

## PATHOLOGY TEST INFORMATION FOR GP'S

Specimens are retained in the laboratory after analysis for a defined period. Subject to individual analyte stability, further tests on a specimen that is already in the laboratory can be requested by contacting the relevant laboratory section.

### CLINICAL CHEMISTRY AND DIAGNOSTIC ENDOCRINOLOGY TESTS

Where Clinical Chemistry and Diagnostic Endocrinology tests are not listed please not hesitate to contact the CCE Laboratory (Duty Biochemist) bleep 2164

#### ACR (Albumin to Creatinine Ratio)

Specimen:	Urine (spot sample) analysed for 'Microalbumin' and creatinine.	
Turnaround time:	24 hours	
Reference range:	0 – 2.5 mg/mmol creatinine	(Microalbuminuria male: 2.5 – 29.0 mg/mmol creatinine, female 3.5 – 29.0 mg/mmol creatinine)

#### Albumin

Specimen:	4.9 mL blood in LITHIUM HEPARIN GEL tube. Reported when either Liver or Bone profile is requested.	
Turnaround time:	24 hours	
Reference range:	35 - 50 g/L	

#### ALT

Specimen:	4.9 mL blood in LITHIUM HEPARIN GEL tube. Included as part of Liver profile	
Turnaround time:	24 hours	
Reference range:	0-55 IU/L	

#### Amylase

Specimen:	4.9 mL blood in LITHIUM HEPARIN GEL tube for. Urine (spot sample) may also be tested.	
Turnaround time:	24 hours	
Reference range:	28-97 IU/L (Plasma); 0 - 470 IU/L (Urine).	

#### Anti-TPO

Specimen:	4.9 mL blood in LITHIUM HEPARIN GEL tube for.	
Turnaround time:	1-3days	
Reference range:	< 5.6 IU/ml	

#### Bilirubin

Specimen:	4.9 mL blood in LITHIUM HEPARIN GEL tube. Included as part of Liver profile (Conjugated and unconjugated bilirubin can be requested in cases of raised total bilirubin)	
Turnaround time:	24 hours	
Reference range:	5-24 µmol/L	

#### Bone profile

Specimen:	4.9 mL blood in LITHIUM HEPARIN GEL tube. Bone profile comprises Calcium, Calcium corrected for albumin, Albumin, Phosphate, and Alkaline Phosphatase.	
Turnaround time:	24 hours	
Reference range:	See individual tests.	

**CA125**

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube.  
Turnaround time: 4 Days  
Reference range: See NCCP guidelines

**Calcium**

Specimen: 4.9mL blood in LITHIUM HEPARIN GEL tube. Included as part of Bone profile profile.  
Urine (24hr or spot sample) may also be tested; 24hr urine collected with acid preservative,  
Turnaround time: 24 hours  
Reference range: Plasma: 2.18 – 2.6 mmol/L (Calcium corrected for Albumin 2.2-2.6 mmol/L). Urine 2.5 – 7.5 mmol/24h.

**Calculi**

Specimen: Renal stones, gallstones, and miscellaneous stones and fragments.  
Turnaround time: 6 weeks.  
Report format: Interpretive comments added on individual case basis.

**Carbamazepine**

Specimen: 4.9 mL blood in BROWN SERUM GEL tube for clotted blood. Trough sample should be taken immediately before next dose.  
Turnaround time: Routine: 24 hours.  
Reference range: 4 -12mg/L

**Chloride**

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube. Included as part of Renal profile profile. Urine (spot sample) may also be tested.  
Turnaround time: 24 hours  
Reference range: 95–108 mmol/L

**Cholesterol**

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube.  
Random or Fasting sample. Reported as part of Lipid Screen (min 12h fast).  
Turnaround time: 24 hours  
Reference range: < 5.2 mmol/L is optimal (NCEP guidelines)

**CK (Creatine Kinase)**

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube.  
Turnaround time: 24 hours  
Reference range: Ref range for Caucasians: 33-208 IU/L (Female) 44-272 (Male). Ref range for Afro-Carribeans twice these.

**Cortisol**

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube. Note time and date of collection on tube to facilitate appropriate interpretation of result. Morning sample preferred  
Turnaround time: 24 hours  
Reference range: Morning: 150-455 nmol/L

**Creatine Kinase (CK)**

**See CK**

**Creatinine**

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube. Included as part of Renal profile.  
Turnaround time: 24 hours  
Reference range: Plasma: 46-86 µmol/L (Female); 65-107 µmol/L (Male). Estimated GFR based on MDRD eGFR is added to reports.

### CRP (C-Reactive Protein)

Specimen: 4.9 ml in LITHIUM HEPARIN GEL tube  
Turnaround time: 24 hours  
Reference range: less than 7.0 mg/L

### Ferritin

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube for clotted blood.  
Turnaround time: 1 -3 days  
Reference range: Females: 8-247µg/L; Males 22-275µg/L

### Folate

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube for clotted blood. See Red Cell Folate.  
Turnaround time: 1-3 days  
Reference range: 3.8-18.2 µg/L

### Free T4

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube. Included as part of Thyroid Function Test (TFT)  
Turnaround time: 1-3 days  
Reference range: 9-20pmol/l

### FSH

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube for clotted blood.  
Turnaround time: 1-3 days  
Reference range: Male: 1.4-10.8 mIU/ml). Female: Follicular phase: 3.0-8.1 IU/L, Mid-cycle peak: 2.6-16.7 IU/l, Luteal phase: 1.4-5.5 IU/l

### Gamma GT (GGT)

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube. Included as part of Liver profile.  
Turnaround time: 24 hours.  
Reference range: 8-53 IU/L (Female); 11-67IU/L (male).

### Globulin

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube for clotted blood. Globulin is a calculated parameter (Total Protein minus Albumin).  
Included as part of Liver Profile or 'Proteins'.  
Turnaround time: 24 hours  
Reference range: 26-39 g/L

### Glucose

Specimen: 2.7 mL blood in Fluoride-EDTA yellow tube Sarstedt **04.1918.001 only available from Euroroute**  
Turnaround time: 24 hours  
Reference ranges: Fasting: 3.5 – 6.0 mmol/L. 2 hour post 75 g load: up to 7.8 mmol/L  
Random: there is no specific range for Random glucose.  
Diagnosis of Diabetes Mellitus:  
(a) Symptoms of diabetes plus:  
Random venous plasma glucose > 11.1 mmol/l, or  
Fasting venous plasma glucose > 7.0 mmol/l, or  
Plasma Glucose >11.1 mmol/l 2 hours after 75g glucose load in GTT  
(b) Any of the above on two separate occasions (excluding acute illness).

### Glucose Tolerance Test (GTT)

Specimen:	2.7 mL blood in Fluoride-EDTA yellow tube.Sarstedt <b>04.1918.001 only available from Euroroute</b>			
	Patient should be fasting for 8 hours or more. Once fasting blood is collected, the patient drinks a glucose drink (details outlined in CP-PHL-002).			
	The patient should not walk about or smoke until the second sample is taken exactly 2 hours after finishing the drink.			
Turnaround time:	1 day.			
Reference range:	Interpretation of GTT (Venous plasma glucose in mmol/L)			
	WHO criteria (also adopted by BDA) for OGTT			
		Fasting		
		<6.1	6.1 – 6.9	>6.9
	<7.8	N	IFG	DM
2hr post 75g Glucose load	7.8 –11.0	IGT	IGT	DM
	>11.0	DM	DM	DM

N=Normal, DM=Diabetes Mellitus, IFG = Impaired Fasting Glycaemia, IGT=Impaired Glucose Tolerance.

### HbA1c (Glycosylated Haemoglobin)

Specimen:	2.7 ml EDTA (Red) Sarstedt 04.1917.001Euroroute CS02139	
Turnaround time:	4 days	
Reference range:	IFCC: 20-42 mmol/mol DM diagnosis > or = 48mmol/mol	

### hCG

Specimen:	4.9 mL blood in LITHIUM HEPARIN GEL tube.	
Turnaround time:	24 hours	
Reference range:	< 5 IU/L Under 2 IU/L. excludes pregnancy.	

### HDL (HDL-Cholesterol)

Specimen:	4.9 mL blood in LITHIUM HEPARIN GEL tube.. Included as part of Lipid Profile.	
	Fasting 12 hours + is required.	
Turnaround time:	24 hours.	
Reference range:	>1.5 mmol/L	

### Iron

Specimen:	4.9 mL blood in LITHIUM HEPARIN GEL tube (Fasting for 12 hours or more is required)	
Turnaround time:	24 hours	
Reference range:	Male 12-32µmol/L Female 6-33 µmol/L	

### Iron Saturation no longer assayed See Iron Studies

### Iron Studies

Specimen:	4.9 mL blood in LITHIUM HEPARIN GEL tube	
	'Iron Studies' (FES) comprises Iron, Transferrin & Transferrin Saturation (Fasting for 12 hours or more is required)	
Turnaround time:	24 hours	
Reference range:	See individual tests.	

**LDH (Lactate Dehydrogenase)**

Specimen: 4.9 mL blood in BROWN SERUM GEL tube for clotted blood.  
Turnaround time: 24 hours  
Reference range: 120-220 IU/L.

**LDL (LDL-Cholesterol)**

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube. Fasting for 12 hours or more is required.  
Tested as part of Lipid profile / Lipid screen  
Turnaround time: 24 hours  
Reference range: Desirable range: <2.6mmol/L. (Lower levels are recommended for secondary prevention)

**LFT (Liver Function Tests) See Liver Profile.**

**LH**

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube.  
Turnaround time: 1-3 days  
Reference range: 1.4-6.5 mIU/ml (male)  
Female: Follicular phase: 1.8-11.8 IU/l, Mid-cycle peak: 7.6-89.1 IU/l, Luteal phase: 0.6-14.0 IU/l

**Lipid screen / Lipid profile**

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube.  
Lipid profile comprises Total Cholesterol, Triglycerides, LDL-Cholesterol, and HDL-Cholesterol. Fasting for 12 hours or more is required.  
Turnaround time: 24 hours.  
Reference range: See individual tests

**Lithium**

Specimen: 4.9 ml blood in a BROWN SERUM GEL tube for clotted blood. Sample must be taken 12 hours after dose.  
Turnaround time: 8 days  
Therapeutic range: 0.4 – 1.0 mmol/L

**Liver profile**

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube.  
Liver profile comprises Total Protein, Albumin, Globulin (calculated), Bilirubin, ALT, Alkaline Phosphatase and GGT.  
Turnaround time: 24 hours  
Reference range: See individual tests.

**Magnesium**

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube for clotted blood.  
Urine (timed or random collection, taken into metal-free container) may also be tested.  
Turnaround time: 24 hours  
Reference range: Plasma: 0.7 – 1.0 mmol/L. Urine: 3 – 5 mmol/L; UMg should be <1 if Mg-depleted.

**Oestradiol**

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube.  
Turnaround time: 1-3 days  
Reference range: Males: 40-161 pmol/L Female: Follicular: 92-921pmol/l, Mid-Cycle: 139-2382 pmol/l, Luteal: 92-1145 pmol/l

### Osmolality

Specimen: 4.9ml LITHIUM HEPARIN gel or Urine(spot)  
Turnaround time: 3 hrs  
Reference range: Plasma: 285 – 295 mmol/Kg  
Assess urine osmolality relative to plasma osmolality and electrolytes and in the context of disease investigation.

### Phenobarbitone

Specimen: 4.9 mL blood in BROWN SERUM GEL tube for clotted blood. Trough sample should be taken immediately before next dose  
Turnaround time: Routine: 24 hours.  
Reference range: 10 – 40 mg/L

### Phenytoin

Specimen: 4.9 mL blood in BROWN SERUM GEL tube for clotted blood. Trough sample should be taken immediately before next dose  
Turnaround time: Routine: 24 hours. .  
Reference range: 10 – 20 mg/L

### Phosphate (PO4)

Specimen: 4.9mL blood in LITHIUM HEPARIN GEL tube. Included as part of Bone profile.  
Urine (24hr or spot sample) may also be tested; 24hr urine Plain  
Turnaround time: 24 hours  
Reference range: Plasma: 0.74-1.52 mmol/L. Urine 16 – 48 mmol/24h.

### Potassium

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube. Included as part of Renal profile.  
Do NOT refrigerate sample. Urine (spot sample) may also be tested.  
Turnaround time: 24 hours  
Reference range: Plasma: 3.3 – 5.0 mmol/L. Interpret urine values relative to plasma value.

### Prolactin

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube.  
Turnaround time: 1-3 days (Turnaround time is 1 week for patients whose samples have potential analytical interferences from macroprolactin)  
Reference range: See report

### Progesterone

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube. Day 21 sample required (or 7 days before the onset of menses if not a 28day cycle)  
Turnaround time: 1-3days  
Reference range: Assuming correctly timed sample: >25 suggestive of ovulation

### Protein, Total

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube. Included as part of Liver profile or Proteins.  
Urine (24hr or spot sample) may also be tested; 24hr urine collected in plain container  
Turnaround time: 24 hours  
Reference range: 65-83 g/L

**PSA (Prostate Specific Antigen)**

Specimen:	4.9 mL blood in LITHIUM HEPARIN GEL tube. PSA test is available for diagnostic and monitoring purposes only, not for screening.	
Turnaround time:	1 working day	
Clinical decision thresholds	<b>Age</b>	<b>PSA</b>
	<50 yrs	≥ 3.0 ng/ml
	50 – 59 yrs	≥ 3.0 ng/ml
	60 – 69 yrs	≥ 4.0 ng/ml
	70 years and over	> 5.0 ng/ml

**PTH (Parathyroid Hormone)**

Specimen:	2.7 ml EDTA (Red) Sarstedt 04.1917.001Euroroute CS02139 <b>Separate sample</b>
Turnaround time:	1-3days
Reference range:	1.6-6.9 pmol/l

**Red Cell Folate**

Specimen:	2.7 ml in EDTA (PINK). Use serum folate for first time testing. Red Cell Folate will be added if appropriate
Turnaround time:	28 days
Reference range:	126-651 µg/l

**Renal profile**

Specimen:	4.9 mL blood in LITHIUM HEPARIN GEL tube. Do NOT refrigerate sample. Renal profile comprises Sodium, Potassium, Total CO <sub>2</sub> , Chloride, Urea, and Creatinine.
Turnaround time:	24 hours
Reference range:	See individual tests.

**Sodium**

Specimen:	4.9 mL blood in LITHIUM HEPARIN GEL tube. Included as part of Renal profile. Urine (spot sample) may also be tested.	
Turnaround time:	24 hours	
Reference range:	133 – 146 mmol/L	Interpret urine values relative to plasma value.

**Testosterone**

Specimen:	4.9 mL blood in WHITE tube (no anticoagulant)
Turnaround time:	2 weeks
Reference range:	Males: 7.1 – 31.1 nmol/l, females: 0.5 – 1.8nmol/l
Note	SHBG is added to male testosterone >0.7, <10.0 nmol/l and females if testosterone is >1.5 nmol/l. Free androgen index is calculated for females and the free testosterone for males is calculated on request. Refer to reports for reference ranges.

**Theophylline**

Specimen:	4.9 mL blood in BROWN SERUM GEL tube for clotted blood. Dry tube (no anticoagulant) may be used. Trough sample should be taken immediately before next dose.
Turnaround time:	Routine: 24 hours
Reference range:	10– 20 mg/L

**Transferrin**

Specimen:	4.9 mL blood in LITHIUM HEPARIN GEL tube. Included as part of Iron Studies (fasting). Transferrin Saturation is calculated.
Turnaround Time:	24 Hours
Reference Range:	Males: 1.88- 3.02 g/l, Females: 1.93- 3.08g/l.

**Transferrin Saturation ( %Fe Sat)**

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube. Included as part of Iron Studies.  
 Turnaround Time: 24 Hours  
 Reference Range: %Fe SAT (F) : 10-50      %Fe SAT (M) : 19-55

**TSH (Thyroid Stimulating Hormone)**

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube. Included as part of Thyroid Function Test (TFT)  
 Turnaround time: 1 to 3 days  
 Reference range: 0.35-4.94 mIU/l

**Thyroid Function Test**

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube. Includes fT4 and TSH  
 Turnaround time: 1 to 3 days  
 Reference range: **See individual tests**

**Urate (Uric Acid)**

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube.  
 Turnaround time: 24 hours  
 Reference range: Plasma: 177-465 µmol/L. Urine: 1.5 – 4.4 mmol/L /24hrs

**Urea**

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube. Included as part of Renal profile.  
 Turnaround time: 24 hours  
 Reference range: Plasma: 2.8– 8.6 mmol/L. Urine: 400 – 800 mmol/24hrs

**Urine tests**

**See individual analytes**

**Valporate (Epilim)**

Specimen: 4.9 mL blood in BROWN SERUM GEL tube for clotted blood. Dry tube (no anticoagulant) may be used. Trough sample should be taken immediately before next dose  
 Turnaround time: 24 hours.  
 Reference range: 40 – 100 mg/l

**Vitamin B12**

Specimen: 4.9 mL blood in LITHIUM HEPARIN GEL tube.  
 Turnaround time: 1 to 3 days  
 Reference range: 211-760 ng/l

**Vitamin D**

Specimen: 4.9 mL blood in WHITE tube (no anticoagulant). Must be a separate specimen  
 Turnaround time: 2 weeks  
 Reference range: Desirable range greater than 50 nmol/L



## HAEMATOLOGY

### Activated partial thromboplastin time (APTT)

Specimen:	3ml Coagulation tube (green cap) or 1.4 ml Paediatric Coagulation tube (green cap) Blood exactly aspirated to the mark and gently mixed. Specimen must be assayed within 4 hours of venepuncture
Turnaround time:	3 hours
Reference range:	Please refer to reference range stated with result

### Activated Protein C Resistance (APCR-V) **This is a screening test for the FVL mutation. If requested as part of a thrombophilia screen please follow instructions in Thrombophilia screen section**

Specimen:	2 x 3ml Coagulation tubes (green cap) and 1 x 2.7ml grey cap EDTA tube. Test cannot be performed if patient is on Heparin or any of the novel anticoagulant.
Turnaround time:	6-8 weeks
Reference range:	<b>Ratio &gt;2.1 is normal</b>

### Antithrombin (only) If requested as part of a Thrombophilia screen follow instructions in Thrombophilia screen section.

Specimen:	2 x 3ml Coagulation tubes (green cap). Test cannot be performed if patient is on Rivaroxaban or Apixaban
Turnaround time:	6 weeks
Reference range:	<b>See report form</b>

### Blood film

Specimen:	2.7 ml blood in EDTA tube (grey cap tube). Blood film will be examined, if requested, with relevant clinical information or if indicated by the F.B.C. In the presence of a normal F.B.C., there are few indications for routine film examination, e.g. possible infectious mononucleosis. Film must be made within 12 hrs of venepuncture
Turnaround time:	96 hours
Reference range:	Not applicable

### D-Dimers (DD) **Please contact the Haematology lab on (01) 8032065 if ordering this test**

Specimen:	3ml Coagulation tube (green cap) Blood exactly aspirated to the mark and gently mixed. Specimen must be assayed within 4 hours of venepuncture.
Turnaround time:	3 hours
Reference range:	0 - 0.5mg/L

### ESR

Specimen:	3.5 ml Sedivette (Purple ESR tube) Blood exactly aspirated to the mark and mix gently. Except in the case of G.C.A. (giant cell arteritis) ESR is not an emergency test.
Turnaround time:	4 hours
Reference range:	(Westgren)                      0 - 10 mm 1st hour (Male)                      0 - 20 mm 1st hour (Female)

### Factor V Leiden (FVL) (only) **If requested as part of a Thrombophilia screen follow instructions in Thrombophilia screen section.**

### **Request MUST be accompanied by a fully completed Thrombophilia screen/Lupus anticoagulant request and patient consent form**

Additional Information:	<b>Prior to performing the genetic test for the FVL, the APCR-V assay must be performed as a screening test. The FVL mutation test is performed when the APCR-V is positive. Positive samples are referred to St. James Hospital for genetic testing.</b>
Specimen:	2 x 3ml Coagulation tubes (green cap) and 1 x 2.7ml grey cap EDTA tube

Turnaround time: 6-8 weeks  
Reference range: **Sent for FVL based on APCRV ratio (must be <2.1 ratio)**

**Full blood count (FBC)**

Specimen: 2.7 ml blood in EDTA tube (grey cap tube).  
Blood aspirated to the mark and gently mixed. Full Blood Count (F.B.C.), results given for white and red cell counts, haemoglobin, haematocrit (P.C.V.), red cell indices - mean corpuscular volume (M.C.V.), mean corpuscular haemoglobin (M.C.H.), mean corpuscular haemoglobin concentration (M.C.H.C.), red cell distribution width (R.D.W.) and platelet count. White Blood Cell differential is given in absolute numbers.

Turnaround time: 3 hours

Reference range:	<b>WBC</b>	3.50 - 11.0	x 10 <sup>9</sup> /L		
	<u>Differential</u>				
	Neutrophils	2.00 – 8.00	x 10 <sup>9</sup> /L		
	Lymphocytes	1.00 - 4.00	x 10 <sup>9</sup> /L		
	Monocytes	0.20 – 1.00	x 10 <sup>9</sup> /L		
	Eosinophils	0.00 - 0.50	x 10 <sup>9</sup> /L		
	Basophils	0.00 - 0.20	x 10 <sup>9</sup> /L		
	<b>RBC</b>	4.5 - 5.50	x 10 <sup>12</sup> /L (Male)	3.80 - 4.80 x 10 <sup>12</sup> /L	(Female)
	<b>HGB</b>	13.0 - 18.0	g/dl (Male)	11.5 - 16.5 g/dl	(Female)
	<b>HCT</b>	0.400 - 0.50	L/L (Male)	0.370 - 0.470 L/L	(Female)
	<u>Indices</u>				
	MCV	80.0 - 100.0	fl		
	MCH	27.0 – 32.0	Pg		
	MCHC	30.0 – 36.0	G/dl		
	RDW	11.0 – 15.0	%		
	Platelets	150 -400	X 10 <sup>9</sup> /L		

**Haemoglobin Electrophoresis**

Specimen: 2.7 ml blood in EDTA tube (grey cap tube). Analysis carried out using alkaline electrophoresis and HPCL to quantify HbA2 and HbF and to identify/quantify haemoglobin variants. Acid electrophoresis is used to confirm/identify rarer variant haemoglobins

Turnaround time: 10 days

Reference range: Adult HbA<sub>2</sub> : 1.5 - 3.4 %. HbF : < 1.0%

**I.M.S. (Infectious Mononucleosis) screen**

Specimen: 2.7 ml blood in EDTA tube (grey cap tube).

Turnaround time: 3 hours

Reference range: Positive or negative result

**INR See Prothrombin time**

**Lupus Anticoagulant**

Specimen: Three x 3 ml Coagulation tubes (green cap). Blood exactly aspirated to the mark and gently mixed. Test cannot be performed if patient is on LMWH, Apixaban, Dabigatran or Rivaroxaban. Tests performed include PT, APTT, DRVVT, SCT and Lupus confirmatory tests.

Turnaround time: 14 days

Reference range: **dRVVT Ratio** Ratio >1.20 positive  
**SCT Ratio** Ratio >1.16 positive

**Malarial Parasite Screen (MPS)**

Specimen: 2.7 ml blood in EDTA tube (grey cap tube). Freshly collected sample taken to the Haematology lab immediately and handed to a member of staff. Must be received in Lab within 2 hours of venepuncture. Please complete Malaria request form available on Mater.ie as detailed clinical history and foreign travel details are required. Patients must attend MMUH Phlebotomy with completed malaria form as malaria request is not orderable on Healthlink.  
Screen includes an immunochromatographical slide test (MST) and screening of specially stained films

Turnaround time: 1 hour MST, 24 hours MPS

Reference range: Positive or negative result

**Protein C (only) If requested as part of a Thrombophilia screen please follow instructions in Thrombophilia screen section.**

Specimen: 2 x 3ml Coagulation tubes (green cap)

Turnaround time: 6 weeks

Reference range: See report form

**Free Protein S (only) If requested as part of a Thrombophilia screen please follow instructions in Thrombophilia screen section**

Specimen: 2 x 3ml Coagulation tubes (green cap)

Turnaround time: 6 weeks

Reference range: See report form

**Prothrombin time (PT)**

Specimen: 3ml normal or 1.4 ml Paediatric Coagulation bottles (green cap) Blood exactly aspirated to the mark and gently mixed. International normalised ratio (I.N.R.) is derived from the P.T. and the sensitivity of the thromboplastin reagent. Specimen must be assayed within 12 hours of venepuncture

Turnaround time: 3 hours

Reference range: Please refer to reference range stated with result

**Reticulocytes**

Specimen: 2.7 ml blood in EDTA tube (grey cap tube).)

Turnaround time: 3 hours

Reference range: 16 - 80 x 10<sup>9</sup>/L

**Sickle Cell Screen**

Specimen: 2.7 ml blood in EDTA tube (grey cap tube).)

Turnaround time: 24 hours

Reference range: Positive or negative result BUT all results must be verified on Haemoglobin electrophoresis.

**Thrombophilia Screen - Request MUST be accompanied by a fully completed Thrombophilia screen/Lupus anticoagulant request and patient consent form**

Specimen: 6 x 3ml Coagulation tube (green cap) or 2 x 10ml coagulation tube (green cap) and 1 x 2.7 ml blood in EDTA tube (grey cap tube).  
Testing while on novel anticoagulants is not recommended as it can interfere with coagulation assays  
Tests performed include PT, APTT, Fibrinogen, Lupus Anticoagulant, Protein C, Free Protein S, Antithrombin, Activated Protein C Resistance, and Factor V Leiden. Patients should be 2-3 weeks post thrombotic event before testing, samples should be sent to the lab as soon as possible after phlebotomy. Requests must meet the guideline for Heritable Thrombophilia testing which is available on Mater.ie. Thrombophilia screen tests cannot be performed if the patient is on Apixaban, Rivaroxaban or Dabigatran.  
The following tests will not be performed if the patient is on VKA: PC & PS  
The following tests will not be performed if the patient is on heparin: LA, APCRV, and Antithrombin.

Turnaround time: 6 weeks, Factor V Leiden referred to St. James's Hospital. For reference range, see report form.

## CELLULAR PATHOLOGY

### Specimen Preservation

Appropriate preservation of tissue samples is of utmost importance for successful histological diagnosis.

Most tissue specimens may be placed immediately into 10% buffered Formalin. Small pre-filled containers are obtainable from the Histology Laboratory. Avoid squeezing specimens into small containers and ensure large specimens are, at a minimum, fully immersed in the 10% Formalin solution. If in doubt about how to treat a Histology or Cytology specimen, please contact a member of the Histology staff before putting the specimen into a fixative.

### Specimen Labelling and Transport

The **body** of the specimen container must be labelled with the patient and specimen details. Consecutive specimens are labelled A, B, C etc. A completed request form must accompany all specimens. Minimum information includes patient surname and forename, date of birth, address, GP name and address, clinical details, specimen type and specimen site. Desirable information includes the date and time of specimen collection. Urgent requests must be phoned to the laboratory.

### Reports and Additional Requests

Reports are available from the Laboratory Office, not from the laboratory. Reports follow SNOMED International (College of American Pathologists) nomenclature.

Tissue embedded in paraffin blocks and stained slides are stored for a minimum of 30 years, wet tissue is kept for a minimum of 2 weeks after the final report is issued and fluids are kept for a minimum of 48 hours after the final report is issued (College of American Pathologists minimum retention times, 2009). Any additional examinations may be requested by contacting a Consultant Pathologist or Pathology N.C.H.D., within these time limits.

**TISSUE SPECIMENS      10% Neutral Buffered Formalin –Fixed Tissue Specimens**

Specimen: Small tissue specimens in 10% buffered formalin  
Turnaround Time: 5 working days (additional time may be required for special procedures).  
Special Precautions: All tissue specimens must be preserved in 10% buffered formalin before transport to the laboratory.

**CYTOLOGY (NOTE: CERVICAL CYTOLOGY EXAMINATIONS NOT PERFORMED BY THIS LABORATORY)**

**Pleural / Ascitic Fluids**

Specimen: 50mls aliquot deliver as soon as possible. Do not bring bag to laboratory. Place 3 IU heparin per ml of fluid to prevent clot formation.  
Turnaround time: 3 working days (additional time may be required for special procedures).  
Special precautions: Clotted specimens are unsuitable for Cytology. A clot sequesters cells and may lead to erroneous results.

**Urine**

Specimen: Approximately 50 ml specimen to be sent to the laboratory as soon as it is obtained. The first morning specimen is not suitable for processing.  
Turnaround time: 3 working days (additional time may be required for special procedures).  
Special precautions: If delay in transport, add Cytolyt (available from Cellular Pathology) to specimen. This helps prevent cell degeneration caused by acidic nature of urine  
Specimen: Approximately 50 ml specimen to be sent to the laboratory as soon as it is obtained. The first morning specimen is not suitable for processing.

**Sputum**

Specimen: Three consecutive deeply coughed early morning specimens, preferably after physiotherapy, constitute the usual screening procedure.  
Salivary or contaminated specimens (food) are unsuitable for testing. Deliver as soon as possible.  
Turnaround time: 3 working days (additional time may be required for special procedures).

## IMMUNOLOGY

**Lipaemic, haemolysed or microbial contaminated samples may give poor results and may not be accepted.**

### Add-on Test Requests

Routine samples are retained for a period post analysis. Further tests on a specimen that is already in the laboratory can be requested by contacting the laboratory. Sample stability limits for add on requests are outlined below for specific tests. For all other tests, the sample stability limit is 28 days.

#### Allergen Specific IgE

Specimen:	4.9 ml in BROWN Serum Gel tube for clotted blood. Specific allergens must be requested.
Turnaround time:	8 days
Reference range:	Less than 0.35 kUa/L
Additional information:	Perennial Allergic rhinitis Panel: Total IgE, house dust mite, mixed moulds, cat & dog dander, grass mix. Eczema Panel: Total IgE, house dust mite, milk, egg white. Asthma Panel: Total IgE, house dust mite, mixed moulds, cat & dog dander Fish Panel: Total IgE, Cod, Shrimp Wheat Panel: Total IgE, wheat, TTG. Mixed nut, mixed food. Samples with insufficient information will be held for one month for specific requests to be added. Specific food allergen requests will be accepted providing an adequate clinical history is provided.

#### Alpha-1-antitrypsin

Specimen:	4.9 ml in BROWN Serum Gel tube for clotted blood
Turnaround time:	2 days
Reference range:	0.90 – 2.00 g/L
Additional information:	Alpha-1-antitrypsin phenotype will be requested if the AAT is less than 1.0 g/L
Sample stability:	7 days

#### Anti nuclear antibody pattern

Specimen:	See nuclear antibody
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#### ASO (anti streptolysin O)

Specimen:	4.9 ml in BROWN Serum Gel tube for clotted blood
Turnaround time:	2 days
Reference range:	Less than 200 IU/mL Anti streptolysin O usually appears 1 week after infection and reach a peak in about 3-4 weeks. A two-fold increase in the ASO value, using serial analysis, within one to two weeks of the initial result is supportive of a prior streptococcal infection. In the absence of complications or re-infection, the ASO level will usually fall to pre-infection activity within 6-12 months. A single ASO analysis may not be meaningful due to variability of ASO values within the normal population.
Sample stability:	7 days

#### Aspergillus fumigatus specific IgG antibody

Specimen:	4.9 ml in BROWN SERUM GEL tube for clotted blood
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Turnaround time: 8 days  
Reference range: Less than 40 mgA/L for non CF patients, less than 90 mgA/L for CF patients

#### Antibody Screen

Specimen: 4.9 ml in BROWN SERUM GEL tube for clotted blood  
Turnaround time: 7 days  
Reference range: Negative is normal  
The antibody screen includes parietal cell antibody (PCA), mitochondrial antibody (AMA), smooth muscle antibody (SMA), which are tested on rat tissue.  
If the PCA is positive, suggest testing for Thyroid peroxidase antibody.  
If the AMA is positive, the sample will automatically be tested for M2 (PBC) antibodies.  
Additional Information: Positive samples will not be repeated within 3 months

#### Avian antibodies

Specimen: 4.9 ml in BROWN SERUM GEL tube for clotted blood  
Turnaround time: 8 days  
Reference Range: Budgie mix (feathers, droppings, serum): Less than 8 mgA/L  
Pigeon mix (feathers, droppings, serum): Less than 38 mgA/L

#### Beta-2-glycoprotein-1 IgG antibody

Specimen: 4.9 ml in BROWN SERUM GEL tube for clotted blood  
Turnaround time: 8 days  
Reference range: Less than 10 U/mL  
Sample stability: 7 days

#### Beta-2-Microglobulin (B2M)

Specimen: 4.9 mL blood in BROWN SERUM GEL tube for clotted blood  
Turnaround time: 3 days  
Reference range: 1.2 – 2.4

#### BJP Identification

Specimen: Urine samples analysed by electrophoresis and immunofixation for presence of BJP.  
Turnaround time: 14 days  
Reference range: No BJP detected is normal.

#### Bullous Pemphigoid

Specimen: See Skin Antibodies in Serum (Indirect Skin abs)

#### Cardiolipin IgG & IgM antibody

Specimen: 4.9 ml in BROWN SERUM GEL tube for clotted blood  
Turnaround time: 8 days  
Reference range: Less than 10 U/mL

#### CCP (cyclic citrullinated peptide) antibody

Specimen: 4.9 ml in BROWN SERUM GEL tube for clotted blood  
Turnaround time: 4 days  
Reference range: Less than 11 U/mL

#### Centromere antibody

Specimen: See nuclear antibody

### Ceruloplasmin

Specimen: 4.9 ml in BROWN SERUM GEL tube for clotted blood  
Turnaround time: 2 days  
Reference range: 0.20 – 0.60 g/L  
Sample stability: 7 days

### C1-esterase inhibitor

Specimen: 4.9 ml in BROWN SERUM GEL tube for clotted blood  
Turnaround time: 2 days  
Reference range: 0.21 – 0.39 g/L  
C3 & C4 will automatically be tested  
Sample stability: 7 days

### Complement (C3 & C4)

Specimen: 4.9 ml in BROWN SERUM GEL tube for clotted blood  
Turnaround time: 2 days  
Reference range: Adult C3: 0.75 – 1.88 g/L. C4: 0.14 – 0.61 g/L  
Sample stability: 48 hours

### dsDNA antibody (Immunoassay)

Specimen: 4.9 ml in BROWN SERUM GEL tube for clotted blood  
Turnaround time: 8 days  
Reference range: Less than 15 IU/mL. If the result is greater than 10 IU/mL, DNA CL will automatically be requested (unless it was previously DNACL+)

### DNA CL (Immunofluorescence assay using *Crithidia luciliae*)

Specimen: The dsDNA antibody sample is used, if the result was greater than 10 IU/mL. **Not available by direct request.**  
Turnaround time: 8 days  
Reference range: Negative is normal. This assay is more specific but less sensitive than the DNA ELISA

### ENA antibodies (Ro, La, RNP, Sm, Scl-70 & Jo-1)

Specimen: 4.9 ml in BROWN SERUM GEL tube for clotted blood  
Turnaround time: 12 days  
Reference range: If the antinuclear antibody was ANA +, it is automatically tested for ENA antibodies. The sample is initially screened for ENA antibodies, if this is positive, the sample is automatically tested for the individual antibodies (ENAC). ENA Screen ratio <0.7 is negative. Samples with levels >0.7 will be tested for specific ENA antibodies  
Additional Information: Positive samples will not be repeated within 6 months

### Endomysial (IgA) antibody

Specimen: 4.9 ml in BROWN SERUM GEL tube for clotted blood  
Turnaround time: 12 days  
Reference range: Negative is normal.  
Additional Information: EMA is only used to confirm TTG positive samples. Previously positive samples are not repeated for EMA. The tTG antibody assay is used to monitor patients.



**Haptoglobin**

Specimen: 4.9 ml in BROWN SERUM GEL tube for clotted blood  
Turnaround time: 10 days  
Reference range: 0.30 – 2.00 g/L  
Sample stability: 7 days

**IgE**

Specimen: 4.9 ml in BROWN SERUM GEL tube for clotted blood  
Turnaround time: 8 days  
Reference range: 0 - 3 years old: less than 56 kU/L      3 - 7 years old: 56-110 kU/L  
8 - 10 years old: 124-148 kU/L      Greater than 10 years old: Less than 114 kU/L

**Immunoglobulins IgG, IgA & IgM**

Specimen: 4.9 ml in BROWN SERUM GEL tube for clotted blood. Requests for Immunoglobulins are also assayed for Protein Electrophoresis & vice v.  
Turnaround time: 10 days  
Reference range: Adults IgG: 7.00 – 16.00 g/L    IgA: 0.80 – 4.00 g/L    IgM: 0.4 – 2.30 g/L  
The results are not released until compared with Protein Electrophoresis results. If there is a band present, sample is immunofixed.  
Sample stability: 7 days

**Intrinsic factor antibody**

Specimen: 4.9 ml in BROWN SERUM GEL tube for clotted blood  
Turnaround time: 21 days  
Reference range: Less than 6 U/mL

**Jo-1 antibody**

Specimen: See ENA antibody

**La antibody**

Specimen: See ENA antibody

**LKM antibody**

Specimen: 4.9 ml in BROWN SERUM GEL tube for clotted blood  
Turnaround time: 21 days  
Reference range: Less than 3 U/mL

**M2 (PBC) antibody**

Specimen: 4.9 ml in BROWN SERUM GEL tube for clotted blood  
Turnaround time: 7 days  
Reference range: Less than 6 IU/mL

**Mitochondrial antibody**

Specimen: See antibody screen

**Nuclear antibody (ANA)**

Specimen: 4.9 ml in BROWN SERUM GEL tube for clotted blood  
Turnaround time: 7 days  
Additional information: Negative is normal. ANA is tested on Hep2 cells to detect and identify anti nuclear antibody (centromere, homogeneous, nucleolar and speckled patterns). If the ANA is greater than a weak positive, it will automatically be tested for dsDNA and ENA (extractable nuclear antigen, which includes anti Ro, La, RNP, Sm, Jo-1 & Scl-70) antibodies. Positive samples will not be repeated within 3 months

**Paraprotein identification /Protein Electrophoresis**

Specimen: 4.9 ml in BROWN SERUM GEL tube for clotted blood  
 Requests for Protein Electrophoresis (SPEP) are also automatically assayed for serum Immunoglobins. If a possible paraprotein band is detected then, the sample is automatically reflexed for immunofixation, unless a paraprotein was previously typed & identified.

Turnaround time: 10 days

Reference range: No paraprotein detected is normal. Report comments added on an individual case basis.

**Parietal cell antibody**

Specimen: See antibody screen

**Rheumatoid Factor**

Specimen: 4.9 ml in BROWN SERUM GEL tube for clotted blood. Fluids cannot be tested.

Turnaround time: 2 days

Reference range: RF <3.5 U/mL: Negative result, RF 3.5 – 5.0 U/mL: Equivocal result, RF >5 U/mL: Positive result

**RNP antibody**

Specimen: See ENA antibody

**Ro antibody**

Specimen: See ENA antibody

**Scl-70 antibody**

Specimen: See ENA antibody

**Skin antibodies in serum**

Specimen: 4.9 ml in BROWN SERUM GEL tube for clotted blood

Turnaround time: 7 days

Reference range: Negative is normal

**Sm antibody**

Specimen: See ENA antibody

**Smooth muscle antibody**

Specimen: See antibody screen

**Thyroid Antibodies Please see under Clinical Chemistry and Diagnostic Endocrinology**

**Tissue transglutaminase antibody**

Specimen: 4.9 ml in BROWN SERUM GEL tube for clotted blood

Turnaround time: 4 days

Reference range: Less than 3 U/mL

Additional information: The IgA level is automatically checked only on samples which give a TTG result below the laboratory set threshold, as IgA deficiency causes false negative results for tTG IgA antibody. If the patient is IgA deficient, the tTG IgG antibody assay is completed instead of the tTG IgA antibody. The endomysial IgA antibody assay is used to confirm positive tTG IgA samples, if they were not previously positive.

## MICROBIOLOGY

### SPUTUM: Culture and Sensitivity

Specimen: A minimum volume of 1ml sample in a sterile screw cap container e.g. MSU container and sealed in a plastic biohazard bag  
Sputum – expectorated.

Turnaround time: Routine final report: 48-72 hours

Special precautions: Salivary specimens are unsuitable for culture and will not be processed  
Samples should reach the laboratory within 4 hours of collection to avoid overgrowth with Gram-negative bacilli. Also *H. influenzae* and *S. pneumoniae* may not survive beyond this time. Results from specimens not received in the laboratory on the same day as collection should be interpreted with care

### SPUTUM: Tuberculosis

Specimen: Early morning freshly expectorated sputum is recommended for *Mycobacterium tuberculosis*  
Sputum (3 consecutive mornings): minimum 5ml per sample  
Samples must be taken into a sterile screw cap container e.g. MSU container and sealed in a plastic biohazard bag

Turnaround time: Auramine Stains:  
Same day if received before 8am Monday to Friday, or the next day.

Culture:  
7 weeks (most cultures become positive within the first four weeks of incubation, however if the strain is slow-growing or if there are scanty numbers of organisms present in the specimen prolonged incubation may be required)  
Note: Positive microscopy and positive cultures are phoned immediately to the requesting source

Sensitivity Testing:  
The first isolate from each positive patient is identified and the culture is sent to a reference laboratory for susceptibility testing. Results are normally available within three weeks of the date on which the culture is dispatched.

### FAECES: Enteric Pathogen Investigation, *Clostridium difficile* toxin

Specimen: Approximately 5-6 grams is sufficient routine enteric pathogen investigation. This should be collected into a sterile leak proof container e.g. MSU). The optimal times of specimen collection is as soon as possible after onset of symptoms and before any antibiotics have been administered.  
Transport to laboratory as soon as possible because a number of important pathogens such as *Shigella species* may not survive the pH changes that occur in stool specimens, even if refrigerated.

Routine Enteric Pathogen Investigation:  
*Salmonella, Shigella and Campylobacter species and VTEC.*  
Specimens are stored at 4°C until they are processed.  
Approximately 5 - 6 grams is sufficient for routine enteric pathogen investigation. A larger sample is required when testing for food poisoning organisms.

If clinically appropriate:  
*Yersinia spp, vibrio cholerae, and Clostridium difficile* toxin

Turnaround time: Negative enteric pathogen investigation: Same day if received before 9am Monday to Friday  
Positive enteric pathogen investigation: Provisional result: Same day if received before 9am Monday to Friday; Final result: 72 – 96 hours  
*Yersinia spp* and *Vibrio spp*: 48 -72 hours.  
Occult Blood Investigation: Same day if received before 9am Monday to Friday  
*Clostridium difficile* toxin: Same day if received before 9am Monday to Friday. Must be a diarrhoeal sample.

Additional information Full clinical details MUST be provided with every request e.g. presence/duration of symptoms, recent travel, shellfish ingestion and previous antibiotic therapy.  
If required, examination for ova, cysts and parasites should be specifically requested- see below.

### FAECES: Ova, Cysts and Parasites

Specimen: Approximately 5-6 grams is sufficient for routine culture. This should be collected into a sterile leak proof container e.g. MSU container  
Turnaround time: 48 - 96 hours  
Additional information Three examinations spaced 2 – 3 days apart are recommended for optimal recovery, as shedding of cysts and ova tends to be intermittent.  
Full clinical details are essential e.g. Foreign travel, immunocompromised.

### SWAB ANALYSIS

#### Ear swab

Specimen: Samples of pus or exudates should be collected onto a plain sterile swab in transport medium (orange cap) and sent to the laboratory as soon as possible. Dry swabs are not suitable  
Turnaround time: Final bacterial culture report: 48-72hours  
Final Fungal culture: 5days

#### Eye swab

Specimen: Swab: samples of areas of interest should be taken onto a plain sterile swab in transport medium (orange cap)  
Pus: should be collected into a sterile leak proof container or, if the volume is small, onto a plain sterile swab in transport medium (blue cap)  
Turnaround time: Routine culture and sensitivity: 48-72hours  
Additional Information: Specimens should be collected before application of topical treatments.

#### Mouth swab

Specimen: Plain swab in transport medium (blue) to sample pus, lesions or inflamed areas.  
Turnaround time: 48 hours  
Special precautions: The use of a tongue depressor or spatula can aid vision and help avoid contamination

#### Wound Swab (state site)

Specimen: Skin/Superficial wound./Abscess/Deep Wound  
Turnaround time: A representative part of the lesion should be sampled (blue cap swab) .Pus or exudates may be collected into a sterile leakproof container.  
Negative culture: 48-72hours Positive culture: 2-5days  
Additional Information: As a general principle, specimens should be collected before antimicrobial therapy is commenced. Routine culture of superficial swabs of ulcers should be discouraged. Before sampling ulcers, the debris should be removed and the ulcer cleaned with sterile saline. Swabs should be taken from under the tip of the ulcer margin.  
Storage: Specimens are stored at 4°C until they are processed.

**Genital Tract & Associated Specimens**

Specimen requirements:	Investigation	Site	Container
Referred to NVRL see Note*	STD Screen Female:	Cervical: <i>Neisseria gonorrhoeae</i>	Plain swab in transport medium (Blue)
		*Endocervical: <i>Chlamydia trachomatis</i> / <i>N. gonorrhoeae</i> (Molecular) and <i>Trichomonas vaginalis</i> on request	Endocervical GenProbeTranswab (Yellow)
	STD Screen Male;	Urethral: <i>N. gonorrhoeae</i>  Rectal/Oral: <i>N. gonorrhoeae</i>  First void Urine: <i>Chlamydia trachomatis</i> / <i>Neisseria gonorrhoeae</i> and <i>Trichomonas vaginalis</i> on request	Urethral/ENT wire transwab in transport medium (Orange)  Plain swab in transport medium (Blue)  Urine Gene-Probe container (Yellow)
	IUCD	IUCD	Sterile screw cap MSU container
	Genitourinary Screen (Female)	High vaginal swab(HVS): 1. <i>Candida sp.</i> , 2. BV using Hayes criteria, 3. General bacterial infection	Plain swab in transport medium (Blue)
Referred to NVRL see Note*	Virology	*Serology (HIV, Hepatitis, Syphilis)	4.9 ml blood in plain White tube (No anticoagulant)
		*Vesicular lesions if present (HSV 1,2)	Virus transport swab (Pink)

\*Bag samples for the NVRL separately

Turnaround time: STD Screen: Final report 72 - 96 hours  
GU Screen: Final report 72 - 96 hours  
Molecular detection of *Chlamydia trachomatis*/*N. gonorrhoeae*: 5 days. Referred to National Virus Reference Laboratory. **N.B.** Please ensure culture swabs also are sent to Microbiology laboratory if *N. gonorrhoeae* is suspected.  
HSV / HPV: 2 -14 days. Referred to national Virus Reference Laboratory.

Additional information Please ensure swabs for *N. gonorrhoea* are sent within 7 hrs to ensure survival of GC.  
**Low vaginal swabs** are discouraged because of the presence of high numbers of commensal flora. This makes for a difficulty in interpretation.  
Supplemental investigations may be performed with relevant clinical details so these are absolutely necessary when submitting specimens for STI investigation

### **FUNGAL: Fungal Microscopy and Culture**

Specimen:	Non-systemic infection: Skin/Scalp scrapings	
Turnaround time:	Microscopy: 5-7 days	Final culture report: 14-21 days
Additional information:	Skin scrapings: clean area with 70% alcohol prior to collection of samples as this improves the chances of detecting the fungus by direct microscopy and also reduces the likelihood of contamination of subsequent cultures. Take the sample from the active periphery of the lesion into a DERMAPAK envelope or a clean piece of paper. Hair: Extract hair stumps, broken hairs, and lustreless hairs with a forceps and any follicular fragments with a sterile needle. Place in a sterile screw capped container. Nail clippings: should be taken from any discoloured, dystrophic or brittle parts of the nail. These should be cut back as far as possible from the free edge of the nail and include its full thickness. Scrapings can also be taken from beneath the nail to supplement the clippings sample.	
Turnaround time:	Microscopy: Up to 7 days	Final culture report 14-21 days

### **MRSA: Screening**

Specimen:	Plain sterile swab in transport medium (blue cap) of site	
	Nasal and groin swab only for MRSA.	
Turnaround time:	Negative result: 24-48 hours	Positive result: 48-96hrs
Specimen Requirements	If MRSA screening is specifically required, please state clearly on request form the site from which the swab has been taken and provide relevant clinical details.	

### **URINE: Pregnancy Test**

Specimen:	Urine Sterile MSU container.	Minimum volume 1ml
Turnaround time:	Urgent samples: <30minutes from receipt in laboratory	Routine samples: same day

### **URINE: Microscopy, Culture & Sensitivity**

Specimen:	Midstream Urine (MSU) -after adequate peri-urethral washing with soap and water (NB not disinfectant), the first small amount of urine is voided and discarded. Then, without interrupting the flow, approximately 10ml is collected into a sterile container. The remainder of the urine is discarded. Minimum 1ml for bacterial pathogens	
Turnaround time:	Microscopy: same day of receipt; Culture: Only performed when WCC is raised	Negative culture: 24hours
	Positive culture and sensitivity testing: 48-72hours	

### **Virology** A general request for "Viral Screen" is not acceptable. Please state clearly the virus (es) under investigation.

Specimen:	
Turnaround time:	See report form. Refer to website: <a href="http://www.nvrl.ie">www.nvrl.ie</a>