Virology and Serology

See also the Pathology Department Test List
Specimen requirements: A clotted blood sample in a gold top tube is generally required for all virology/serology investigations. Please see specific investigations for further details.

The request form must show all relevant clinical details including date of onset; date of exposure; date of LMP; EDD; occupational; vaccination; and travel history; as appropriate.

Virology Swabs

Green topped swab. Squeeze bottom of tube to release medium over swab.

Chlamydia Swabs

See Chlamydia section for instructions on use of specific collection kit.

The following list is not exhaustive. Further advice is available from the Consultant Medical Microbiologist.

The in-house serology repertoire is extensive and the laboratory will arrange for specimens to be sent elsewhere if other tests are required.

- Antenatal screening
- Avian precipitins
- Borrelia serology
- Brucella serology
- Chlamydia
- Cytomegalovirus
- Epstein Barr Virus (EBV) serology
- Fungal precipitins
- Hepatitis serology
- HIV serology
- Influenza (and other acute respiratory viral infections)
- Legionellosis
- Lyme disease serology
- Measles
- Meningococcal disease
- Mumps
- Parvovirus
- Rubella
- Streptococcal disease
- Toxoplasma serology
- Varicella Zoster Virus (chicken pox/VZV)
- Viral culture/detection
**Antenatal screening**

**Indications**
Rubella IgG antibody screen for immunity (NOT suitable for cases involving contact or for those with a rash in pregnancy), and

- Syphilis antibody
- Hepatitis B surface antigen
- HIV antigen/antibody testing will only be performed if requesting HCP signature is present on request form.

**Directions**
2 x Clotted Blood (Gold topped tube)

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**Avian precipitins**

**Indications**
Detection of antibodies to pigeon serum for diagnosis of Bird Fanciers’ Lung

**Directions**
Clotted Blood (Gold topped tube)

*Referred to specialist reference laboratory*

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**Borrelia (Lyme) serology**

It is essential that the clinical history given on the request form contains information of possible exposure (eg. tick bites); including dates; symptoms and any treatment already taken.

**Indications**
Serological diagnosis of Lyme disease (*Borrelia burgdorferi*); and other *Borrelia* sp.

**Directions**
Clotted Blood (Gold topped tube)

*Referred to specialist reference laboratory*
**Brucella serology**

It is essential that the clinical history given on the request form contains information of possible exposure (eg. veterinary; farming; foreign travel); including dates and symptoms.

**Indications**

Pyrexia of Unknown Origin especially in veterinary/farming contact

NB- use in fatigue cases is unrewarding

**Directions**

Clotted Blood (Gold topped tube)

*Referred to specialist reference laboratory*

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**Cytomegalovirus (CMV)**

**Indications**

*Serology IgG and IgM antibodies*

- More sensitive and specific than a monospot/Paul Bunnell
- Often requested in combination with CMV in diagnosis of glandular fever

**Directions**

Clotted blood (Gold topped tube)

**CMV PCR**

**Directions**

Blood – send an EDTA specimen (Lavender topped tube)

Urine – only in the case of gestational infection in neonates (or infants up to 1yr if symptomatic)

*Referred to specialist reference laboratory*
Epstein Barr Virus (EBV)

Indications

- More sensitive and specific than a monospot/Paul Bunnell
- Often requested in combination with CMV in diagnosis of glandular fever

Directions

Clotted Blood (Gold topped tube)

Referred to specialist reference laboratory

Fungal precipitins

Indications

May be of use in suspected cases of hypersensitivity pneumonitis (also known as allergic alveolitis or Farmers’ Lung)

Directions

Clotted Blood (Gold topped tube)

Referred to specialist reference laboratory
**Hepatitis serology**

**View:** Trust policies on Infection Control and Blood Bourne Viral Infections

- Refer to Appendix A of the BBV policy in relation to obtaining consent
- Remember that other infections (including EBV and CMV) can cause clinical hepatitis.
- Hepatitis E or D (delta) infections are not routinely available for testing (please discuss if required)

**Indications**

**Hepatitis A** (faecal-oral spread; not considered a blood borne virus BBV)

**HAV IgM:** Diagnostic test in acute hepatitis A

**HAV IgG:** Detection of immunity or past infection with Hepatitis A

**Hepatitis B** (BBV)

**HBsAg:** Screen for infectivity or carriage (additional markers will be performed as necessary)

**Anti-HBs:** Post-vaccination antibody levels (not used in diagnosis of disease)

**HepBc IgG** (core antibody) Indicates past infection where the patient is no longer a "carrier".

**Hepatitis B markers:** various tests requested automatically by the lab when HBsAg is positive. These help determine the stage of the disease and level of infectivity. They will be reported with an interpretation.

**Hepatitis C** (BBV)

**HCV total:** Screen for past infection. If positive; will be forwarded to a reference lab for confirmation and further tests to determine level of infectivity.

**Directions**

Clotted Blood (Gold topped tube)

*Some tests may be referred to a specialist reference laboratory*
**HIV serology**

**View:** Trust policies on Infection Control and Blood Bourne Viral Infections


Tests for HIV will only be performed if the request form contains the requestor's signature.

Same-day HIV testing is performed following discussion with laboratory staff Monday-Friday. Bloods should reach the laboratory by 9am and results will be available between 2 and 3pm.

**Indications**

Detection of HIV-1&2 antibodies and p24 antigen

**Directions**

Clotted blood (Gold topped tube)
**Influenza (and other respiratory viruses)**

**Serology**

**Indications**
Detection of Influenza A & B; and other atypical respiratory infective agents

**Directions**
Acute & Convalescent clotted bloods (Gold topped tube) 10 – 14 days apart

**Direct detection**

**Indications**
For the specific detection of respiratory viruses including 'Swine Flu'

**Directions**
Please use viral swabs (green top) and request "respiratory viral screen"

*Referred to specialist reference laboratory*

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**Legionellosis**

**Indications**
Detection of *Legionella pneumophila* antigen

**Directions**

**Urine**
This test is usually performed in conjunction with *Streptococcus pneumoniae* urinary antigen detection.

See also the Urine section
Measles

Indications

- Measles IgM serology is available for acute measles (i.e. morbilliform rash).
- Measles IgG may be helpful in some haematological or immunocompromised patients or for Occupational Health purposes.

Directions

Clotted Blood (Gold topped tube)

Please provide full clinical details including symptoms, contact history and vaccination history

Referred to specialist reference laboratory

Meningococcal disease

Prompt empirical antibiotic use is imperative

Indications

Meningococcal PCR

Directions

EDTA Blood (lavender top)

Please also send the following specimens for culture:

- Blood culture bottles
- Throat swab
- CSF (if lumbar puncture not contraindicated)

Mumps

Indications

Both IgG and IgM available according to diagnostic setting

Directions

Clotted Blood (Gold topped tube)

Please provide full clinical details including symptoms, details of any clinical contacts and vaccination history.

Referred to specialist reference laboratory
**Parvovirus**

**Indications**

Parvovirus B19 IgM and IgG may aid the diagnosis of rash +/- arthralgia; including in pregnancy

**Directions**

Clotted Blood (Gold topped tube)

Please provide full clinical details including symptoms, history of any contact with clinical cases (with dates) and information on pregnancy

*Referred to specialist reference laboratory*

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**Rubella**

**Indications**

- IgG: ante-natal or pre-conception screen for immune status
- IgM: diagnosis of acute infection.

**Directions**

Clotted blood (Gold topped tube)

Please provide full clinical details including symptoms, clinical exposure and vaccination history

*May be referred to specialist reference laboratory depending on the circumstances*

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**Streptococcal disease Anti-streptolysin ‘O’ Test**

**Indications**

Elevated titres in throat and skin infections; acute glomerulonephritis and acute rheumatic fever

**Directions**

Clotted blood (Gold topped tube)

- Antibody response generally good in throat infection but poor in skin infections
- In acute cases bacteriology culture is faster and more appropriate
**Toxoplasma serology**

**Indications**

Toxoplasma IgG is used as a screening test with IgM and avidity assays available for further assessment of positives

**Directions**

Clotted Blood (Gold topped tube)

**PRENATAL SCREENING FOR TOXOPLASMOSIS IN PREGNANCY:**

The NICE guideline (Oct 2003) recommends (Grade B) that “Routine antenatal screening for toxoplasmosis should not be offered because the harms of screening may outweigh the potential benefits”

*Reference laboratory referral is required for screen positive cases and the profoundly immunocompromised.*

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**Varicella Zoster (chicken pox) serology**

If patient pregnant or immunocompromised: post contact antibody screen must be received as soon as possible and before a maximum of 10 days post contact

**Indications**

- VZV IgG for detection of immunity
- VZV IgM for acute chickenpox infections (rarely required)

**Directions**

Clotted Blood (Gold topped tube)

**Acute VZV** (chicken pox/shingles) is usually diagnosed clinically. If in doubt a green top (viral) swab sent for PCR of the lesion contents is the best diagnostic tool

**VZ immunoglobulin (VZIG)** for treatment of non-immune contacts of a case of VZV infection is restricted to the immunocompromised, pregnant women and neonates and is only available after discussion with the Consultant Microbiologist

*Referred to specialist reference laboratory*
**Viral culture/detection**

**PCR is beginning to replace culture for the detection of many viral infections.**

**Directions**

- **Swab** in viral transport medium (green top).
- **Fluids** (e.g. CSF for viral meningitis)
- **Stool** for rota or norovirus (although the latter is usually diagnosed on clinical features)
- **Induced sputum** or bronchoalveolar lavage is required for Pneumocystis investigation (referred)

*Referred to specialist reference laboratory*

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**Viral loads (HIV, Hepatitis B, Hepatitis C, CMV, EBV)**

**Directions**

EDTA sample (lilac/purple topped bottle)

The laboratory needs to centrifuge and separate the plasma from the blood within 24 hours of the sample being collected.

**THEREFORE:**

- Viral load samples must be taken and transported to the laboratory to arrive on the same day.
- Viral load samples should not routinely be taken over the weekend. If clinically required please discuss with the laboratory.

*Referred to specialist reference laboratory*