B Core antibody<br>Hepatitis C IgG<br>Syphilis IgG | Blood (serum)                                      | Clotted Blood (red top tube) | 5-10 ml  | SGH       | 2 days    | Pre-treatment IVF screen.<br><br>(Rubella and chlamydia need to be requested separately if required.) |
| Japanese B encephalitis   | See under <a href="#">Arboviral serology</a>       |                              |          |           |           |   |
| JC virus PCR  | CSF  | Sterile Universal            | 1 ml min | Reference | 7-10 days | Discuss with a virologist   |
| Kala-azar   | See under <a href="#">Leishmania</a>               |                              |          |           |           |   |
| Lassa fever virus   | See under <a href="#">Viral Haemorrhagic Fever</a> |                              |          |           |           |   |
| Legionella serology   | Blood (serum)                                      | Clotted Blood (red top tube) | 5-10 ml  | Reference | 8 days    |   |
| [e-QUEST: Legionella antigen]   | Urine  | Sterile Universal            | 20 ml    | SGH       | 2 days    | Needs prior discussion with microbiologist  |



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| [e-QUEST: Leishmania reference test] (serology)                | Blood (serum)     | Clotted Blood (red top tube)                               | 5-10 ml           | Reference | 28 days     | Please state travel history and date of exposure.<br>Discuss cases with microbiology                              |
| Leprosy  | Tissue biopsy     | Consult a microbiologist                                   |                   |           |             |   |
| Leptospira isolation/ PCR                                      | CSF/ /Urine/Blood | Sterile Universal/   | 8-10 ml           | Reference | up to 6 wks | Discuss cases with microbiology   |
| [e-QUEST: Leptospirosis reference test] (serology)             | Blood (serum)     | Clotted Blood (red top tube)                               | 5-10 ml           | Reference | 6 days      | Take sample 5-7 days after onset of symptoms.<br>Please state date of onset or exposure and travel/ risk factors. |
| [e-QUEST: Leukaemic Varicella IgG] screen                      | Blood (serum)     | Clotted Blood (red top tube)                               | 5-10 ml           | SGH       | 7 days      | For screening immunosuppressed/ stem cell transplant patients.  |
| [e-QUEST:Lyme disease serology] (Borreliosis) (screening test) | Blood (serum)     | Clotted Blood (red top tube)                               | 5-10 ml           | SGH       | 2 days      | Please provide clear history including risk factors and date of symptom onset.                                    |
| Lyme Immunoblot  | Blood (serum)/CSF | Clotted Blood (red top tube)<br>or Sterile Universal (CSF) | 5-10 ml<br>1-2 ml | Reference | 9 days      |   |



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| Lyme (Borreliosis) PCR   | CSF           | Sterile Universal                 | 1 ml    | Reference | 7-14 days | Discuss with microbiology                           |
| [eQUEST: Lymphadenopathy/sore throat] serology screen            | Blood         | Clotted Blood (red top tube)      | 5-10 ml | SGH       | 2 days    | Consists of ASO titre, EBV, CMV IgM serology tests. |
| Lymphocytic chorio-meningitis virus (LCMV) serology              | Blood (serum) | Clotted Blood (red top tube)      | 5-10 ml | Reference | 7-14 days | Discuss with a virologist                           |
| Lymphogranuloma venereum (LGV) serovars of Chlamydia trachomatis | Swab          | Swab in Chlamydia transport media | N/A     | Reference | 3-10 days | Discuss with a virologist                           |





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| Malaria detection  | Blood  | EDTA (purple top tube)       | 5-10ml  | SGH- Haematology |        | Test performed by haematology   |
| Malaria serology<br>[e-QUEST: Malaria reference test]                            | Not useful for diagnosis of acute infection. Discuss with microbiologist if requested. |                              |         |                  |        |   |
| Marburg virus  | <b>See under <a href="#">Haemorrhagic Fevers</a></b>                                   |                              |         |                  |        |   |
| Acute measles serology (IgM)<br>[e-QUEST: Measles IgM reference test]            | Blood (serum)  | Clotted Blood (red top tube) | 5-10 ml | Reference        | 4 days |   |
| Measles IgG<br>[e-QUEST: Measles immunity]                                       | Blood (serum)  | Clotted Blood (red top tube) | 5-10 ml | SGH              | 2 days |   |
| Measles PCR  | Discuss with a virologist  |                              |         |                  |        |   |
| Melioidosis investigations   | Discuss with a microbiologist  |                              |         |                  |        |   |
| Meningococcal PCR<br>[e-QUEST: Meningococcal PCR Blood]                          | Blood  | EDTA (purple top tube)       | 5-10 ml | SGH              | 2 days |   |
| or<br>[e-QUEST: Meningococcal PCR CSF]<br>If meningitis/ meningococcal sepsis is | CSF  | Sterile Universal            | 2-3 ml  | SGH              | 2 days | Send separate specimens for glucose and protein analysis to appropriate departments |



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| suspected contact the laboratory and send the specimens immediately. |  |                              |                            |           |          |   |
| Meningococcal serology   | Blood (serum)  | Clotted Blood (red top tube) | 5-10 ml                    | Reference | 28 days  | Discuss with a microbiologist   |
| Microscopy   | Dependant on specimen type   | Dependant on specimen type   | Dependant on specimen type | SGH       | same day |   |
| Microsporidia serology   | Blood (serum)  | Clotted Blood (red top tube) | 5-10 mls                   | Reference | 28 days  | Discuss with a microbiologist   |
| Milk bank serology screen<br>[e-QUEST: MILK BANK SCREEN]             | Blood (serum)  | Clotted Blood (red top tube) | 5-10 mls                   | SGH       | 3-4 days | Consists of:<br>HIV Ab/ Ag<br>HTLV 1+2 Ab<br>Hep Bs Ag<br>Hep C IgG<br>Syphilis IgG |
| [e-QUEST: Minimal Antenatal]<br>Rubella and Syphilis only            | <b>See under <a href="#">Antenatal serology</a></b><br>For patients declining HIV and Hep BsAg |                              |                            |           |          |   |
| Mouth swab   | Swab in Amies transport medium with charcoal.  | N/A                          | N/A                        | SGH       | 3 days   |   |
| MRSA screen  | Swab   | Swab                         | N/A                        | SGH       | 2 days   | Specimens are rejected if >48 hrs as sub  |



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|   |                           |  |                             |                | (>3 days if culture positive). | optimal for the isolation or organisms   |
| Acute mumps serology IgM<br>[e-QUEST: Mumps IgM reference test]<br>For clinical cases of mumps  | Blood (serum)             | Clotted Blood (red top tube)                                       | 5-10 ml                     | Reference      | 10 days                        | Please state date of onset and contact history.  |
| Mumps IgG<br>[Mumps immunity]   | Blood (serum)             | Clotted Blood (red top tube)                                       | 5-10 ml                     | SGH            | 2 days                         |  |
| Mumps PCR   | Discuss with a Virologist |  |                             |                |                                |  |
| Mycobacteria/ AFB (Tuberculosis & Atypical/ non-tuberculous):<br>Microscopy (Ziehl-Nielsen/ auramine), Isolation<br>[e-QUEST: TB/ Mycobacteria culture]<br>Please state clearly on request form that Mycobacterial/ TB/ AFB | Sputum                    | Sterile Universal (send 3 sputa for suspected pulmonary TB)        | Min req vol (fluids) = 3 ml | SGH/ Reference | 6 -8 weeks                     | Samples are monitored continuously.<br>Any flagging positive are communicated to clinicians as an urgent result.<br>Mycobacterial investigations are not performed on-call (from 2000hrs to 0900hrs) |
|   | BAL/ gastric aspirates    | Sterile Universal  |                             |                |                                |  |
|   | CSF/ fluids/ tissue       | Sterile universal (send early morning urine on 3 consecutive days) |                             |                |                                |  |
|   | Urine                     |  |                             |                |                                |  |
|   | Bonemarrow                | Inoculated to BD Bactec  | N/A                         |                |                                |  |



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| investigation required.  |                          | Myco/F Lytic Culture Vials |              |     |  |   |
| Mycobacterium tuberculosis immunoassays (QuantiFERON)                          | Blood                    | QuantiFERON kit            | N/A          | SGH | 3-5 days   | Discuss with a microbiologist<br><br>See also <a href="#">Quantiferon-TB Gold Guidelines</a><br>Please note this is a time critical assay. Samples must be received in the laboratory within 16 hours of collection. Failure to adhere to this may compromise the validity of the result. |
| Mycobacterium tuberculosis PCR (fast-track)/ Rifampicin probes (MDR suspected) | BAL/Sputum/Tissue        | Sterile Universal          | 3 ml minimum | SGH | Same day testing once approved by microbiologist | Discuss with a microbiologist.  |
| Mycology MC&S (Systemic mycoses)<br>[e-QUEST: Mycology micro and culture]      | Tissue, fluids, systemic | Sterile Universal          | N/A          | SGH | Microscopy 2 days<br><br>culture up to 6 weeks   | Please state clinical history and if not Equest order state clearly on request form that fungal culture is required.  |



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| Mycology (Dermatophytes)<br>Skin, nail & hair<br>[e-QUEST: Mycology micro and culture]     | Skin, nail and hair  | Sterile Universal or Dermapaks       | N/A          | SGH       | Microscopy 2 days<br>culture 2 weeks |  |
| Mycoplasma genitalium PCR  | Swab in transport medium; minimum volume 400 ul<br>Urine: min volume 3 ml<br>Extracted DNA |                                      |              | Reference | 10 days                              |  |
| Mycoplasma pneumoniae serology<br>[e-QUEST: Mycoplasma antibody]                           | Blood (serum)  | Clotted Blood (red top tube)         | 5-10 ml      | SGH       | 3 days                               |  |
| Nasal swab   | Swab in Amies transport medium with charcoal.  | N/A                                  | N/A          | SGH       | 3 days                               |  |
| Nasopharyngeal aspirate (NPA) for respiratory viruses [PCR]                                | Respiratory secretions   | NPA trap (seal using loop of tubing) | 1 ml minimum | SGH       | 2 days                               |  |
| Needlestick donor serology<br>[e-QUEST: Needlestick donor]<br>Consists of Hep Bs Ag, Hep C | Blood (serum)  | Clotted Blood (red top tube)         | 5-10 ml      | SGH       | 2 days                               | Please assess for risk factors for HepC/ HIV. State if these are required.<br><br>It is your responsibility to |



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| IgG, HIV, serum store<br><br><b>CONSENT NEEDS TO BE OBTAINED PRIOR TO TESTING</b><br><b>Inform Occupational Health of all NSI</b> |  |                              |  |     |        | consent the patient.                               |
| Needlestick recipient serology<br><br>[e-QUEST: Needlestick recipient]<br><br><b>Inform Occupational Health of all staff NSI</b>  | Blood (serum)                            | Clotted Blood (red top tube) | 5-10 ml                                      | SGH | 2 days | Hepatitis Bs Ab, serum store                       |
| Neonatal Viral Sepsis Screen  | EDTA blood, CSF, Eye/Rectal/Throat Swab. |                              | Minimum volume for EDTA or CSF<br><br>500 ul | SGH | 2 days |  |
| New leukaemic serology<br><br>[e-QUEST: New leukaemic screen]   | Blood (serum)                            | Clotted Blood (red top tube) | 5-10 ml                                      | SGH | 7 days | Consists of:<br>CMV IgG<br>EBV<br>HIV<br>Hep B sAg |



|   |  |                                   |         |     |           |  |
|---|--|-----------------------------------|---------|-----|-----------|--|
|   |  |                                   |         |     |           | Hep C IgG<br>Syphilis IgG<br>Toxoplasma IgG, IgM<br>Varicella IgG            |
| Norovirus PCR   | Faeces   | Sterile universal 30ml faecal pot | 1-2gm   | SGH | 2 days    |  |
| F   | Blood (serum)  | Clotted Blood (red top tube)      | 5-10 ml | SGH | 7-10 days |  |
| [e-QUEST: Ova cysts and parasites]  | <a href="#">See under Faecal parasitology.</a>                                 |                                   |         |     |           |  |
| Pacemaker tips/ leads & other cardiac prostheses                                | Device   | Sterile Universal                 | N/A     | SGH | 3 days    | Will NOT be processed routinely.<br><br>Only where line sepsis is suspected. |
| Parainfluenza virus   | <a href="#">See under respiratory viruses/ NPA</a>                             |                                   |         |     |           |  |
| [e-QUEST: Partial Antenatal screen]<br><br>(Rubella, Syphilis and HepBsAg only) | <a href="#">See under Antenatal serology</a><br>For patents declining HIV only |                                   |         |     |           |  |
| Parvovirus serology IgM & IgG   | Blood (serum)<br>Blood (serum)/ amniotic fluid                                 | Clotted Blood (red top tube)      | 5-10 ml | SGH | 2 days    | Please state date of onset and if patient is pregnant.                       |



|   |  |                                      |                 |           |           |   |
|---|--|--------------------------------------|-----------------|-----------|-----------|---|
| [e-QUEST:<br>Parvovirus B19<br>IgM & IgG]     |  |                                      |                 | Reference | 3 days    |   |
| Parvovirus<br>B19 PCR                         |  |                                      |                 |           |           |   |
| Pernasal Swab                                 | Use specific pernasal swab, see under <a href="#">Bordetella pertussis</a>           |                                      |                 |           |           |   |
| Pertussis<br>investigations                   | See under <a href="#">Bordetella pertussis</a>                                       |                                      |                 |           |           |   |
| Pinworms                                      | See under <a href="#">Threadworms</a>  |                                      |                 |           |           |   |
| Plague  | <b>See under <a href="#">Yersinia pestis</a>. Contact a Microbiologist urgently.</b> |                                      |                 |           |           |   |
| Pneumococcal<br>antigen                       | Urine/ CSF   | Sterile<br>Universal                 | 10-20 ml        | SGH       | 1 day     | Needs prior<br>authorization by<br>a microbiologist |
| Pneumococcus<br>PCR                           | Discuss with a Microbiologist  |                                      |                 |           |           |   |
| <i>Pneumocystis<br/>jiroveci</i> (PCP)<br>PCR | Lower respiratory<br>secretions (induced<br>sputum/ BAL)<br><br>Lung biopsy          | Sterile<br>Universal                 | 1 ml<br>minimum | SGH       | 2 days    |   |
| Polio serology                                | Blood (serum)  | Clotted Blood<br>(red top tube)      | 5-10 ml         | Reference | 7-14 days | Discuss with a<br>virologist                        |
| Polio PCR                                     | Faeces/ CSF  | Sterile<br>Universal                 | N/A             | Reference | 7 days    | Discuss with a<br>virologist                        |
|   | Throat swabs   | Swab in Viral<br>Transport<br>Medium |                 |           |           |   |
| Polyomaviruses<br>(BK/ JC virus)<br>PCR       | Urine (BK)   | Sterile<br>Universal                 |                 | Reference | 3 days    | Discuss with a<br>virologist                        |
|   | CSF (JC)   |                                      |                 |           |           |   |
|   | EDTA blood (BK)  | EDTA (purple<br>top tube)            |                 |           |           |   |





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| Postnasal swab for MC&S | Swab in Amies transport medium with charcoal. | N/A | N/A | SGH | 3 days |  |
| Pus                     | See under <a href="#">Fluids</a>              |     |     |     |        |  |



| Test  | Specimen  | Container                    | Required volume      | Laboratory | Turnaround time | Additional information   |
|---|---|------------------------------|----------------------|------------|-----------------|--|
| [Q fever reference test]  | See under <a href="#">Coxiella burnetii</a>   |                              |                      |            |                 |  |
| Rabies investigations   | Discuss with a virologist   |                              |                      |            |                 |  |
| Rash (viral serology screen)<br>[e-QUEST: Rash non-vesicular]<br>ASO titre<br>Parvovirus IgM, IgG<br>Rubella IgM, IgG<br>[e-QUEST: Rash vesicular]<br>Varicella IgG | Blood (serum)   | Clotted Blood (red top tube) | 5-10 ml              | SGH        | 2-3 days        | Please state type and distribution of rash- this dictates which tests are performed.<br><br>Please state if patient is pregnant. |
| Respiratory syncytial virus (RSV) IF/ PCR   | See under <a href="#">Respiratory viruses</a> PCR/ NPA                                      |                              |                      |            |                 |  |
| Respiratory virus PCR<br>[e-QUEST: Influenza A&B/ Parainfluenza/ RSV/SARS-CoV-2 Adenovirus/Metapneumovirus/Rhinovirus]  | Respiratory secretions<br>NPA, BAL, Sputum, Nose and throat swab in viral transport medium. | Sterile Universal            | 2 ml (min vol 200µl) | SGH        | 2-3 days        |  |
| Rickettsial serology- Typhus or Spotted Fever<br>[e-QUEST: Rickettsial serology]  | Blood (serum)   | Clotted Blood (red top tube) | 5-10 ml              | Reference  | 5 days          | Discuss with microbiology.<br><br>Provide a full travel history.   |
| Ross River virus serology   | See under <a href="#">Arboviral serology</a>  |                              |                      |            |                 |  |
| Rotavirus   | See under <a href="#">Faeces Virology investigations</a>                                    |                              |                      |            |                 |  |



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| Rubella serology (acute)<br>[e-QUEST: Rubella IgM]           | Blood (serum)                                  | Clotted Blood (red top tube)   | 5-10 ml                 | SGH       | 1-2 days                  | Please state if patient is pregnant.   |
| Rubella serology (immunity)<br>[e-QUEST: Rubella IgG screen] | Blood (serum)                                  | Clotted Blood (red top tube)   | 5-10 ml                 | SGH       | 1-2 days                  |  |
| Salmonella serology  | Blood (serum)                                  | Clotted Blood (red top tube)   | 5-10 ml                 | Reference | 17 days                   | Requires prior discussion with a microbiologist                                  |
| SARS-CoV-2 PCR (Routine Testing)                             | Nose and throat swab in viral transport medium | Swab in viral transport medium | 1 ml                    | SGH       | 1 day                     |  |
| SARS-CoV-2 PCR (Rapid Testing)                               | Nose and throat swab in viral transport medium | Swab in viral transport medium | 1 ml                    | SGH       | 4 hrs                     | Please bring samples to Microbiology department, Level B, and leave in drop-box. |
| SARS-CoV-2 (Fast-track)                                      | Nose and throat swab in viral transport medium | Swab in viral transport medium | 1 ml                    | SGH       | 5-6 hrs within core hours | Please bring samples to Microbiology department, Level B, and leave in drop-box. |
| SARS-CoV-2 Antibody IgG                                      | Blood (serum)                                  | Clotted Blood (red top tube)   | 5-10 ml                 | SGH       | 1-2 days                  |  |
| Schistosomiasis microscopy                                   | Faeces   | Sterile Universal              | 1-2 gm With the spatula | SGH       | 7 days                    | 3 specimens on 3 consecutive   |



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|  |   |                              | provided transfer a plum-sized portion of faeces |           |          | days – give clinical details                       |
|  | Urine (3 consecutive terminal urine samples collected at midday)  | Sterile Universal            | 10 ml  |           | 2 days   |  |
| Schistosomal serology<br>[e-QUEST: Schistosoma reference test] | Blood (serum)   | Clotted Blood (red top tube) | 5-10 ml  | Reference | 28 days  | Send at least 6 weeks post-exposure.               |
| Sellotape slide  | See under <a href="#">Threadworms</a>   |                              |  |           |          |  |
| Seminal fluid for MC&S   | Seminal fluid   | Sterile Universal            | N/A  | SGH       | 1-2 days |  |
| Shigella serology<br>[e-QUEST: Shigella Serology]              | Blood (serum)   | Clotted Blood (red top tube) | 5-10 ml  | Reference | 14 days  | Requires prior discussion with a microbiologist    |
| Shingles   | See under <a href="#">Varicella</a>   |                              |  |           |          |  |
| Sleeping sickness  | Send blood films for diagnosis of acute infection, otherwise see <a href="#">Trypanosomiasis serology</a> |                              |  |           |          |  |
| Sputum/ ETA/ BAL/ NBL<br>[eQUEST: Sputum/ETA/BAL etc]          | Respiratory   | Sterile Universal            | 5-10 ml  | SGH       | 2-3 days | Please refer to Mycobacteria for TB investigation. |
| Sputum (Cystic)<br>Cystic Sputum/cough swab)                   | Respiratory   | Sterile Universal            | 5-10 ml  | SGH       | 6-8 days | Please refer to                                    |



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|   |                            |   |         |           |         | Mycobacteria for TB investigation.  |
| Staphylococcal serology<br>[e-QUEST: Staphylococcal reference test]   | Blood (serum)              | Clotted Blood (red top tube)                    | 5-10 ml | Reference | 14 days | Requires prior discussion with a microbiologist   |
| Staphylococcal (MSSA/ MRSA) PCR                                       | Tissue/ Pus/ Swabs/ Fluids | Requires prior discussion with a microbiologist |         |           |         |   |
| Stem cell transplant screen<br>[e-QUEST: Stem cell transplant screen] | Blood (serum)              | Clotted Blood (red top tube)                    | 5-10 ml | SGH       | 7 days  | Consists of:<br>CMV IgG<br>EBV (EBNA IgG)<br>HIV Ab/Ag<br>HTLV 1+2 Ab<br>Hepatitis B Core Ab<br>Hepatitis BsAg<br>Hepatitis C IgG<br>Syphilis IgG<br>Toxoplasma IgM, IgG<br>Varicella IgG |



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| Streptococcal serology (ASOT, Anti DNase B)   | See under <a href="#">ASO titre/ Anti Streptolysin O and Anti DNase B titre</a>           |                              |         |           |           |   |
| Strongyloides microscopy  | See <a href="#">Faecal Parasitology/ OCP</a> (may need up to 6 samples as is insensitive) |                              |         |           |           |   |
| Strongyloides serology  | Blood (serum)   | Clotted Blood (red top tube) | 5-10 ml | Reference | 28 days   |   |
| Supra-pubic aspiration (SPA)  | See under <a href="#">Urine MC&amp;S</a>  |                              |         |           |           |   |
| Swabs for MC&S (skin/ wound etc)  | Swab in Amies transport medium with charcoal.   | N/A                          | N/A     | SGH       | 4 days    | Do not request MRSA swabs unless screening.                             |
| Syphilis serology<br>[e-QUEST: Syphilis antibody (blood)]<br>or<br>[e-QUEST: Syphilis antibody (CSF)] | Blood (serum)   | Clotted Blood (red top tube) | 5-10 ml | SGH       | 1-3 days  |   |
|   | CSF (VDRL, TPPA)  | Sterile Universal            | 1-2 ml  | Reference |           |   |
| Tapeworms / <i>Taenia</i> spp   | See <a href="#">Faecal Parasitology/ OCP</a>  |                              |         |           |           |   |
| <i>Taenia</i> (cysticercal) serology  | Blood (serum)   | Clotted Blood (red top tube) | 5-10 ml | Reference | 28 days   | For diagnosis of cysticercosis.   |
| TB investigations   | See under <a href="#">Mycobacteria</a>  |                              |         |           |           |   |
| Teicoplanin levels  | See under <a href="#">Antibiotic Assays</a>   |                              |         |           |           |   |
| Tetanus toxin serology  | Blood (serum)   | Clotted Blood (red top tube) | 5-10 ml | Reference | 7-14 days | Collect before antitoxin given. Discuss with microbiology if suspected. |
| Tissue/ Biopsy for MC&S   | See under <a href="#">Fluids</a>  |                              |         |           |           |   |



|  |   |                                    |         |     |          |   |
|--|---|------------------------------------|---------|-----|----------|---|
| Thread worms   | Place sellotape over perianal region          | Transfer to clean microscope slide | N/A     | SGH | 1-2 days | Best taken early morning  |
| Throat swabs for MC&S  | Swab in Amies transport medium with charcoal. | N/A                                | N/A     | SGH | 4 days   |   |
| Tobramycin levels  | See under <a href="#">Antibiotic Assays</a>   |                                    |         |     |          |   |
| [e-QUEST: TORCH screen (infant)]<br>For serological investigation of suspected congenital infection.<br>Toxoplasma IgM, CMV IgM, Rubella IgM, Syphilis   | Blood (serum)                                 | Clotted Blood (red top tube)       | 5-10 ml | SGH | 1-2 days | If not requesting via e-QUEST please state "suspected congenital infection" and give clinical details.  |
| [e-QUEST: TORCH screen (mother)]<br>For serological investigation of suspected intrauterine infection.<br>Toxoplasma IgG & IgM, CMV IgG & IgM, Rubella IgG & IgM +/- Parvovirus IgG & IgM, Syphilis. | Blood (serum)                                 | Clotted Blood (red top tube)       | 5-10 ml | SGH | 1-2 days | If not requesting via e-QUEST please state "suspected intrauterine infection" and give clinical details including gestational age and any relevant exposures. |



|   |  |                              |         |           |          |   |
|---|--|------------------------------|---------|-----------|----------|---|
| Toxocara serology<br>[e-QUEST: Toxocara reference test]                             | Blood (serum)                                  | Clotted Blood (red top tube) | 5-10 ml | Reference | 28 days  |   |
| Toxoplasma serology (past exposure)<br>[e-QUEST: Toxoplasma IgG]                    | Blood (serum)                                  | Clotted Blood (red top tube) | 5-10 ml | SGH       | 1-2 days | Please state if patient is pregnant.  |
| Toxoplasma serology (acute/ current/ recent infection)<br>[e-QUEST: Toxoplasma IgM] | Blood (serum)                                  | Clotted Blood (red top tube) | 5-10 ml | SGH       | 1-2 days | Please state date of onset/ exposure.<br>Please state if patient is pregnant. |
| Toxoplasma PCR  | Discuss with Virologist/ Microbiologist        |                              |         |           |          |   |
| Trichinella serology  | Blood (serum)                                  | Clotted Blood (red top tube) | 5-10 ml | Reference | 28 days  |   |
| Trypanosomiasis serology (Chagas' disease/ Sleeping sickness)                       | Blood (serum)                                  | Clotted Blood (red top tube) | 5-10 ml | Reference | 28 days  | Send blood films for diagnosis of acute infection.                            |
| Tularaemia ( <i>Francisella tularensis</i> ) serology                               | Blood (serum)                                  | Clotted Blood (red top tube) | 5-10 ml | Reference | 5 days   | Requires prior discussion with a microbiologist                               |
| Typhus serology   | See under <a href="#">Rickettsial serology</a> |                              |         |           |          |   |





| Test   | Specimen                                      | Container                    | Required volume | Laboratory | Turnaround time | Additional information   |
|--|---|------------------------------|-----------------|------------|-----------------|--|
| Urine antigens<br>( <i>Pneumococcus</i> /<br><i>Legionella</i> )   | Urine   | Sterile Universal            | 10 –20ml        | SGH        | 1-2 days        | Needs prior authorisation by a microbiologist.   |
| Urine MC&S (MSU, CSU, Clean-catch, Bag Urine, Supra-pubic aspiration)<br><br>[e-QUEST: Urine MC&S]<br><br>Specimens will be rejected if there are inadequate clinical details. | Urine   | Sterile Universal            | 10 –20ml        | SGH        | 1-2 days        | Specimens are rejected if >24 hrs as sub optimal for the isolation of organisms. They may be refrigerated overnight but not on Fridays, unless there is a Saturday collection. |
| Vaginal swabs MC&S (HVS/ LVS)  | Swab in Amies transport medium with charcoal. | N/A                          | N/A             | SGH        | 2-3 days        |  |
| Vancomycin levels  | See under <a href="#">Antibiotic Assays</a>   |                              |                 |            |                 |  |
| Varicella zoster (VZV) IgG<br><br>[e-QUEST: Varicella zoster IgG]<br><br>Not for diagnosis of acute infection- send  | Blood (serum)                                 | Clotted Blood (red top tube) | 5-10 ml         | SGH        | 1-2 days        | Please state if the patient is pregnant and exposed to VZV as will need urgent testing   |

**Commented [PE1]:** Actually, I think that it is useful if performed in acute infection together with PCR when the presentation of varicella is atypical

**Commented [PE2]:** Not for diagnosis of ACTIVE infection

**Commented [PE3R2]:** Rash (viral serology screen)  
[e-QUEST: Rash non-vesicular]  
ASO titre  
Parvovirus IgM, IgG  
Rubella IgM, IgG  
[e-QUEST: Rash vesicular]  
Varicella IgG Blood (serum) Clotted Blood (red top tube) 5-10 ml SGH 2-3 days Please state type and distribution of rash- this dictates which tests are performed. Please state if patient is pregnant.

Apparently there is a contradiction since above it is stated that VZV IgG is not for diagnosis of acute infection while here is part of the vesicular rash panel



|   |                            |   |              |     |          |  |
|---|----------------------------|---|--------------|-----|----------|--|
| vesicle fluid for isolation/ PCR.   |                            |   |              |     |          |  |
| Varicella zoster (VZV)<br>PCR (chickenpox/<br>shingles)<br>[e-QUEST: Varicella<br>zoster PCR]               | CSF                        | Sterile<br>Universal                    | 2 ml         | SGH | 1-2 days |  |
|   | Blood                      | EDTA<br>blood                           | 2 ml         |     |          |  |
|   | Lesion/<br>Vesicle<br>Swab | Swab in<br>Viral<br>Transport<br>Medium | N/A          |     |          |  |
|   | Vesicle<br>fluid           | Capillary<br>tube                       | Min<br>200µl |     |          |  |
| Vascular access device<br>tips<br>[e-QUEST: CVP/<br>Hickman/ cannula/<br>peripheral lines/<br>vascath etc]  | Device                     | Sterile<br>Universal                    | N/A          | SGH | 2-3 days | Will NOT be<br>processed<br>routinely.<br><br>Only where<br>line sepsis is<br>suspected. |
| VDRL slide test<br>[e-QUEST:Syphilis<br>antibody (blood)]<br><br>OR<br>[e-QUEST:Syphilis<br>antibody (CSF)] | Blood<br>(serum)           | Clotted<br>Blood<br>(red top<br>tube)   | 5-10 ml      | SGH | 4 days   |  |
|   | CSF                        | Sterile<br>Universal                    |              |     |          |  |
| <i>Vibrio cholerae</i> & other<br>species.  | Faeces                     | Universal<br>30ml<br>faecal pot         | 1-2gm        | SGH | 2-3 days | Please give<br>travel history  |
| Viral eye swabs<br>[e-QUEST:Viral eye<br>swab]  | Eye swab<br>in VTM         | Swab in<br>Viral<br>Transport<br>Medium | N/A          | SGH | 1-2 days |  |



|   |   |  |      |     |  |  |
|---|---|--|------|-----|--|--|
| HSV and Adenovirus PCR  |   |  |      |     |  |  |
| Viral Haemorrhagic Fevers (VHF)   | <b>Discuss with a Virologist/ Microbiologist urgently</b> |  |      |     |  |  |
| Viral meningo-encephalitis studies<br>[e-QUEST: Viral Meningitis/enceph.]<br><br>Includes:<br>HSV, VZV, Enterovirus.<br>Meningococcal PCR dependent on clinical details | CSF   | Sterile Universal                      | 2 ml | SGH | 1-2 days   | Please give date of onset and any travel history.  |
| Viral swabs (genital/ lesions/ vesicles)  | Lesion swab   | Swab in Viral Transport Medium         |      | SGH | 1-2 days   | Give full clinical details.  |
| Vitreous biopsies/ tap  | Vitreous fluid  |  |      | SGH | 2 days   | Please state clearly if fungal infection suspected.  |
| VRE screen  | Rectal swab   | Sterile swab in Amies transport medium | N/A  | SGH | 2 days for negative, 3 days for presumptive positive | Specimens are rejected if >48 hrs as sub optimal for the isolation or organism (patients from intestinal failure unit) |
| Weil's disease  | See under <a href="#">Leptospirosis</a>                   |  |      |     |  |  |
| West Nile virus   | Please discuss with virology                              |  |      |     |  |  |



|   |   |                              |         |           |          |  |
|---|---|------------------------------|---------|-----------|----------|--|
| Whipples PCR  | Please discuss with microbiology  |                              |         |           |          |  |
| Whipworm ( <i>Trichuris trichiura</i> )   | See under <a href="#">Faecal Parasitology/ OCP</a>                        |                              |         |           |          |  |
| Wound swab for MC&S<br>(Do not request for MRSA unless sending screening swabs)<br>[e-QUEST: Wound/ear/nose/throat] | Swab in Amies transport medium with charcoal.                             | N/A                          | N/A     | SGH       | 2-3 days | Specimens are rejected if >48 hrs as sub optimal for the isolation or organisms. May be stored overnight at room temperature if necessary. |
| Yellow fever virus serology   | See under <a href="#">Arboviral serology</a> . Discuss with a virologist. |                              |         |           |          |  |
| <i>Yersinia pestis</i> isolation (plague)   | <b>Discuss with a microbiologist urgently</b>                             |                              |         |           |          |  |
| Yersinia serology<br>[e-QUEST: Yersinia reference test]   | Blood (serum)   | Clotted Blood (red top tube) | 5-10 ml | Reference | 14 days  |  |
| Ziehl-Nielsen (ZN) stain  | See under <a href="#">Mycobacteria</a> .                                  |                              |         |           |          |  |