

Blackrock Health Hermitage Clinic, Pathology Laboratory			Pathology	 BLACKROCK HEALTH <hr/> HERMITAGE CLINIC
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HERMITAGE CLINIC

PATHOLOGY LABORATORY

USER MANUAL

<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>	<u>I</u>	<u>J</u>
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1. AMENDMENTS TABLE

The Blackrock Health Hermitage Clinic (BHHC) Pathology Laboratory User Manual is controlled in accordance with the Pathology Laboratory quality management system requirements. The changes to this revision are listed in the table below.

Document Amended/Updated	Page(s)/Section Amended	Amendment details
Yes	Multiple	<p>Website link corrected to correct link (for group website).</p> <p>Table 27.3.2 Crossmatch using previous sample - wording changed to Crossmatch where there is a valid type and screen sample. TAT of availability 5 – 30 minutes - changed to 30 minutes.</p> <p>Fibrinogen concentrate, PCC & Albumin: Availability Time changed from same day to < 60 minutes. Octaplas: 30 minutes (for 3 units), changed to 3< 60 minutes for 4 units. Add For platelets required urgently, may be available within 45-60 minutes. DAT changed from same day to 1 hour urgent, 4 hours routine (</p> <p>Section 11.2.1. Biochemistry Urgent/Oncall tests - updated troponin to state Troponin I</p> <p>Section 16.5 - removed that faeces need to be wrapped in tinfoil</p> <p>Added explanation of h & l on lab reports to 27.1.3. Reference Ranges / Intervals - Biochemistry & 27.2.1. Reference Intervals - Haematology</p> <p>Opening time changed to 09:00 - not 07:30 as while Phlebotomy can take some walk in's before 09:00 they are busy with ward rounds and DOSA</p>

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		<p>Added section regarding Uncertainty of measurement</p> <p>In test repertoire: Fibrinogen TAT changed from same day to 1hr STAT, 4hrs Routine. added info for Vit B6, Synacthen, Adrenal vein sampling, INR Corrected D-Dimer reference range to ACL range</p>
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2. FOREWORD

The Pathology Laboratory of Blackrock Health Hermitage Clinic is comprised of the following disciplines: Blood Transfusion, Clinical Biochemistry and Haematology.

The purpose of this manual is to act as a guide for users of the Pathology Service of Blackrock Health Hermitage Clinic. Included in the manual are details regarding the scope of service, location and hours of operation of the laboratory, contact details for key laboratory personnel, availability of clinical advice, range of tests currently available, expected turnaround times and other relevant notes.

The Pathology laboratory strives to provide a service that consistently meets the needs and expectations of the medical profession, while contributing to patient care. The User manual has been prepared for the benefit of our users and employees, in our capacity to provide continuous service improvements. Specific criteria for acceptance of requests for examination of patient specimens should be noted. If acceptance criteria are not fulfilled, the laboratory regrets that it may not be in a position to process the test request.

Every effort has been made to ensure that the information provided in this manual is current and accurate at the time of being issued. Medical Practitioners should use this manual as a guide to individual testing on the basis of clinical findings.

Should amendments be required to be made to any section of this manual, which impacts on the service, the laboratory will endeavour to advise you.

This manual provides an overview of the Pathology Laboratory; please do not hesitate to contact the relevant laboratory for further information and advice, as required.

We are committed to providing the very best service possible, and where feasible, implement improvements / suggestions put forward by our users.

Claire McIntyre

Pathology Laboratory Manager

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3. INTRODUCTION

Blackrock Health Hermitage Clinic (BHHC) is a 112-bed hospital complex together with service areas, access roads, surface car parking for 360. There is a 24-hour car park open to patients and visitors, where there are a number of electric vehicle charging points. It also comprises 39 consultant suites, with access to over 250 leading consultants across a wide range of disciplines. This state-of-the-art Hospital in Lucan, West Dublin provides medical, surgical and advanced radiotherapy care to patients by using the latest cutting edge systems. The Treatment facilities include 7 operating rooms, an 8 bedded ICU / HDU, Emergency Department, Day Surgery, Endoscopy, Urology, Oncology Treatment Areas and Therapeutic Radiotherapy. The most up to date radiology equipment is available including MRI, PET / CT, Nuclear Medicine, 64 slice CT, Mammography, Ultrasound, X-ray and Fluoroscopy. Facilities also include Irelands first Cyber Knife®. There is a full Cardiology service including a Cardiac Catheterisation Suite and Clinical Laboratory services, as well as an Acute Cardiac Assessment Unit. A fully comprehensive physiotherapy unit, pharmacy, chapel, restaurant and ancillary facilities are also available.

4. BLACKROCK HEALTH HERMITAGE CLINIC VISION, MISSION AND VALUES

Our vision

To be the best place to receive care, to practice medicine and to work.

Our mission

Caring for our patients and enhancing their health through integrated clinical practice, efficient processes and exceptional, personal patient care.

Our hallmark

Clinical Excellence.

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Our culture

Better Together.

Our values

Patients first	The needs and safety of our patients come first, always, and in every decision we make.
Innovation	We foster an environment that encourages small and large changes to transform the care we give.
Excellence	We deliver the best access, clinical outcomes and unparalleled care through the dedicated effort of every team member.
Dignity	We treat patients and their loved ones with compassion and empathy; treating them as we would like to be treated ourselves.
Sustainability	We are committed to addressing the environmental impact of our services in order to safeguard our communities.
Integrity	We work to the highest personal, professional and ethical standards, worthy of the trust our patients place in us.
Collaboration	We are better when we work together, in our teams, and with our healthcare partners.

5. QUALITY ASSURANCE

The Pathology laboratory have an extensive internal quality assurance system and participate in external quality assurance schemes. The laboratory strives to be accredited by the Irish National Accreditation Board (INAB) and be compliant with the International Standard titled ‘Medical Laboratories Particular Requirements for Quality and Competency’ (ISO 15189). The scope of accreditation can be accessed on the INAB website <https://www.inab.ie/inab-services/medical-testing/directory-of-medical-testing-laboratories/> Reference 236MT.

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6. THE QUALITY POLICY

QUALITY POLICY

THE QUALITY POLICY OF THE PATHOLOGY LABORATORY & HAEMOVIGILANCE OFFICE, BLACKROCK HEALTH HERMITAGE CLINIC

The Pathology Laboratory and Haemovigilance Office is committed to providing a service of the highest quality and shall be aware and take into consideration the needs and requirements of its users. The Pathology Laboratory is committed to the implementation of the Blackrock Health Hermitage Clinic mission "Caring for our patients and enhancing their health through integrated clinical practice, efficient processes and exceptional, personal patient care" through consideration of the values that underpin the mission and philosophy of the hospital, which are "Patients first, Innovation, Excellence, Dignity, Sustainability, Integrity and Collaboration".

In order to ensure that the needs and requirements of users are met, the Pathology Laboratory and Haemovigilance office will: -

- Provide a laboratory service appropriate to the requirements of Blackrock Health Hermitage Clinic within the available resources.
- Operate a quality management system, the purpose of which is to continuously improve the quality of the services provided.
- Set quality objectives and plans in order to implement this quality policy.
- Ensure that all personnel are familiar with this quality policy and the quality management system to ensure user satisfaction. Health, Safety and Welfare of all its staff.
- Ensure visitors to the department are treated with respect and due consideration given to their safety while on site.
- Uphold professional values and be committed to good professional practice and conduct.

The Pathology Laboratory incorporating Haemovigilance will comply with the International Standard ISO 15189:2012, AML-BB, INAB Standards and EU Directive 2002/98/EC and INAB Mandatory Laboratory Standards and is committed to: -

- Staff recruitment, training, development and retention at all levels to provide a full and effective and efficient service to its users.
- The proper procurement and maintenance of equipment and other resources as are needed for the provision of a quality laboratory service.
- The collection, transport and handling of all specimens in such a way as to ensure the correct performance of laboratory examinations.
- The use of examination procedures that will ensure the highest achievable quality of all tests performed.
- Reporting results of examinations in ways which are timely, confidential, accurate and clinically useful.
- The assessment of user satisfaction, in addition to internal audit and external quality assessment, in order to produce continual quality improvement.
- The safe testing, distribution, transfusion and tracing of blood and blood products.
- The proper reporting of Transfusion Serious Adverse Reactions and Events (SAR/SAE).

Signed on behalf of Laboratory:



Date: 25 / 08 / 2023

Ms. Claire McIntyre,
Pathology Laboratory Manager

Signed on behalf of Clinical Director:



Date: 25 / 08 / 2023 |

Prof. Patrick Thornton,
Laboratory Director

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7. LOCATION

The Phlebotomy Department is located on the Ground Floor to the left of the Main Entrance. It is located in the Radiology Reception area. Signage may read Phlebotomy (Blood Tests).

The Pathology Laboratory is situated on the first floor next to the canteen. Signage may read Laboratory.



7.1. Directions from the City Centre

- From O'Connell Street Bridge in the city centre drive along the quays (westbound) and follow signs for The West / N4 / M50.
- Take the exit for the N4 and when on the N4 move to left hand lane and follow signs for Liffey Valley Shopping Centre (this will be the first exit off the N4). Stay on the right side of the slip road.
- Once you have reached the end of the slip road you will arrive at a roundabout. Take a right, bringing you under the N4. Please note that once you arrive at the first set of lights the immediate left is not accessible as it will bring you against emerging traffic.
- Take the next left off the roundabout and gain access to the facility by taking a left at the next entrance.

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- Buses from Pearse St are 25A, 66, 67A.

7.2. Directions from the North side of the city e.g. Blanchardstown

- Take the M50 Motorway southbound.
- Drive through Toll Booth and take next exit, Exit 7 for N4 Sligo / The West / Lucan.
- Take the exit for the N4 and when on the N4 move to left hand lane and follow signs for Liffey Valley Shopping Centre (this will be the first exit off the N4). Stay on the right side of the slip road.
- Once you have reached the end of the slip road you will arrive at a roundabout. Take a right, bringing you under the N4. Please note that once you arrive at the first set of lights the immediate left is not accessible and it will bring you against emerging traffic.
- Buses from Blanchardstown Centre are 76A.

7.3. Directions from the South side of the city e.g. Dundrum

- Take the M50 Northbound. Take the exit for the N4 (signposted The West)
- Keep to the left hand lane of the N4 and follow signs for Liffey Valley Shopping Centre (this will be the first exit off the N4). Stay on the right side of the slip road.
- Once you have reached the end of the slip road you will arrive at a roundabout. Take a right, bringing you under the N4. Please note that once you arrive at the first set of lights the immediate left is not accessible as it will bring you against emerging traffic.
- Take the next left off the roundabout and gain access to the facility by taking a left at the next entrance.

7.4. Directions from the Red Cow Roundabout

- Take the M50 exit Northbound (Airport exit also)
- Take the first exit off the M50 Motorway, the N4 exit (signposted The West). Keep to the left side of the exit.
- Follow signs for Liffey Valley Shopping Centre (this will be the first exit off the N4). Stay on the right side of the slip road.
- Once you have reached the end of the slip road you will arrive at a roundabout. Take a right, bringing you under the N4. Please note that once you arrive at the first set of lights the immediate left is not accessible as it will bring you against emerging traffic.

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- Take the next left off the roundabout and gain access to the facility by taking a left at the next entrance.

8. TELEPHONE / FAX / EMAIL / WEBSITE

Laboratory Telephone: (01) 6459233

Fax: (01) 6459236

Phlebotomy Telephone (01) 6459978 for queries or (01) 6459181 for appointments

E-mail (Laboratory): laboratory@hermitageclinic.ie

E-mail (Phlebotomy): phlebotomy@hermitageclinic.ie

Website address: <https://www.blackrockhealth.com/treatments-procedures/laboratory-pathology-department>

9. KEY PERSONNEL CONTACTS

Position	Name	Contact No.	E.mail
GENERAL PATHOLOGY			
Laboratory Director	Prof. Patrick Thornton	Switch 01 645 9000	
Laboratory Manager	Claire McIntyre	01 645 9965 01 645 9233	cmcintyre@hermitageclinic.ie
Chief Medical Scientists	Noel Jereza, Isabelle Delachapelle	01 645 9891 01 645 9233	njereza@hermitageclinic.ie idelachapelle@hermitageclinic.ie
Quality Manager	Aileen Coughlan	01 645 9391	acoughlan@hermitageclinic.ie
Results/Enquires	Laboratory Office	01 645 9223 01 645 9233	laboratory@hermitageclinic.ie
BIOCHEMISTRY / POINT OF CARE (01 645 9224)			
Consultant Haematologist	Prof. Patrick Thornton	Switch	

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		016459000	
Biochemistry / Point of Care Laboratory	01 645 9224		laboratory@hermitageclinic.ie
Medical Scientist Oncall	Contact No. 01 645 9000 (via switch)		
HAEMATOLOGY – 016459222 & BLOOD TRANSFUSION - 016459225			
Consultant Haematologist	Prof. Patrick Thornton	01 645 9000 Switch	
Consultant Haematologist	Dr Philip Murphy	01 645 9000 Switch	
Haemovigilance Officer	Breda Tuite	01 645 9854 01 645 9225	btuite@hermitageclinic.ie
Haematology Laboratory	01 645 9222		
Medical Scientist Oncall	Contact No. 016459000 (via switch)		
HISTOPATHOLOGY			
Consultant Histopathologist	Prof. T. Dorman	016459000 Switch	
Inquiries	Laboratory Office	016459233	laboratory@hermitageclinic.ie
MICROBIOLOGY			
Consultant Microbiologist	Dr. L Fenelon Dr. K Schaffer Dr. E. Smyth	016459000 Switch	Switch
Infection Control	Joanne Flanagan Lauren Daly	016459791	infectioncontrolteam@hermitageclinic.ie
Microbiology Inquiries	Laboratory Office	016459233	laboratory@hermitageclinic.ie
PHLEBOTOMY			

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Senior Phlebotomist	Eimear Donnelly	016459037	phlebotomy@hermitageclinic.ie
MISCELLANEOUS			
Meditech (Laboratory only)	Noel Jereza	9223/24/25 9966	njereza@hermitageclinic.ie

Medical and scientific advice on issues within the laboratory's range of interest and competence is available. Information for patients explaining the clinical procedure and any preparation required is available from the relevant clinical areas. For a direct line please prefix the extension number with (01) 645 -.

10. COMMUNICATION/CONSULTATION

Any customer requiring consultation / advice in regard to any aspect of the Pathology Laboratory Service should contact laboratory staff, who will arrange for the appropriate person to consultant with them as soon as possible.

Any customer requiring information on Laboratory / Phlebotomy Services can do so by e-mailing laboratory@hermitageclinic.ie or via telephoning 016459233. The website address is also available for access to general information www.hermitageclinic.ie.

10.1. Contact Details for clinical advice and Interpretation

Pathology results are reported with reference / therapeutic ranges. A guide to interpretation of results and clinical advice is given on report if appropriate. Information on medical indications and appropriate selection of available procedures, clinical advice and interpretation is available and can be obtained by contacting the appropriate Consultant / Laboratory. Details on current examination procedures including performance specification can be provided to clinical users on request by contacting the relevant laboratory discipline. The contact details for Consultant Staff are given in contacts section of this manual. Clinical advice relating to reports sent to external laboratories should be directed to the referral laboratory.

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10.2. User Satisfaction, Comments, Complaints

The goal of the Pathology Laboratory is to provide our users with accurate, reliable, meaningful and timely laboratory results. If a user encounters any problem with the services or have any suggestions to improve the service, please contact the Laboratory Manager cmcintyre@hermitageclinic.ie or the Pathology laboratory Quality Manager laboratory@hermitageclinic.ie.

In line with the Hermitage Clinic Complaints policy, the laboratory encourages users to comment on their experience with the services provided. The Hospital is committed to responding positively to all complaints received and regards these as an opportunity to improve its service.

10.3. Data Protection

The Pathology Laboratory of the Hermitage Clinic complies with the General Data Protection Regulation (GDPR) May 2018, EU General Data Protection Regulation (GDPR): Regulation (EU) 2016/679 regarding patient information. It is the policy of the Pathology Department to manage personal data and information with the highest degree of integrity, security and confidentiality.

10.4. Consent

Where a patient presents at phlebotomy with a pathology request form, consent for phlebotomy is presumed. Where suitable, phlebotomy staff ask inpatients for permission to proceed.

Completion of consent forms is mandatory for all genetic tests and predictive tests for inherited diseases. Where consent forms are required to be completed, this is stated in the requirements for the particular test.

In emergency situations, when consent might not be possible refer to the Hermitage Clinic Consent Policy BHHC-PCC-PP-007 Informed consent policy for guidance.

10.5. Policy of Faxing

Reports will only be faxed if: a) Faxed Internally b) No Alternative: No other means available c) Harm: In a medical emergency where a delay would cause harm to a patient/client/employee or the potential risk to a patient/client/employee is greater harm than the risk of disclosure of their personal information.

Reports cannot be faxed to outside sources that have not confirmed their security to the laboratory. The laboratory has circulated a document entitled: "Confirmation of Fax Security Record" to many of our

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users so that they can confirm their security. If you wish reports to be faxed to you but you have not received a copy of this document, contact the lab and we will send you one.

Faxed reports are sent only to secure locations and when the reporting scientist is satisfied that the report is received immediately. An appropriate fax cover sheet must accompany all results. Results will only be faxed to a suite or external third party when a written request on headed paper is made by fax or a phone request to the laboratory. This is to ensure that the correct results are faxed to the correct fax number.

11. HOURS OF OPERATION (LABORATORY SERVICES)

11.1.Laboratory Routine

- Monday - Friday: 07:00 – 20:00
- Saturday-Sunday 09:00 –19:00

11.2.Urgent / Emergency Examinations

The laboratory is available at all times for urgent examinations. The Medical Scientist on call is contacted on extension 9891 when on site and via hospital reception when not on site (Outside of working hours urgent samples should be forwarded to the laboratory and notification given to hospital reception at (01) 6459000.

Calls are referred by the requesting clinician to the pathology department between the times listed above.

The Medical Scientist(s) on-call can be contacted through the switch (Ext: 9000/9002).

Clinician/Consultant advisory support is available through switch.

Only those tests that will alter patient management should be requested out of hours. Clinicians may be asked to contact the relevant Pathology Laboratory Consultant on-call before the specimen is accepted in the laboratory.

On-Call laboratory service is provided as follows:

- Monday - Friday: 20:00 – 07:00 (next morning)

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- Saturday: 19:00 – 09:00 (Sunday morning)
- Sunday & Bank Holidays: 19:00 – 09:00 (next morning).

11.2.1. Biochemistry Urgent/Oncall tests

- Albumin
- ALP
- ALT
- Amylase
- AST
- Bilirubin, Total
- Bone Profile
- BNP
- Calcium
- Chloride
- Creatinine
- CRP
- CK
- Full Biochemistry Profile (FP)
- Free T4
- GGT
- Glucose
- β hCG
- LDH
- Liver profile
- Magnesium
- Potassium
- Renal profile
- Sodium
- Total Protein
- Triglycerides
- TSH
- Urea
- Uric Acid

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- hsTroponin I
- CSF: Glucose and Protein (Sent to relevant referral laboratory)
- Osmolality: Serum/Plasma and Urine
- Gentamicin
- Vancomycin
- Digoxin (Sent to relevant referral laboratory)
- Lithium (sent to relevant referral laboratory)

11.2.2. Haematology Urgent / Oncall tests

- Full Blood Count (FBC)
- Coagulation screen
- INR
- APTT
- PT
- Fibrinogen
- D-Dimer
- Infectious Mononucleosis Test
- Malaria

11.2.3. Blood transfusion Urgent / On call tests

- Group (Type) and Screen (T/S)
- Crossmatch
- Antibody investigation
- Antigen typing
- Transfusion reaction investigation
- Direct Antiglobulin Test (DAT)
- Blood Products:
 - Red cells
 - Platelets
 - Fibrinogen
 - Plasma – Octaplas
 - Albumin
 - Octaplex (Prothrombin complex)

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11.2.4. Microbiology Urgent / Oncall Tests

No oncall service exists.

In cases of emergency, only the following samples will be sent to the Blackrock Health Blackrock Clinic (BHBC) laboratory and forwarded to SJH by oncall staff.

Blood cultures received on call will be sent to Blackrock Clinic laboratory and loaded on the blood culture analyser.

CSF Glucose and protein are performed in Blackrock Clinic Biochemistry department.

CSF culture, cell count and gram staining are sent to Blackrock Clinic with testing performed in St. James Microbiology.

Fluids/tissues – any urgent fluid or tissue requested by telephone by Medical Staff are sent to Blackrock Clinic with testing performed in St. James Microbiology.

11.2.5. Histology / Cytology urgent / Oncall Tests

No oncall service exists.

However, if a specimen requires urgent attention of histology staff, the following procedure must be followed:

1. Contact the Laboratory Oncall staff member in Hermitage Clinic who in turn will contact Oncall Staff member in Blackrock Clinic.
2. The oncall Medical Scientist will contact a senior member of the histology department and outline the nature of the request.
3. Histology staff, in conjunction with the consultant pathologist, will decide if it is necessary to do the test out of hours.

The following samples require histology staff to be contacted:

1. Fresh tissue for Histology (not C/S)
2. Specimens for frozen sections

Any specimen that a consultant requires to be processed urgently.

11.3. Phlebotomy OPD Service

Monday to Friday 09:00 – 16:30

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The Phlebotomy Department is located on the Ground Floor to the left of the Main Entrance. It is located in the Radiology Reception area. Signage may read Phlebotomy (Blood Tests). It is required to register attendance at Hospital Admission prior to attending Phlebotomy Department. A copy of your referral/laboratory request form is required for registration purposes.

More information can be found at <https://www.hermitageclinic.ie/services-specialities/blood-tests-phlebotomy>

11.4. Phlebotomy Inpatient service

Monday to Friday 07:00 – 17:00

Saturday 07:00 – 11:00

Sunday 07:00 – 11:00

Public Holidays 07:00 – 11:00

An in-patient phlebotomy service is provided to each ward Monday to Friday. Request labels must be requested on ‘pool’ in Meditech. The Phlebotomists visits each ward once in the morning at 07:00 and again in the afternoon at 14:00. Urgent requests for non-ambulatory patients are available from 07:00 to 17:00 Monday through Friday.

12. DEFINITIONS AND ABBREVIATIONS

‘Analytical Turn Around Time (TAT): Turnaround time is given as the maximum number of working hours / days between sample receipt and issuing a report. The laboratory operates an urgent system whereby the target TAT is shorter. The turnaround time for each investigation is given in the alphabetical listing in the test repertoire.

If specialised tests are required urgently, please contact the laboratory.

TATs are routinely monitored as part of the laboratories quality improvement programme.

Specimens referred to external laboratories for analysis are dispatched by courier service as appropriate. The turnaround time for receipt of reports of tests referred to external specialist laboratories can take longer.

BHHC: Blackrock Health Hermitage Clinic

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Referral laboratory: A referral laboratory is an external laboratory to which a sample is submitted for examination and report.

Oncall service: On call service provided for specimens outside of core working hours.

Urgent: Samples labelled ‘URGENT’ (red strip on label) will be prioritised in the laboratory process as appropriate, and on authorisation of results, results will be available on the Hospital Information system (HIS).

Primary sample (Specimen): The sample prepared for sending to, or as received, by the laboratory and which is intended for examination.

13. SCOPE OF THE PATHOLOGY SERVICE

Brief description of the Service	
<p>Blackrock Health Hermitage Clinic Pathology Management ensure that laboratory services, including appropriate advisory and interpretative services, meet the needs of patients and those using the laboratory services.</p> <p>The Pathology Laboratory currently offers Blood Transfusion, Haematology/ Coagulation, Biochemistry, Haemovigilance and Phlebotomy services. A brief description of the services provided by the Pathology Department is listed below. The Services described here are designed to meet the needs and expectations of clinical personnel and patients.</p> <p>A User Manual for the Pathology Department exists and is available on request from the laboratory, on PolicySTAT, on Q pulse and at https://www.hermitageclinic.ie/about/pathology-laboratory. The manual details all the Laboratory services that are available to meet patient needs, and all such services meet applicable local and national standards, laws, and regulations. The Standard Operating Procedure that is the Pathology User Manual is HMC-QA-GDE-001.</p>	
Services Provided	
SERVICE NAME	SERVICE DESCRIPTION
Blood Transfusion	We operate a routine and emergency blood transfusion service to ISO15189:2012 standards – Group (Type) and Screen, crossmatching, antibody

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	<p>screening and identification, blood and blood product issue, storage and disposal, DAT and transfusion reaction investigations. (Inconclusive antibody panels or samples with 2 or more antibodies are sent to IBTS for further investigation and confirmation if required.)</p> <p>The Blood Transfusion Laboratory is Accredited by INAB under Registration Number 236MT. The Blood Transfusion Laboratory has been assessed by INAB and is competent to comply with Articles 14 and 15 of the EU Directive 2002/98/EC. There is 24-hour service, 365 days a year ‘on call’ cover for both laboratory and consultant services.</p>
Haematology/ Coagulation	<p>Routine Haematology service provided for in/out patients and GPs.</p> <p>Tests include FBC, ESR, Infectious Mononucleosis, Malaria Screens, blood films and Coagulation (PT, INR, APTT, Fibrinogen and D-Dimer).</p> <p>A 365 day 24-hour service is provided.</p>
Biochemistry	<p>Biochemistry tests include full profiles, amylase, glucose, cardiac screens, lipid profiles, LDH, CRP, BNP and hsTroponin I.</p> <p>A 365 day 24-hour service is provided.</p>
Point of Care	<p>Point of Care testing is defined as any testing in the immediate vicinity of a patient to provide a rapid result outside of conventional laboratory environment. The Point of Care Testing in the Hermitage Clinic involves the following equipment:</p> <ul style="list-style-type: none"> • Radiometer ABL 90 Blood Gas Analyser • Siemen’s Clinitek Status Analysers for Urinalysis and urine hCG testing • Haemochron Signature + for ACT Testing • Abbott FreeStyle Precision Pro for Glucose and Ketone testing
Phlebotomy Service	<p>The Phlebotomy Services on a routine basis 7.00am – 16:30pm take blood samples for diagnostic testing from in-patients / outpatients.</p> <p>Outside these hours and according to clinical need, blood samples are taken by Resident Medical Officers and/or designated nursing staff.</p>
Consultant Service	<p>Consultant Pathology services are available in the following specialities Haematology/Coagulation, Blood Transfusion and Biochemistry.</p> <p>Consultant cover is also available for Microbiology and Histopathology.</p>

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	<p>Consultant cover for Haematology/Coagulation, Biochemistry, Blood Transfusion, Microbiology and Histopathology is 24hrs a day, 365 days a year. The Laboratory maintains a rota of consultants and deputies 'on call'.</p>
Haemovigilance Service	<p>The Haemovigilance service comprises of the Consultant Haematologist(s), Haemovigilance Officer, Laboratory Manager, Quality Manager and Transfusion Laboratory Scientific staff. The service comprises implementation of best practices in Haemovigilance including development of guidelines, training and incident investigation and reporting. All haemovigilance incidents are documented and reported to the National Haemovigilance Office as per the requirements of the Hospital Transfusion Booklet and the EU Directive 2002/98/EC. The Blood Transfusion Laboratory is committed in conjunction with the Haemovigilance Officer to providing a reporting mechanism that assists the Quality Management Review Process.</p> <p>A Hospital Transfusion Committee exists that includes Medical, Surgical, Management, Scientific, Quality, and Nursing staff. This committee is chaired by the hospital CEO or deputy/nominee. The committee meets 4 times a year and discusses and advises on transfusion policies, inventory management, quality issues, Haemovigilance and traceability.</p> <p>The terms of reference and minutes of the Transfusion Committee meeting are up-to-date and maintained and held by the Haemovigilance Officer.</p>
Other	<p>For specialist examinations, Hermitage Clinic sources outside laboratories based on their ability to provide a quality service and include those that are a reference laboratory for specialist examinations, an accredited laboratory and/or a university teaching hospital laboratory e.g. INAB or UKAS ISO 15189 accredited.</p>

14. BHHC PATHOLOGY POLICY ON REQUEST FORM COMPLETION AND SPECIMEN LABELLING

Purpose
<p>The Purpose of this policy is to ensure that the correct results and blood products / components are always issued to the correct patient.</p> <p>The policy applies to specimens being submitted across all laboratory disciplines.</p>

Required Information	
Failure to meet the requirements of this policy may result in the laboratory being unable to process the request.	
Sample request form (Electronic Equivalent in Meditech)	Specimen Tube / Container
<ul style="list-style-type: none"> • Patient's First Name and Surname • Patient's Date of Birth • Patient's Gender • Patient's Hospital Number • Current Ward Location • Patient's Address • Name and Contact details of Requesting Doctor • Name of Person collecting the sample • Date and Time of Sample collection • Specimen Type and Anatomical Site of Origin where applicable • Appropriate clinical Information • Investigation required 	<ul style="list-style-type: none"> • Patients First Name and Surname • Patients Date of Birth • Patient's Hospital Number • Date and Time of Sample Collection • Specimen type and Anatomical Site of Origin (As Appropriate) • Signature of person taking the samples (required for Blood Transfusion)
<p>All the information listed above must be completed on each sample request form and/or be available on Meditech (LIS).</p> <p>NB specimens will not be accepted without a minimum of two forms of identification on both the specimen and on the form.</p>	<p>Samples MUST be labelled next to the patient, adhering the correct Positive Patient Identification procedures.</p> <p>Blood Transfusion Samples MUST be Handwritten</p>

- Requests for tests in the Pathology laboratory of Hermitage Clinic must be made by a registered Medical Practitioner or an appropriately qualified healthcare professional acting on the instructions of a registered Medical Practitioner. 'Self-Referral' (self-testing) of own/family/relatives/friends clinical specimens for laboratory testing without instruction from a registered Medical Practitioner is prohibited.
- The patient test request form must be completed in full as outlined in the Policy on request form completion and specimen labelling.
- Patient details such as age and gender are critical as the reference ranges of some tests are age and gender specific.
- An adequately completed request (request form/electronic request) once accepted in the laboratory initiates an agreement for services.

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- Information on the request form and the results of laboratory investigations will be stored by the laboratory in accordance with the retention and storage of pathological records and specimens (5th Edition), the Royal College of Pathologists, 2015.
- Requests for tests not performed in the Hermitage Clinic will be referred to referral/sub contracted laboratories and will involve communication of patient information and clinical details to the external laboratory. Details on referral/sub contracted laboratories can be obtained for the Pathology Laboratory.
- Issues concerning patient consent for laboratory investigations are the responsibility of the requesting doctor. The Pathology laboratory assumes that specimens submitted for testing were obtained with the consent of the patient for the performance of analysis to facilitate diagnosis and treatment.
- Results are reported to the appropriate hospital clinician or General Practitioner who can explain their significance to the patient within the context of their discussions of the clinical issue as a whole.
- Unless a specific request is made, a patient is deemed to accept the usual procedures of the Pathology laboratory relating to the storage and disposal of specimens. Any such specific request must be practicable, reasonable and given with sufficient notice.

15. CLINICAL LABORATORY SAMPLE TEST CYCLE



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16. SPECIMEN COLLECTION

- Where possible please provide separate samples for each laboratory discipline.
- It is essential that specimen and form labelling are clear and accurate and comply with the requirements of the Pathology Policy on request form completion and specimen labelling in previous section of this manual.
- Please note specimens with a collection date exceeding 48 hours on arrival to the Microbiology laboratory will be rejected due to reduced viability of organisms in the sample. Please do not submit samples to the laboratory if it is known that the delay in arriving in the laboratory will exceed 48 hours.

16.1. Blood Collection

- Bleeding of patients is per current approved Hospital Phlebotomy procedure.
- Always use blood collection tubes that are in-date. Blood taken in expired collection tubes may render the sample unsuitable for analysis, or impact the reliability of the result.
- Specimen labelling must be conducted next to the patient as per Hospital Policy Identification of Patient (BHHC-IPSG-PP-001).

16.2. Order of Draw

Colour Code	Order	Tube type / Order	Investigations
 Blood Culture Bottles	1 st	Blood Culture Bottles	Blood Cultures
 Coagulation	2 nd	Sodium Citrate (Green)	PT, (Specimens Must be Filled to the Line specified on the Coagulation Specimen Bottle) APTT, D-Dimers, Fibrinogen, Coagulation
 Serum	3 rd	Serum (Clotted) (White)	Serology, Tumour Markers, Haptoglobin, Iron Studies, Electrophoresis, Lithium. All immunology except CD4 or cryoglobulins. Hepatitis screening, HIV, Viral Screens.
 Lithium Heparin	4 th	Lithium Heparin (Orange)	All Biochemistry Profiles, Gentamicin, Vancomycin Troponin I, TFT, B12, Folate. NTproBNP Phenytoin, Phenobarbitone, Valproate, Carbamazapine, Digoxin and Theophylline.
 Blood Transfusion	5 th	<u>7.5ml</u> EDTA for Blood Transfusion (Red)	Group (Type) and Screen ± Crossmatch, DAT
 Haematology	6 th	<u>2.7ml</u> EDTA (Red)	FBC/ Blood film/Reticulocytes BNP, malaria screen, Infectious Mononucleosis, HbA1C, Red Cell Folate, CD4 counts, Cyclosporin, HIV viral load. (Separate tubes required for each test.)

 Glucose	7th	Sodium Fluoride (Yellow)	Glucose, Lactate Alcohol.
 ESR	8th	ESR (Long tube) (Mauve)	ESR (Specimens Must be Filled to the Line specified on the Specimen Bottle)

16.3. Guide for handling Blood Specimens Following Collection

Mix samples thoroughly 8 - 10 x by gently inverting the S-Monovette®

- Citrate
- ESR
- Heparin
- EDTA
- Fluoride
- Citrate Fluoride
- CPDA₂
- CTAD



Ensure correct storage

After blood collection, store the S-Monovette® Serum/Serum gel in a vertical position for 30 min.



https://www.sarstedt.com/fileadmin/user_upload/99_Gebrauchsanweisungen/Englisch/644_c_PosterA3_AnleitungVenoeseBE_SafetyKanuele_GB_EU_0314.pdf

16.4. Quantiferon

Tubes for Quantiferon test should be requested directly from the Pathology laboratory.



Obtain samples are per directions provided with sampling kit.

Do not shake after collection

Transport Directly to the Laboratory.

16.5. Collection of Urine / Faeces Specimens

<p>Urine</p>	<p>Sterile Universal Container</p>	
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Faeces (brown)	Sterile (brown) container	
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16.6. Instructions for 24 hour urine collection

- Approved containers for the collection of 24 hour urine are available for the Laboratory.
- Please ensure to label the container with the Patients details.
- Depending on the test requested the container might require the additional of 25ml of concentrated Hydrochloric acid. Extreme care must be taken with handling of these specimens.
- Do not discard any preservative provided or wash out container.



Procedure

1. Immediately before the beginning of the collection period (usually morning) the bladder must be emptied and the urine discarded. Record the time and date on the container label.
2. All urine passed during the next 24 hours must be collected to the container.
3. At the end of the 24 hour period, the bladder must be emptied and the urine collected added to that already in the container. Record the time and date on the container.
4. After completing collection, transport sample to the Laboratory.

16.7. Swabs for Microbiology

- Blue 'Transwab' ad transport medium are available for routine collection of specimens for skin, wounds, MRSA, VRE etc.

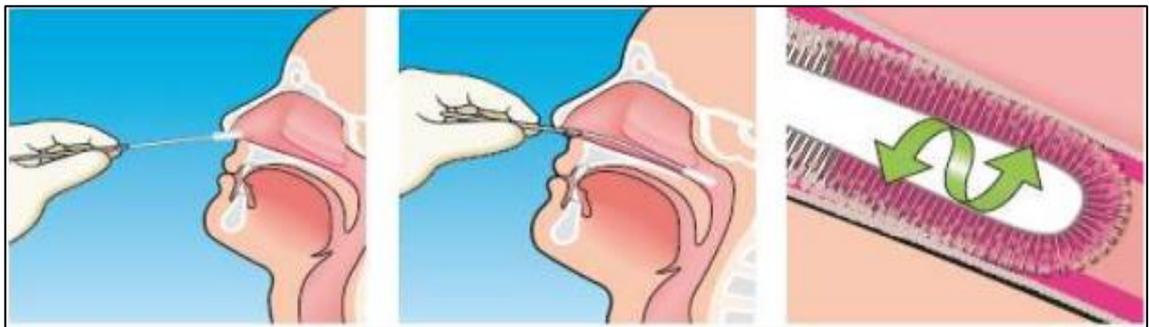


- Viral Transport swabs (Herpes/Zoster, Nasopharyngeal swabs (Influenza) and Aptima Chlamydia Specimen collection kits are available for the Laboratory on request.

16.8. Procedure for collecting Nasopharyngeal swabs (NPS) for Respiratory Viruses

(HMC-PCI-SOP-INF-003)

Collection Kits can be ordered from the Laboratory.



Insert the swab into the back of the throat and rotate to achieve a good swab- the patient will likely gag or cough at this point.

Using the same swab, gently insert the swab along the nasal septum just above the floor of the passage to the nasopharynx until resistance is met .

Rotate the swab gently against the nasopharyngeal mucosa for 10 - 15 seconds then gently remove swab



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After the swab is removed from the patient, place it into the tube of UTM™ transport medium all the way to the bottom of the tube

Hold the tube away from your face. Holding the end of the swab shaft, bend it at a 180 degrees angle to break at the marked breakpoint. If needed, gently twist the shaft between thumb and forefinger to completely remove it.

16.9. Specimen Containers for Histology/Cytology samples



- RPMI for bone marrow samples – available from laboratory on request.
- Zeus medium for samples for Direct Immunofluorescence (DIF) – not available in the laboratory. Stocks kept in minor ops/stores.
- Fresh muscle/renal biopsies – sample should be wrapped in saline soaked gauze and placed in a STERILE container – **DO NOT** place in formalin.

Specimen Containers for Cytology Samples

- Cytology for FNA samples – available from laboratory on request.
- Thin Prep Vials for cervical smears – available from laboratory on request.
- Fluids (incl. BALs) should be taken in sterile containers - **DO NOT** place in formalin.

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16.10. Collection, handling and Storage of Histology samples

- In general an appropriately sized specimen container should be selected to allow for an amount of fixative equal to 20 times the specimen size. In the case of large specimens, this is not practical but it is imperative to ensure that the specimen is fully immersed in the specimen.
- The specimen must be fixed immediately in 10% formal saline n.b. Pre-filled 10% Formalin containers must be used at all times.
- Histology samples must be hand delivered to the laboratory.
- Routine specimens should be delivered to the laboratory.
- Urgent specimens must be delivered immediately and clearly marked as Urgent. Laboratory reception staff should be informed of urgent specimens and fresh specimens.
- Fresh Histological specimens are URGENT and so prior to receipt, the laboratory must be notified so that they can arrange for urgent transport to Beaumont Hospital. Note: Case number must also be obtained from Blackrock Clinic for these Fresh Tissues and accompany the specimen to Beaumont. Beaumont must receive all Fresh Tissues before 4pm daily and they must be notified of impending fresh tissue deliveries. The following Fresh Tissues require this treatment:
 - Fresh muscle tissue / biopsy
 - Breast biopsy for non-cosmetic reasons
 - Core breast biopsy
 - Fresh nerve tissue / biopsy
- The Hospital policy titled labelling and Handling of Specimens (BHHC-TH-PP-016) must be adhered to for all samples taken in Theatre.

16.11. Labelling of Histology Samples

Histology samples must be labelled as per Section 15. BHHC Pathology policy on request form completion and specimen labelling.

The Blackrock Clinic Histology form must be used and completed appropriately.

The Histology pots must also be numbered and the contents indicated on the pot.

The number of the pots must be listed on the Histology request form and the contents listed and this must correspond with that pot.

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17. SPECIMEN HANDLING

Always assume that all ‘blood and body’ fluids are infectious for blood-borne diseases such as HBV (Hepatitis B Virus), HCV (Hepatitis C Virus) and HIV (Human Immuno-deficiency Virus). All blood and body samples should be handled with universal precautions.

Spillages should be dealt with in accordance with the hospital policy ‘Guidelines for the Chemical Disinfection of clinical spillages (Blood/Bodily Fluids)’ (BHHC-PCI-PP-026).

17.1. Safe Disposal of materials used in sample collection

All sharps material used in the sample collection must be disposed of in a sharps bin only. All soiled soft waster e.g. blood stained gauze must be disposed of in a suitable biohazard waste bin. Any clean waste e.g. packaging form equipment must be placed in a clear bag for domestic waste. All staff must adhere to BHHC-FMS-PP-008 Hospital Safety Statement.

18. PATIENT COLLECTED SAMPLES

It is the responsibility of the requesting clinician to ensure that requests collected and submitted to the Laboratory by the patient are: fully labelled and in the correct specimen container; include a fully completed request form (hardcopy or request in Meditech); meet required transport requirements and time frames for submission; are stored appropriately if same day submission is not possible. Details of collection and transport requirements are described in this manual.

19. HANDLING OF SAMPLES POST COLLECTION

- All specimens should be transported to the laboratory as soon as possible.
- Some samples require special handling i.e. protection from light, immediate freezing, transport within a temperature interval, within a time frame appropriate to the nature of the examination etc.
- If in doubt regarding the specimen container required or the special requirements when taking the specimen, please refer to the ‘special requirements and comments’ section of the relevant investigation or contact the laboratory for advice.

- With reference to Microbiology specimens, all specimens >48hrs old on arrival in the Laboratory will be rejected. Refrigeration of specimens is undesirable for investigation of labile fastidious organisms or where sample quality will deteriorate if transport is delayed.

20. DELIVERY OF BIOLOGICAL SAMPLES

Specimens may be delivered directly to the Pathology Reception area as follows:

Days	Routine Hours
Monday – Friday	07:00 – 19:30
Saturday – Sunday (Bank Holidays)	09:00 – 18:30

It is essential that all specimens be transported safely and efficiently to the laboratory in order to ensure the safety of staff transporting samples, other staff, patients and members of the public, and to ensure that the specimens reach the laboratory in proper conditions, in a timely manner. All specimens should be dispatched to the laboratory as soon as possible. Some samples may require special handling.

Note: Where there are specific time and temperature requirements for testing of specimens once collected, these are indicated in the individual test requirements.

20.1. Delivery of Biological Specimens within BHHC

Specimens may be delivered directly to Laboratory Reception during routine hours or Specimens may be delivered internally within BHHC to the laboratory using the pneumatic chute system.

Ensure to place specimens in specimen bags, and seal the bag (insert request form if applicable in non-sealable area of bag). When carrying a large number of specimens, they should be transported in secure specimen boxes or on a trolley. Never place specimen in pockets. If a specimen is dropped or found to be leaking, or if there is a spillage use the spillage kit available in the Pathology laboratory or at ward level. Inform the laboratory staff as soon as possible so further measures can be taken if appropriate. Do not leave a broken sample unattended.

20.1.1. Instructions on Use of the Pneumatic Chute

Place the labelled specimen(s) and sample request form in the canister for sample transportation. Limit the number of samples to two or three per canister.

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Ensure canister lid is fully closed.

Instructions on the operation of the chute are available at each chute station.

In the event of a breakdown of the pneumatic chute system Contact Hospital Reception on 016459000 informing them of error with chute system who in turn will contact Facilities Management.

20.2.Delivery of Biological Specimens from ‘Off Site’ Hospital/Clinics and Delivery of Biological Samples to Referral/Sub contracted Laboratories

Transport of biological specimens by public road must be in compliance with the current ADR transport regulations. It is the responsibility of the consignor to comply with these regulations. This standard is to safeguard the drivers of vehicles carrying diagnostic specimens on the road between sites and provides protection to passengers and / or the emergency services in the event that the vehicle is involved in a road traffic accident.

20.2.1. Category B Biological Substances

Most samples can be transported as UN 3373 BIOLOGICAL SUBSTANCE, CATEGORY B in accordance with Packing Instruction 650.

To comply with packing instruction 650 for road transport, the following requirements must be satisfied.

1. The specimen must be contained in a primary leak proof container.
2. The primary receptacle must be contained in a secondary leak proof container.
3. There must be sufficient absorbent between the primary and secondary container to absorb the entire amount of liquid in the primary containers should they leak.
4. Either the primary or secondary container must be able to withstand an internal pressure of 95 kPa – the primary container in use for the laboratories of the UL Hospitals satisfies this requirement.
5. The secondary container must be contained in an outer package with at least one minimum surface dimension of 100 x 100 mm.
6. The outer package must display the following markings:

**BIOLOGICAL SUBSTANCE,
CATEGORY B**



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7. Either the secondary or outer packaging must be rigid.
8. The assembled package should be capable of withstanding a 1.2 m drop test without leakage from the primary container.

20.3. Emergency Response in the Case of an accident or leakage from the package

If leakage is observed or a package is damaged as a result of an accident, contact the Laboratory.

Do not touch the package.

If emergency responders have arrived on scene, please advise them of the presence of UN3373 materials.

As soon as is practical, clean up as follows:

1. Wear gloves and protective clothing, including face and eye protection if indicated.
2. Cover any visible spillage with a cloth or paper towels to contain it.
3. Pour an appropriate disinfectant over the cloth or paper towels and the immediate surrounding area. Apply the disinfectant concentrically beginning at the outer margin of the spill area, working towards the centre.
4. After about 30 min, clear away the materials. Place the damaged package in a leak proof container e.g. yellow sack and remove to a controlled lab area to see if the samples can be salvaged. If there is broken glass or other sharps are involved, use a dustpan or a piece of stiff cardboard to collect the materials and deposit them into a puncture-resistant container for disposal (sharps bin).
5. Clean and disinfect the area of the spillage (if necessary, repeat steps 2–4).
6. Dispose of contaminated materials into a leak-proof, puncture-resistant waste disposal container.

21. SPECIMEN RECEPTION AND REJECTION PROCESS

Laboratory staff inspect all incoming specimens to ensure that the request form and the specimen container are completed as outlined and that the quality of the specimen is adequate for testing. This is completed to ensure correct patient identification and avoid incorrect / inaccurate results.

The Laboratory will inform the user of any issues with regard to specimens as soon as possible after receipt. Samples may be rejected for the following reasons: haemolysed, lipaemic, clotted, under filled, overfilled, incorrect container used, leaking specimen, incorrect labelling and/or insufficient sample.

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There is a zero tolerance labelling policy in Biochemistry and Haematology for samples which are easily repeatable. Where samples are non-repeatable e.g. biopsies, fluids, blood culture (where timing is critical) and the sample fails to comply with minimum acceptance criteria, HMC-QA-FRM-008a may be completed, In order for the sample to be accepted in the laboratory, the originator must correct the discrepancy and sign and date any changes made to request form and/or specimen container and sign this for, with Laboratory Staff member acting as witness. By signing the form, the originator accepts responsibility that the correct information has been resubmitted and that this sample belongs to the stated person.

22. REPORTING OF LABORATORY RESULTS

Laboratory Results are available on the laboratory information system (Meditech) to approved staff in the Hermitage Clinic. The Laboratory should be contacted regarding any enquiries on laboratory results. Hard Copy reports if requested are printed and sent to ward and/or consultant suites if requested. External reports are dispatched to their destination on the first working day there after the report is received or may be faxed in accordance with laboratory policy on faxing.

Critical results are communicated as a verbal report by telephone to the Clinician or authorised health care professional. Critical results are defined in the Pathology laboratory policy Pathology Laboratory communication of critical, urgent, and unexpected significant laboratory results (HMC-QA-SOP-010). This policy is available on Q pulse or by request. It is our policy to telephone apparently unexpected results, which may immediately affect patient management.

Significant delays in reporting of results for example due to analyser downtime will be communicated to the clinical area and/or requesting consultant.

22.1.Key factors that may affect test performance or interpretation of results

The below listed are essential to ensure correct test performance or interpretation of results

Patient details must be correct on the request form / electronic equivalent (Meditech)

Correct identification of patient must be performed

Relevant clinical details provided

Adherence to pre phlebotomy procedure e.g. fasting

Samples taken in the appropriate manner, order of draw and correct volume

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Date and time of phlebotomy

Sample in correct container / tube and correctly labelled

Samples must not be poured from one blood tube to another

Other factors including relevant patient preparation, special specimen handling or interfering substances relating to individual tests may be listed in the Test repertoire section of this document.

22.2.Uncertainty of Measurement

Many factors contribute to the uncertainty of results produced by automated instruments. Factors that contribute to the uncertainty may include, but is not limited to:

- **Pre-analytical factors:** for example phlebotomy technique, sample transportation and sample storage prior to analysis. While these need to be considered, they are variables that are beyond the scope of this procedure and will not be discussed further.
- **Analytical factors:** uncertainty of measurement due to variables in the reagents, calibrators, controls and sample handling (pipetting, tubing, sample cuvettes) by the instrument. These variables are the subject of this procedure.

The Uncertainty of Measurement is available for each analyte on request from the laboratory

22.3.Laboratory Policy on Phoning Reports

- Results may be telephoned, when previously arranged or requested , e.g. on urgent samples with prior verbal notification
- Results may be telephoned when prompted by the Meditech System (critical results etc.)
- Results may be telephoned for a patient from a critical ward e.g. ICU, ED etc.
- Results may be telephoned when the results may be of relevance to immediate clinical management e.g. when significant change per delta check.
- The laboratory staff member issuing the report will make sure of the patients unique identification by requesting date of birth and/or MRN of the patient prior to issue. After the report has been transmitted, the laboratory staff member in question will ask the receiver to read back the results in order to minimize the risk of transmission errors. The laboratory staff will log the call into the Meditech System or manually log the call.
- Reports will only be issued to clinicians, their secretaries or ward staff. The identity of the receiver must be verbally confirmed to laboratory staff before issuing the report. Results are not released to patients or their families.

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- The above method is used to ensure the results only reach an authorised receiver and that results are clear and unambiguous. The security of the personal records is ensured and the risk of error reduced. This is done in accordance with JCI and ISO15189:2012 standards.

22.4. Issuing of Reports During Normal Opening Hours

Once authorised the results are entered onto Meditech. Results that have been requested to be phoned, plus any unexpected abnormal results are phoned to the appropriate location as soon as they become available. A copy of the report is printed and sent to the ward and/or consultant suites if requested. External reports are dispatched to their destination on the first working day there after the report is received or may be faxed in accordance with laboratory policy on faxing results.

22.5. Issuing of Reports On-Call

Once authorised, the results are available in Meditech. All critical results will be telephoned to the requesting clinician. Results are available on the Meditech system once testing is complete and results are verified by the Medical Scientist.

Where calls originate from external agencies the results are phoned and a written report dispatched on the first working day thereafter or faxed in accordance with laboratory policy on faxing results.

22.6. Referral/Sub contracted Laboratory Reports

It is the general policy of the Pathology Laboratory not to refer tests within the scope of accreditation to external laboratories. The Blood Transfusion Laboratory refers cases such as complex antibody investigations and genotyping, including provision of compatible blood to the Irish Blood Transfusion Service. Pathology Laboratory Management have set up a Service Level Agreement with the Irish Blood Transfusion Service and all referral laboratories.

The Pathology laboratory uses both Referral Laboratories and sub-contracted laboratories. This therefore defines ‘referral laboratories’ as those to which tests within the scope of the accreditation are sent, while laboratories to which tests are not within the scope of accreditation are sent are defined as ‘sub-contracted laboratories’.

All results of tests performed in referral laboratories excluding Histology reports are entered on Meditech by BHHC laboratory staff. Any critical results are phoned as per the Pathology laboratory policy Pathology Laboratory communication of critical, urgent, and unexpected

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significant laboratory results (HMC-QA-SOP-010). This policy is available on Q pulse or by request.

There is an interface between Hermitage Clinic and Blackrock Clinic which allows direct transference of Histology and Microbiology results into Meditech; reports are available in the Patient Care Inquiry (PCI).

For histology reports from other hospitals, reports are scanned into Meditech using the scanning module. A copy of the histology report can be found under Medical Records forms in the Patient Care Inquiry (PCI) and this is available for review by authorised users of Meditech within the hospital.

It is indicated on the Laboratory report that testing was performed in a referral laboratory.

23. TURN AROUND TIMES

The Laboratory has set target turnaround times for all tests performed. These are established with collaboration between Senior laboratory staff, Consultants and Clinical Users.

Turnaround times are subject to the daily cut-off times. Turnaround times are determined from the date and time of receipt of the sample in the laboratory to the date and time of authorization. Turnaround times for Microbiology and Histology are based on working days (Mon-Fri). Turnaround times are subject to regular audit.

Significant delays in agreed TAT's for example due to analyser downtime will be communicated to the clinical area and/or requesting consultant.

24. SPECIMEN RETENTION POLICY

Laboratory Management are committed at a minimum to meet the recommendations of the Royal College of Pathologists, Irish National Accreditation Board, AML-BB and relevant EU Blood directives as they apply to the retention and storage of Pathological specimens.

The following information is in accordance with the guideline of the 'The Retention and Storage of Pathological Records and Specimens' – 5th Edition Guidance from the Royal College of Pathologists and the Institute of Biomedical Science and current INAB terms & conditions.

The recommendations that follow outline the retention time for various clinical material.

There are separate storage facilities for:

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- Clinical material
- Blood and blood products
- Radioactive samples/waste
- Discarded Histology specimens

Storage facilities are in accordance with current legislation, regulations and guidelines.

Specimens and Preparations

Specimens and Preparations	Retention Time
Biochemistry Samples	
Plasma, serum, urine & body fluids	1 week @ 4°C (only aliquot of 24hr Urine retained)
Whole blood & red cells	1 week @ 4°C ²⁷
Haematology & Blood Transfusion Samples	
FBC samples	1 week @ 4°C
Coagulation samples	1 week @ 4°C
ESR samples	1 week @ Room Temperature
Blood transfusion samples (blood for group, antibody screen and/or cross-match)	7 Days @ 4°C (can only be used for 3 days, after samples are held for archive reasons only)
Blood films	1 year
Bone Marrow Aspirates	Stained held indefinitely Unstained held for 1 month
Other specimens :	Retention Time (Blackrock Clinic)
Histology Samples	Cytology – 4 weeks after sign out Formalin fixed biopsy – 4 weeks after sign out Histology stained slides - permanently
Microbiology Samples	Blood Cultures – 1 week CSFs – 2 weeks Swabs – 2 weeks Urines – 1 week Cultures – 48 hours after final report
Discarded Histology samples	8 weeks in formalin (Hermitage Clinic)
Radioactive samples	24 hrs in proper radioactive proof storage before sending sample to the Blackrock Clinic

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24.1. Residual Samples for Research Purposes

The laboratory must seek explicit consent through the Consultant in charge of the patient, from parents/guardians in order to use residual or surplus samples.

In the absence of explicit consent, prior approval must be granted by the hospital Medical Advisory Committee (MAC), which deals with hospital ethical issues or in order that samples may be used for purposes other than the examinations requested e.g. quality control, method development. If used, all samples must be made anonymous.

With certain unique samples e.g. dried blood specimens or biopsies, only a portion of the sample may be used. Sufficient sample must be retained in the event of further investigations being required.

Residual or surplus samples may only be used for research related to a specific disorder or group of disorders provided prior approval is granted by the MAC or appropriate body. Ethical approval must be sought independently for every proposed study. Policy on use of residual samples for research purposes is under constant review by MAC or third party Ethics Committee.

25. ADDITIONAL EXAMINATION REQUESTS

- The Laboratory has a procedure on retention of specimens.
- It is advisable to contact the relevant laboratory discipline, if additional investigations are required to ensure sufficient samples in available and that the sample is still viable.
- When a verbal request for an additional test is received, the laboratory will request the name of the staff member initiating the request and in some instance require clarification / justification for the additional examination requested.
- In the event of analytical failure, the laboratory will notify the requesting clinician / location should repeat sampling / further sampling be required.

25.1. Biochemistry

Requests must be made within 24 hours of specimen collection and only if the plasma/serum has been separated from cells and the sample appropriately stored at 4°C.

Discuss all requests for additional testing with staff in the Biochemistry Laboratory.

Additional testing on a sample is recorded on Meditech as an internal comment.

The comment should include the test requested, person requesting, date and time of request.

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25.2. Haematology

FBC samples are analysed immediately upon receipt into the laboratory. International best practice recommends analysis within 4 hours of collection. Coagulation samples are very time-sensitive and are not suitable for analysis more than 4 hours after collection.

EDTA samples for FBC are retained for 7 days. However, additional tests such as Blood film, reticulocytes or Malaria are affected by EDTA changes and must be performed on samples <24 hours old. Infectious mononucleosis rapid test, for whole blood, should be performed immediately or within 2 days stored at 2-8°C.

For other requests e.g. tests sent out for flow cytometry, please discuss individual requests with staff of the Haematology and Blood Transfusion Laboratory.

Additional testing on a sample is recorded on Meditech as an internal comment. The comment should include the test requested, person requesting, date and time of request.

25.3. Blood Transfusion

A request for additional testing is dependent on the particular test being requested and if the patient has been previously transfused or is pregnant. Please discuss individual requests with staff of the Haematology and Blood Transfusion Laboratory.

25.4. Histopathology

All requests for additional testing and examination(s) must be made within 1 month of original examination request.

25.5. Microbiology

Any requests for additional microbiology testing must be phoned to the laboratory.

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This request must then be communicated to Blackrock Clinic Microbiology Laboratory to ensure additional testing can be carried out. If additional testing is feasible the test must be requested on Meditech including the person requesting, date and time of request.

If the additional testing is not possible the clinical area requesting will be notified that a new sample is required.

26. PATHOLOGY SERVICE USERS

Users of the laboratory service should ensure that their contact details i.e. name, address, telephone number are up to date. Any changes should be notified to the Pathology Quality Manager at 016459391 or the Laboratory Manager at 016459965.

27. LABORATORY SERVICE

27.1. Biochemistry

The Biochemistry laboratory provides routine Biochemistry testing.

The laboratory has an Internal Quality Assurance System in place, participates in External Quality Assurance schemes, and is supported by an ongoing training programme.

27.1.1. Blood Specimen volume requirements

Test Details	Patient Type	Specimen Tube
General Biochemistry Tests e.g. Electrolytes, urea, creatinine, phosphate etc.	Adult	1 x Lithium Heparin 
Volume requirements for specimen types for referral tests / specialist assays referred to external laboratories are provided in special requirements or comments section in the test listings in the document, for further information the laboratory can be contacted		
Emergency / Urgent Analysis	Adult	1 x Lithium Heparin

		 (patient label with red strip)
Glucose analysis	Adult	1 x Sodium Fluoride 
PSA	Adult	1 x Serum 
BNP	Adult	1 x EDTA 

27.1.2. Test Profiles

The test profiles defined are available to requesting Clinicians.

Terms such as ‘hormone profile’, ‘tumour markers’, ‘routine tests’ or ‘toxicology’ should not be used as they are vague and unfocussed and may result in delays in testing and availability of results.

Profiled	Mnemonic	Tests in Profile
Renal	RP	Electrolytes, Urea, Creatinine, eGFR
Liver	LP	Total Protein, ALT, Bilirubin (Total), Albumin, GGT, Alkaline phosphatase, AST, LDH
Bone	BP	Albumin, Alkaline phosphatase, Calcium, Corrected Calcium, phosphorus
Full Profile	FP	Renal, Liver, Bone,
Lipid Profile	FLP	Cholesterol, Triglycerides, LDL-cholesterol, HDL-cholesterol

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TFT (Thyroid Function Tests)	TFTs	TSH, FT4
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27.1.3. Reference Ranges / Intervals - Biochemistry

Virtually all clinical biochemistry results are reported with reference interval values, which in some instances are gender and age related.

The reference interval defines the values of a biochemical test found in 95% of apparently healthy subjects against which the patient's value can be compared.

Reference intervals are indicated on the Laboratory report. Any changes / updates to reference values are evident on the laboratory report. Where results are above a stated reference interval, the result will have an associated flag of "h" (high) on the report. Where results are below a stated reference interval, the result will have an associated flag of below reference range "l" low on the report.

27.2. Haematology

The Haematology laboratory provides routine Haematology testing.

The laboratory has an extensive Internal Quality Assurance System, participates in External Quality Assurance schemes, and is supported by an on-going training programmes and education. It is committed to providing requesting doctors with a service of the highest quality and adherence to laboratory procedures approved by appropriate regulatory bodies, staff competency. Comprehensive internal quality control procedures, regular quality assurance audits and participation in external quality assurance schemes.

27.2.1. Reference Intervals - Haematology

Reference intervals quoted in this manual refer to adult intervals. Age and sex related intervals where applicable are quoted on the haematology test report.

Any updates to reference intervals are indicated on the Haematology Test report. Where results are above a stated reference interval, the result will have an associated flag of "h" (high) on the report. Where results are below a stated reference interval, the result will have an associated flag of below reference range "l" low on the report.

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27.2.2. Coagulation specimen requirements

Relevant anticoagulant therapy (medications) should be included on all Coagulation requests.

Relevant clinical details should be provided to facilitate D Dimer analysis.

Samples will be rejected for the following reasons:

- Under-filled samples i.e. any sample that is more than 4mm below the fill line indicated on the sample bottle.
- Overfilled samples i.e. any sample that is more than 4mm above the blue fill level indicated on the bottle.
- Any sample that is considered grossly haemolysed.
- Clotted samples

Special precautions should be adhered to ensure coagulation samples are not contaminated with heparin or taken from a drip site.

27.3. Blood Transfusion

- It is hospital policy that all patients who require any blood transfusion testing that may require blood or blood component must have a hospital armband on at all times. If the armband is removed then a new Group (Type) and Screen and crossmatch sample must be requested. It is therefore not possible to carry out this testing on 'Outpatients'. Ensure patient has received the patient information leaflet for transfusion. Informed patient verbal consent for transfusion is required. Ensure patient has received the patient information leaflet for transfusion. Verbal consent is confirmed by prescribing doctor with a signature and date.
- All units can be collected from the blood issue fridge located in the Blood Transfusion department. Components can only be collected by personnel who have received and are signed off on Haemovigilance training.
- The pink crossmatch compatibility label which is attached to the unit using plastic tags **must not be removed until the transfusion is completed** otherwise an unlabelled unit will end up being transfused to the patient.

27.3.1. Sample and request form requirements Blood Transfusion

Sample collection

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Please refer to BHHC-HV-SOP-007/HMC-HV-SOP-008 titled Pre-Transfusion Compatibility sampling available on Q pulse. If specific preparation of the patient/sample/transport container is required, it will be specified in the relevant section.

Sample type required for pre-transfusion testing: ADULT: 7.5ml EDTA transfusion laboratory sample bottle

Patient details MUST BE handwritten on blood transfusion samples.

Please note addressograph self-adhesive labels are not acceptable on the request form or sample.

The Laboratory Adopts a Zero Tolerance approach to labelling of Blood Transfusion Samples

Specimen Acceptance

Inadequately/incorrectly completed sample or request forms will be rejected.

Samples received > 24 hours after collection and not stored between +2°C and +8°C will also be rejected.

Sample storage

Samples are stored in the blood transfusion refrigerator and are discarded after seven days, unless a request has been received to reserve the sample for a specific purpose.

Request Form

Valid request in LIS or completed HMC-BB-FRM-059 Blood Transfusion Request Form

Reports

Electronic reports are available on Meditech. Hardcopy reports can be delivered to the requesting Clinician if requested.

27.3.2. Test requirements in Blood Transfusion

Antibody Identification	Sample Type	7.5mL EDTA
	Request form	Meditech Order / HMC-BB-FRM-059
	Turnaround Time	1 day dependant on priority
	Comment	A second sample may be required for complex antibody identification
Antibody investigation referrals to reference laboratory	Sample Type	7.5mL EDTA
	Request form	Meditech Order / HMC-BB-FRM-059
	Turnaround Time	1 week dependant on priority

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Direct Antiglobulin Test	Sample Type	7.5mL EDTA
	Request form	Meditech Order / HMC-BB-FRM-059
	Turnaround Time	1 hour urgent, 4 hours routine
Transfusion reaction investigation	Sample Type	<p>7.5ml EDTA post transfusion sample</p> <p>Component pack with giving set attached</p> <p>Urine sample x 2 (immediately and 6 hours post reaction)</p> <p>FBC</p> <p>Coagulation screen</p> <p>U&E, creatinine, bilirubin;</p> <p>Pre- and post-transfusion samples for BNP (Brain type natriuretic peptide), in cases of suspected TACO or TRALI - samples should be taken within 2 hours of suspected TACO or TRALI reaction.</p> <p>IgA levels in cases of suspected allergic reaction</p> <p>Blood cultures (if fever is documented)</p>
	Request Form	Meditech Order / HMC-BB-FRM-059
	Turn Around Time	<ul style="list-style-type: none"> ➤ Serological testing is performed on the same day of receipt. ➤ Blood culture where indicated may take up to 5 days before a report is authorized. Positive cultures are phoned immediately. ➤ In cases of suspected TACO or TRALI, turnaround time may take several weeks.
	Note	<p>Complete Page 13 of the BTB (HMC-HV-FRM-1)</p> <p>Reporting of transfusion reactions to the National Haemovigilance Office is mandatory.</p>

27.3.3. Transfusion Laboratory Request Options

Type and Screen	Sample Type	7.5mL EDTA
	Request form	Meditech Order / HMC-BB-FRM-059
	Turnaround Time	<p>Same Day*</p> <p>*1 hour after receipt for urgent samples</p>
	Comment	A blood group and an antibody screen will be performed on the sample. (The same sample can be used to crossmatch blood up to 72 hours following sample collection.)
	Sample Type	7.5mL EDTA

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Type & Screen and Serological Crossmatch	Request form	Request must be present in BTB Meditech Order / HMC-BB-FRM-059
	Turnaround Time	1 – 2 hours after receipt
	Comment	<p>A blood group and an antibody screen will be performed on the sample and the sample will be serologically crossmatched for the number of units requested, or in the case of surgical patients, the number of units specified in the Maximum Surgical Blood Order Schedule (MSBOS).</p> <p>Any deviation from the agreed MSBOS needs to be clearly communicated to the laboratory.</p> <p>Note: if no record/history of a previous blood group available, the Medical Scientist prepares form HMC-BB-FRM-117, BT Confirmation of Blood Group Sample and a 7.5 ml EDTA blood collection tube and send to ward/source. The Medical Scientist will phone the Ward/source and instruct the staff-in-charge to collect a second blood sample into the blood tube provided for Blood Group confirmation before the crossmatching can commence.</p>
Type and Screen and Crossmatch for Massive Haemorrhage	Sample Type	7.5mL EDTA
	Request form	Request must be present in BTB Meditech Order / HMC-BB-FRM-059
	Turnaround Time	Prioritised once a massive Haemorrhage is declared.
	Comment	<ul style="list-style-type: none"> • When a patient presents with potential major haemorrhage, the Transfusion laboratory must be informed immediately. • Group specific, uncrossmatched red cell concentrates may be released, if time doesn't allow for a full crossmatch. • One individual needs to be identified as a liaison person to communicate with the transfusion laboratory until the haemorrhage is under control. • Please refer to HMC-HV-SOP-006 Management of Massive Haemorrhage.
Emergency O Rh D negative	Sample Type	A 7.5mL EDTA sample should be taken prior to transfusion
	Availability Time	Request must be present in BTB Immediately

uncrossmatched red cells	Comment	If a delay is unlikely to result in a significant risk to the patient, it is better to give group specific, uncrossmatched blood to conserve O RhD negative stock.
	Risks	O RhD negative emergency blood may not be compatible for patients with antibodies. Approximately, 2 - 4% of hospital patients may have a red cell antibody which can cause a haemolytic transfusion reaction.
	Note	Emergency O RhD negative red cells are located on the top shelf of the issue fridge in the blood transfusion laboratory.
Group Specific, uncrossmatched blood	Sample Type	7.5mL EDTA
	Request Form	Request must be present in BTB Meditech Order / HMC-BB-FRM-059
	Turn Around Time	10-15 minutes from receipt of blood sample in Blood Transfusion laboratory
	Risks	Risks associated with use are identical to risks associated with use of O RhD negative uncrossmatched blood. Group specific blood is no safer, but uses resources better, i.e. unnecessary use of O RhD negative blood is avoided. Units are labelled “uncrossmatched blood, transfuse with care”.
	Note	An emergency crossmatch for 4 red cell units will take 45 minutes provided the antibody screen is negative - see section on RCC crossmatch in the presence of a positive antibody screen for further information, if necessary.
Crossmatch where there is a valid type and screen sample	Sample Type	Original T/S sample in laboratory
	Request Form	Request must be present in BTB Meditech Order / HMC-BB-FRM-059
	Turn Around Time	30 minutes
	Specimen requirements	Previous sample must be <72 hours old. Blood crossmatched from the sample must be used within 72 hours.
Crossmatch in the presence of a positive antibody screen	Availability time	90 minutes to several hours depending on the antibody present*
	Risks and comments	If blood is needed before compatibility testing is completed, haemolysis may occur, but transfusion should not be withheld

		<p>if deemed absolutely necessary. A decision on whether to transfuse or /wait for fully crossmatched blood may need to be discussed with the Haematology Consultant.</p> <p>* Transport time not included (may have to be sent to IBTS)</p>
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27.3.4. Blood Component and Product Issue

All orders are entered through Order Entry using the category of BBK and not LAB. During Meditech downtime or in an emergency where using Meditech may result in an undue delay then a Blood Transfusion Request form can be used (HMC-BB-FRM-059) Blood Transfusion Request form).

You must include the reason for type and screen or transfusion and the number of units required in the clinical details section.

There is no label for the specimen bottle which must be hand written at the patients side from their wrist Identification band and details confirmed by the patient.

Platelets	Sample Type	7.5 ml EDTA. No sample is required if there is a current blood group on the laboratory information system.
	Request Form	Request must be present in BTB Meditech Order / HMC-BB-FRM-059
	Availability Time	<p>Platelets are not routinely kept on site in the Blood Transfusion laboratory. Requests should be placed in advance (time permitting).</p> <p>Communication with the laboratory is essential so platelets can be requested from the IBTS.</p> <p>For platelets required urgently, may be available within 45-60 minutes</p>
	Risk and comments	Refer to HMC-HV-SOP-019 Platelet Transfusions available on Q pulse
Plasma (LG Octaplas)	Sample Type	7.5 ml EDTA. No sample is required if there is a current blood group on the laboratory information system.
	Request Form	Request must be present in BTB Meditech Order / HMC-BB-FRM-059

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	Availability Time	< 60 minutes
	Risk and comments	Refer to HMC-HV-SOP-001 The Administration of Blood and Blood Products available on Q pulse
Albumin	Sample Type	None.
	Request Form	Request must be present in BTB Meditech Order / HMC-BB-FRM-059
	Availability Time	< 60 minutes
	Risk and comments	Refer to HMC-HV-SOP-001 The Administration of Blood and Blood Products available on Q pulse
Prothrombin Complex Concentrate (PCC)	Sample Type	None.
	Request Form	Request must be present in BTB Meditech Order / HMC-BB-FRM-059
	Availability Time	< 60 minutes
	Risk and comments	Refer to HMC-HV-SOP-022 Guideline on the Prescription and Administration of Prothrombin Complex Concentrate (PCC) Octaplex.
Fibrinogen concentrate	Sample Type	None.
	Request Form	Request must be present in BTB Meditech Order / HMC-BB-FRM-059
	Availability Time	< 60 minutes
	Risk and comments	HMC-HV-SOP-023 Guidelines on the Prescription and Administration of Fibrinogen

27.3.5. Collecting Blood /Blood Component from the Laboratory

1. Prior to going to laboratory to collect unit ensure Patients prescription is completed in BTB/Collection Slip, Verbal consent was performed and the patient was provided with the Blood Transfusion Information leaflet.
2. Bring the Patient's collection slip (HMC-HV-FRM-15, HMC Blood Collection Docket) or preferably the Blood Transfusion Booklet (HMC-BB-FRM-1).

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3. Every unit of blood issued from the laboratory for a patient should have a **printed pink Issue/transfusion card** attached to the unit. This applies even to emergency uncrossmatched units, which will have a blank pink label with the unit details and space on it for documenting the patient details.
4. Patients' crossmatched units are located in the Issue fridge. A drawer is allocated to each ward.
5. On removal from the issue fridge, cross-check the patient identifiers on the transfusion booklet/ collection slip against the details on the blood unit sticky label and the pink crossmatch card attached to the unit.
6. The unit numbers on the affixed labels must match the unit/ lot number on the front of the blood pack/component.
7. The blood transfusion component/product sign out log (HMC-BB-FRM-089, Blood Transfusion Component/ Product Sign out Log), which is located on the bench across from the Issue fridge will have a barcode label attached for the Patient with crossmatched blood/ components available.
8. Complete all relevant fields of the Sign out Log. These include, date and time component/product was removed from the issue fridge/ platelet agitator. Mode of transport; foil bag or blue bag. Patient blood group.
9. Remove one of the label stickers from the unit which contains the donor unit number, product and donor group and Affix in the log under the relevant column and the correct line of the log for that patient.
10. Insert your name and Meditech code to indicate who has signed out the product
11. Document the location of where unit is been transported to for transfusion.
12. There is a section on the log for units that are returned to the lab if greater than 30mins these units should be placed in quarantine. The total time that the unit was out of the fridge should be documented. Date, name and Meditech code of the staff member who returns the unit should be noted.
13. The pink crossmatch label on each component/ product must be attached, when completed, to the Transfusion Booklet (HMC-HV-FRM-1) but only following completion of the transfusion. (No unit should be transfused to a patient without identifiers attached to it).
14. For emergency transfusion out of hours the laboratory scientist on call must be contacted through the switchboard. The name of the on call person and their phone number is also on the notice board in the reception area of the laboratory

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28. LABORATORY TEST REPERTOIRE

For additional information and/or if test is not listed please contact the laboratory.

5	
5HIAA 5-Hydroxyindoleacetic Acid	
Laboratory	Send out – referral laboratory
Mnemonic	CATS24HR
Specimen Type	Urine
Special requirements and comments	24 hour collection. Transport frozen.
Turn around Time	7 days
Reference Interval	On report or contact laboratory
A	
ABG (Arterial Blood Gas)	
Laboratory	Biochemistry – ABG located in ICU
Specimen Type	Arterial blood in air-free heparinised syringe. Blood gas analysis sampling kits are available in ICU, Cath Lab, ED. Immediately after collection, expel any air from the sample and seal the syringe with the stopper provided. Once the sample has been drawn, the blood gas syringe must be labelled with the patient’s full name, M number, ward, date and time of collection.
Special Requirements and comments	The specimen should be brought to ICU immediately. If delay between sample collection and arriving in ICU is greater than 15 minutes place sample on ice. Blood gas syringes must not be sent to via the pneumatic chute.
Turn around Time	1 hour
Reference Interval	On report or contact laboratory
ACE (Angiotensin Converting Enzyme)	
Laboratory	Send out – referral laboratory
Mnemonic	ACE
Specimen Type	Serum
Special requirements and comments	ACE inhibitors, e.g. captopril, enalapril inhibit ACE activity
Turn around Time	5 days
Reference Interval	On Report or contact laboratory.
Acetaminophen (Paracetamol)	
Laboratory	Send out – referral laboratory

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Mnemonic	PARACET
Specimen Type	Serum
Special requirements and comments	Haemolysis can have a variable impact on serum Paracetamol levels including both positive and negative interference at different concentration levels.
Turn around Time	1 day
Reference Interval	On report or contact laboratory.

Acetylcholine Receptor Antibodies

Laboratory	Referral laboratory
Mnemonic	ACTE
Specimen Type	Serum 5mL
Special requirements and comments	N/A
Turn around Time	Up to 1 weeks
Reference Interval	On report or contact laboratory.

ACTH

Laboratory	Referral laboratory
Mnemonic	ACTH
Specimen Type	APOTRONIN – PLEASE CONTACT LABORATORY FOR TUBE
Special requirements and comments	Requests for this test are sent to external specialist laboratory Send on Ice to Laboratory ASAP. Freeze < 1 hour from collection. Draw between 7-10am
Turn around Time	7 days
Reference Interval	On Report or contact laboratory.

Activated Partial Thromboplastin Time

Laboratory	Haematology
Mnemonic	APTT or as part of Coag screen (COAG)
Specimen Type	Sodium citrate tube NB: Tube must be filled to line. If above or below the line the results will be invalid and therefore specimens will not be analysed
Special requirements and comments	Perform test within 2-4 hours of collection or long term storage at -20°C. Maintain the correct anticoagulant/ blood sample volume ration of 1:9 Interferences: Heparin, micro clots in sample
Turn around Time	1hr STAT, 4hrs Routine
Reference Interval	On Report or contact laboratory.

Activated Protein C Resistance (APC-R)

Laboratory	Haematology – referral laboratory
Mnemonic	APCR or THROM
Specimen Type	1 x Sodium Citrate Tube 2.0ml, Or if ordered as part of Thrombophilia screen 4 x sodium citrate samples NB: Tube must be filled to line. If above or below the line the results will be invalid and therefore specimens will not be analysed
Special requirements and comments	Sample must be frozen within 1 hour of collection. State current clinical details and anticoagulant treatment. Generally requested as part of Thrombophilia screen.
Turn around Time	4 days
Reference Interval	On Report or contact laboratory.

Adrenal Antibodies

Laboratory	Referral laboratory
Mnemonic	ADREN

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Specimen Type	Serum 5mL
Special requirements and comments	N/A
Turn around Time	4 days
Reference Interval	On report or contact laboratory.

Adrenal Vein sampling

Laboratory	Referral laboratory
Mnemonic	ALDO, CONTR
Specimen Type	8 x EDTA for Aldosterone , 8 x serum for Cortisol
Special requirements and comments	Each specimen MUST be labelled per site (e.g. right adrenal vein, left adrenal vein, peripheral site etc.) and with time taken. Samples require centrifugation at 4000 RPM, 10 mins. (Test is carried out at Radiology and may or may not include synacthen simulation)
Turn around Time	3 days, 2 days
Reference Interval	On report or contact laboratory.

Alanine Aminotransferase

Laboratory	Biochemistry
Mnemonic	ALT
Specimen Type	Lithium Heparin
Special requirements and comments	Haemolysis may invalidated
Turn around Time	1 hour STAT, 4 hours routine
Reference Interval	On Report or contact laboratory.

Albumin

Laboratory	Biochemistry
Mnemonic	ALB
Specimen Type	Lithium Heparin
Special requirements and comments	N/A
Turn around Time	1 hour STAT, 4 hours routine
Reference Interval	On Report or contact laboratory.

Aldolase

Laboratory	Biochemistry – referral laboratory
Mnemonic	ALDOLASE
Specimen Type	Serum
Special requirements and comments	Sample must be spun immediately. Send to laboratory ASAP
Turn around Time	7 days
Reference Interval	On Report or contact laboratory.

Aldosterone

Laboratory	Biochemistry – referral laboratory
Mnemonic	ALDO
Specimen Type	Serum
Special requirements and comments	N/A
Turn around Time	7 days
Reference Interval	On Report or contact laboratory.

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Alkaline Phosphatase

Laboratory	Biochemistry – referral laboratory
Mnemonic	ALP
Specimen Type	Lithium Heparin
Special requirements and comments	Activity in blood is higher in children and in pregnancy.
Turn around Time	1 hour STAT, 4 hours routine
Reference Interval	On Report or contact laboratory.

Alpha-1-Antitrypsin

Laboratory	Biochemistry – referral laboratory
Mnemonic	ANTITRYPP
Specimen Type	Serum
Special requirements and comments	Use order for Phenotype, not genotype
Turn around Time	7 days
Reference Interval	On Report or contact laboratory.

Alphafetoprotein

Laboratory	Biochemistry – referral laboratory
Mnemonic	AFP
Specimen Type	Serum
Special requirements and comments	N/A
Turn around Time	2 days
Reference Interval	On Report or contact laboratory.

Amylase

Laboratory	Biochemistry – referral laboratory
Mnemonic	AMY
Specimen Type	Lithium Heparin
Special requirements and comments	Activity in plasma lower in infants.
Turn around Time	1 hour STAT, 4 hours Routine
Reference Interval	On Report or contact laboratory.

Antinuclear Antibodies (ANA)

Laboratory	Biochemistry – referral laboratory
Mnemonic	ANA Screen
Specimen Type	Serum
Special requirements and comments	Do not order ANA Titre or Pattern – these are reflex tests
Turn around Time	4 days
Reference Interval	On Report or contact laboratory.

Androstenedione

Laboratory	Biochemistry – referral laboratory
Mnemonic	ANDRO
Specimen Type	Serum

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Special requirements and comments	Send to laboratory without delay
Turn around Time	3 days
Reference Interval	On Report or contact laboratory.
Anti-Amphiphysin Ab	
Laboratory	Biochemistry – Referral laboratory
Mnemonic	ANTI NEURONAL
Specimen Type	Serum 5mL
Special requirements and comments	Available as part of the Anti-neuronal antibody screen only.
Turn around Time	Up to eight weeks
Reference Interval	On Report or contact laboratory.
Anti GAD antibodies	
Laboratory	Biochemistry – referral laboratory
Mnemonic	GAD
Specimen Type	Serum
Special requirements and comments	N/A
Turnaround Time	1 week
Reference Interval	On Report or contact laboratory.
Anti HU antibodies	
Laboratory	Biochemistry – referral laboratory
Mnemonic	HU
Specimen Type	Serum
Special requirements and comments	Typically ordered as part of the anti-neuronal/paraneoplastic antibodies profile.
Turnaround Time	Up to 8 weeks
Reference Interval	On Report or contact laboratory.
Anti-Neutrophil Cytoplasmic Antibodies (ANCA)	
Laboratory	Biochemistry – referral laboratory
Mnemonic	ANCA
Specimen Type	Serum
Special requirements and comments	N/A
Turnaround Time	4 days
Reference Interval	On Report or contact laboratory.
Anti Ri antibodies	
Laboratory	Biochemistry – referral laboratory
Mnemonic	RI
Specimen Type	Serum
Special requirements and comments	Typically ordered as part of the anti-neuronal/paraneoplastic antibodies profile.
Turnaround Time	Up to 8 weeks
Reference Interval	On Report or contact laboratory.

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Antithrombin III

Laboratory	Haematology – referral laboratory
Mnemonic	AT3 or THROM
Specimen Type	1 x Sodium Citrate Tube 2.0ml, Or if ordered as part of Thrombophilia screen 3 x sodium citrate samples NB: Tube must be filled to line. If above or below the line the results will be invalid and therefore specimens will not be analysed
Special requirements and comments	Sample must be frozen within 1 hour of collection. State current clinical details and anticoagulant treatment. Generally requested as part of Thrombophilia screen.
Turnaround Time	4 days
Reference Interval	On Report or contact laboratory.

Anti-Voltage Gated Calcium Channels

Laboratory	Biochemistry – referral laboratory
Mnemonic	AVGKCA
Specimen Type	Serum
Special requirements and comments	N/A
Turnaround Time	Up to three weeks
Reference Interval	On Report or contact laboratory.

Anti-Yo Abs

Laboratory	Biochemistry – referral laboratory
Mnemonic	YO
Specimen Type	Serum
Special requirements and comments	Typically ordered as part of the anti-neuronal/paraneoplastic antibodies profile.
Turnaround Time	Up to eight weeks
Reference Interval	On Report or contact laboratory.

Aquaporin 4 antibodies

Laboratory	Biochemistry – referral laboratory
Mnemonic	AQU
Specimen Type	Serum
Special requirements and comments	AKA Anti-nueromyelitis optica antibodies
Turnaround Time	Up to two weeks
Reference Interval	On Report or contact laboratory.

Asparate Aminotransferase

Laboratory	Biochemistry – referral laboratory
Mnemonic	AST
Specimen Type	Lithium Heparin
Special requirements and comments	Haemolysis may invalidate
Turnaround Time	1 hour STAT, 4 hours Routine
Reference Interval	On Report or contact laboratory.

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B-Cell and Natural Killer (NK) Cell Quantification by Flow Cytometry

Laboratory	Flow cytometry – referral laboratory
Mnemonic	T+BCELLS or FLOW
Specimen Type	Large EDTA
Special requirements and comments	Fill out request form, available on request from laboratory
Turnaround Time	Up to 1 week
Reference Interval	On Report or contact laboratory.

BCR-ABL (p190/p210)

Laboratory	Haematology – referral laboratory
Mnemonic	BCR
Specimen Type	Bone Marrow (RPMI) or 9.0mL EDTA
Special requirements and comments	BCR-ABL or Philadelphia Chromosome is a mutation common in CML (p210) but can also be seen in Acute Lymphoblastic Leukaemia, which is more commonly p190). Special request form
Turn around Time	14-21 days
Reference Intervals	On Report or contact laboratory.

Beta-2 Glycoprotein 1 Antibodies

Laboratory	Biochemistry – referral laboratory
Mnemonic	B2GLYCO
Specimen Type	Serum
Special requirements and comments	N/A
Turnaround Time	Up to 1 week
Reference Interval	On Report or contact laboratory.

Beta-2-Microglobulin

Laboratory	Biochemistry – referral laboratory
Mnemonic	B2MA
Specimen Type	Serum 5ml
Special requirements and comments	N/A
Turnaround Time	3 days
Reference Interval	On Report or contact laboratory.

Bilirubin (Total)

Laboratory	Biochemistry
Mnemonic	BILT
Specimen Type	Lithium Heparin
Special requirements and comments	Protect from light, analyse within 2 hours
Turnaround Time	1 hour STAT, 4 hours Routine
Reference Interval	On Report or contact laboratory.

Bilirubin (Conjugate) Direct

Laboratory	Biochemistry – referral laboratory
Mnemonic	BILD
Specimen Type	Protect from light, analyse within 2 hours

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Special requirements and comments	Lithium Heparin – note Bilirubin total result on batch sheet. Will only be performed if Bilirubin total result is greater than 17 µmol
Turnaround Time	1 day
Reference Interval	On Report or contact laboratory.

Blood Film

Laboratory	Haematology
Mnemonic	FILM
Specimen Type	2.7mL EDTA
Special requirements and comments	Must be <24 hour old sample.
Turn around Time	48 hours Monday – Friday. If Consultant review referral – 10 days
Reference Interval	Please refer to individual report

Blood Gas (Refer to ABG)

Laboratory	Biochemistry – ABG located in ICU
Mnemonic	
Specimen Type	Arterial blood in air-free heparinised syringe. Blood gas analysis sampling kits are available in ICU, Cath Lab, ED. Immediately after collection, expel any air from RT the sample and seal the syringe with the stopper provided. Once the sample has been drawn, the blood gas syringe must be labelled with the patient's full name, M number, ward, date and time of collection.
Special requirements and comments	The specimen should be brought to ICU immediately. If delay between sample collection and arriving in ICU is greater than 15 minutes place sample on ice. Blood gas syringes must not be sent to via the pneumatic chute.
Turn around Time	1 hour
Reference Interval	On report or contact laboratory

BMA Cytogenetics

Laboratory	Haematology – referral laboratory
Specimen Type	Bone marrow in Heparinised RPMI media
Special requirements and comments	Special request form. Store at 4°C if not immediately dispatched
Turn around Time	4-21 days
Reference Interval	Please refer to individual report

BMA Fe Stain

Laboratory	Haematology – referral laboratory
Specimen Type	Fixed Bone Marrow slide
Special requirements and comments	Ensure slide is fixed in methanol for 30 minutes prior to sending for Iron stain
Turn around Time	3 days
Reference Interval	Please refer to individual report

BMA Trepine

Laboratory	Haematology – referral laboratory
Specimen Type	Bone marrow sample in 10% formalin
Special requirements and comments	Ensure presence of samples for particular type
Turn around Time	5 days

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Reference Interval	Please refer to individual report
BNP	
Laboratory	Biochemistry
Mnemonic	BNP
Specimen Type	EDTA 2.7mL
Special requirements and comments	N/A
Turn around Time	1hr STAT, 4 hours Routine
Reference Interval	On report or contact laboratory
Borrelia burgdorferi (Lyme)	
Laboratory	Send Out – Referral laboratory
Mnemonic	LYME
Specimen Type	Serum
Special requirements and comments	N/A
Turn around Time	4 days
Reference Interval	Positive / Negative
C	
C1 Esterase Inhibitor (Function)	
Laboratory	Send out – Referral laboratory
Mnemonic	C1E
Specimen Type	Serum
Special requirements and comments	Send to laboratory without delay.
Turn around Time	10 days
Reference Interval	On Report or contact laboratory.
C1-Inhibitor Function	
Laboratory	Send out – Referral laboratory
Mnemonic	C1EFXN
Specimen Type	Serum
Special requirements and comments	By Arrangement - Contact laboratory
Turn around Time	21 days
Reference Interval	On Report or contact laboratory.
CA15.3	
Laboratory	Send out – referral lab
Mnemonic	CA153
Specimen Type	Serum
Special requirements and comments	N/A
Turn around Time	4 days
Reference Interval	On Report or contact laboratory.

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CA19.9

Laboratory	Send out – referral lab
Mnemonic	CA199
Specimen Type	Serum
Special requirements and comments	N/A
Turn around Time	4 days
Reference Interval	On Report or contact laboratory.

CA125

Laboratory	Send out – referral lab
Mnemonic	CA125
Specimen Type	Serum
Special requirements and comments	N/A
Turn around Time	4 days
Reference Interval	On Report or contact laboratory.

Caeruloplasmin

Laboratory	Send out – referral lab
Mnemonic	CER
Specimen Type	Serum
Special requirements and comments	N/A
Turn around Time	3 days
Reference Interval	On Report or contact laboratory.

Calcitonin

Laboratory	Biochemistry – referral laboratory
Mnemonic	CAL
Specimen Type	Serum
Special requirements and comments	Collect on ice – send to laboratory without delay
Turn around Time	2 days
Reference Interval	On Report or contact laboratory.

Calcium ionized

Laboratory	Biochemistry
Mnemonic	CAION
Specimen Type	Whole blood Lithium Heparin
Special requirements and comments	Do not spin down sample
Turn around Time	1hr STAT, 4 hours Routine
Reference Interval	On Report or contact laboratory.

Calcium Total

Laboratory	Biochemistry
Mnemonic	CA
Specimen Type	Lithium Heparin

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Special requirements and comments	N/A
Turn around Time	1hr STAT, 4 hours Routine
Reference Interval	On Report or contact laboratory.
Carbamazepine	
Laboratory	Send out – referral laboratory
Mnemonic	CARB
Specimen Type	Serum
Special requirements and comments	N/A
Turn around Time	2 days
Reference Interval	On Report or contact laboratory.
Cardiolipin Antibodies (IgG)	
Laboratory	Send out – referral laboratory
Mnemonic	CARDAB
Specimen Type	Serum
Special requirements and comments	N/A
Turn around Time	4 days
Reference Interval	On Report or contact laboratory.
Catecholamines (Blood)	
Laboratory	Send out – referral laboratory
Mnemonic	CATPL
Specimen Type	Lithium Heparin
Special requirements and comments	Send to laboratory without delay
Turn around Time	7 days
Reference Interval	On Report or contact laboratory
Catecholamines (Urine)	
Laboratory	Send out – referral laboratory
Mnemonic	CATS24HR
Specimen Type	Urine
Special requirements and comments	24 hour collection. Transport frozen.
Turn around Time	7 days
Reference Interval	On report or contact laboratory
CEA	
Laboratory	Send out – referral laboratory
Mnemonic	CEA
Specimen Type	Serum
Special requirements and comments	N/A
Turn around Time	4 days
Reference Interval	On report or contact laboratory

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Chloride

Laboratory	Biochemistry
Mnemonic	CL
Specimen Type	Lithium Heparin
Special requirements and comments	N/A
Turn around Time	1hr STAT, 4 hours Routine
Reference Interval	On Report or contact laboratory.

Cholesterol

Laboratory	Biochemistry
Mnemonic	CHOL
Specimen Type	Lithium Heparin
Special requirements and comments	N/A
Turnaround Time	1hr STAT, 4 hours Routine
Reference Interval	On Report or contact laboratory.

CK

Laboratory	Biochemistry
Mnemonic	CK
Specimen Type	Lithium Heparin
Special requirements and comments	N/A
Turnaround Time	1hr STAT, 4 hours Routine
Reference Interval	On Report or contact laboratory.

Cytomegalovirus (CMV)

Laboratory	Referral laboratory
Mnemonic	CMVIGM and CMV IgG
Specimen Type	Serum
Special requirements and comments	N/A
Turnaround Time	Serology: 5-9 days
Reference Interval	On report or contact laboratory

Complement C1q / C1r / C1s / C2 / C5 / C6 / C7 / C8 / C9

Laboratory	Send out – referral laboratory
Mnemonic	C1Q
Specimen Type	Serum
Special requirements and comments	By arrangement with Laboratory
Turnaround Time	Up to 1 week
Reference Interval	On Report or contact laboratory.

Complement C3

Laboratory	Send out – referral laboratory
Mnemonic	C3
Specimen Type	Serum

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Special requirements and comments	N/A
Turnaround Time	4 days
Reference Interval	On Report or contact laboratory.
Complement C4	
Laboratory	Send out – referral laboratory
Mnemonic	C4
Specimen Type	Serum
Special requirements and comments	N/A
Turnaround Time	4 days
Reference Interval	On Report or contact laboratory.
Copper (Blood)	
Laboratory	Send out – referral laboratory
Mnemonic	CU
Specimen Type	Serum
Special requirements and comments	N/A
Turnaround Time	7 days
Reference Interval	On Report or contact laboratory.
Copper (Urine)	
Laboratory	Send out – referral laboratory
Mnemonic	CUUR24
Specimen Type	Urine
Special requirements and comments	24 hour urine collection - plain
Turnaround Time	1 week
Reference Interval	On Report or contact laboratory.
Cortisol	
Laboratory	Send out – referral laboratory
Mnemonic	CORTR
Specimen Type	Serum
Special requirements and comments	N/A
Turnaround Time	2 days
Reference Interval	On Report or contact laboratory.
Cortisol (Urine)	
Laboratory	Send out – referral laboratory
Mnemonic	UCOR24
Specimen Type	Urine
Special requirements and comments	24 hour urine collection - plain
Turnaround Time	1 week
Reference Interval	On Report or contact laboratory.

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C Peptide

Laboratory	Biochemistry – referral laboratory
Mnemonic	CPEP
Specimen Type	Serum
Special requirements and comments	Patient must be fasting. Send to laboratory without delay.
Turnaround Time	4 days
Reference Interval	On report or contact laboratory

C - reactive protein

Laboratory	Biochemistry
Mnemonic	CRP
Specimen Type	Lithium Heparin
Special requirements and comments	N/A
Turnaround Time	1hr STAT, 4 hours Routine
Reference Interval	0.1-5.0 mg/L

Creatinine

Laboratory	Biochemistry
Mnemonic	CREA
Specimen Type	Lithium Heparin
Special requirements and comments	Plasma concentrations lower in pregnancy. Results influenced by muscle mass.
Turnaround Time	1hr STAT, 4 hours Routine
Reference Interval	On report or contact laboratory

Creatinine Clearance Glomerular Filtration Rate (GFR)

Laboratory	Biochemistry
Mnemonic	GFR
Specimen Type	24 hour urine collection / 1.3mL Lithium heparin
Special requirements and comments	24 hour urine and blood sample collection (blood sample – mid collection)
Turnaround Time	4 – 5 hours
Reference Interval	On report or contact laboratory

Cryoglobulin

Laboratory	Send out – referral laboratory
Mnemonic	CRYO
Specimen Type	Serum
Special requirements and comments	Clotted blood – maintained at 37°C. Fasting sample.
Turnaround Time	Up to 2 weeks.
Reference Interval	On report or contact laboratory

Cyclic Citrullinated Peptide (CCP) Antibodies

Laboratory	Send out – referral laboratory
Mnemonic	CCP
Specimen Type	Serum

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Special requirements and comments	N/A
Turnaround Time	4 days
Reference Interval	On report or contact laboratory
Cyclosporin	
Laboratory	Send out – referral laboratory
Mnemonic	CYC
Specimen Type	EDTA
Special requirements and comments	Whole blood sample
Turnaround Time	7 days
Reference Interval	On report or contact laboratory
D	
D-Dimer	
Laboratory	Haematology
Mnemonic	DDIMER
Specimen Type	Sodium Citrate Tube. NB: Tube must be filled to line. If above or below the line the results will be invalid and therefore specimens will not be analysed
Special requirements and comments	Requests should be received in the laboratory within 2-4 hours of collection. Interferences: This test is only to be used as a negative indicator for DVT/PE. Lipaemic / haemolysed samples are not suitable for analysis
Turnaround Time	1hr STAT, 4hrs Routine
Reference Interval	0 – 0.5 ug/mL FEU
DHEA Sulfate	
Laboratory	Send out – referral laboratory
Mnemonic	DHEAS
Specimen Type	Serum 7.5ml
Special requirements and comments	N/A
Turnaround Time	7 days
Reference Interval	On report or contact laboratory
Digoxin	
Laboratory	Send out – referral laboratory
Mnemonic	DIG
Specimen Type	Serum 7.5ml
Special requirements and comments	N/A
Turnaround Time	2 days
Reference Interval	On report or contact laboratory
Direct Antiglobulin Test (DAT)	
Laboratory	Blood Transfusion
Mnemonic	DAT
Specimen Type	EDTA

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Special requirements and comments	
Turnaround Time	1 hour urgent, 4 hours routine
Reference Interval	Positive / Negative

Drug Screen (Blood)

Laboratory	Send out – referral laboratory
Mnemonic	DRUG
Specimen Type	Serum
Special requirements and comments	Includes Benzodiazepine, Blood alcohol, amphetamine, cannabinoids, cocaine, opiates screen, methadone
Turnaround Time	3-4 days
Reference Interval	On report or contact laboratory

Drug Screen (Urine)

Laboratory	Send out – referral laboratory
Mnemonic	DRUGU
Specimen Type	Urine (Random)
Special requirements and comments	N/A
Turnaround Time	3-4 days
Reference Interval	On report or contact laboratory

E

EBV

Laboratory	Referral laboratory
Mnemonic	EBBVM and EBV HgG
Specimen Type	Serum
Special requirements and comments	N/A
Turnaround Time	5-9 days
Reference Interval	On report or contact laboratory

eGFR (estimated glomerular filtration rate)

Laboratory	Biochemistry
Mnemonic	EGFR
Specimen Type	Lithium Heparin (Orange)
Special requirements and comments	The serum should be separated from the red blood cells within six hours of venepuncture; otherwise substances are released from the red blood cells, which cause falsely raised serum creatinine concentrations. Note: calculation is based on the 4v-MDRD Formula and is only applicable to adults (i.e. patients greater than 18 years old).
Turnaround Time	Urgent Sample: 1 hour, Routine: 4 hours
Important notes on Estimated GFR in adults using formulas	<ul style="list-style-type: none"> Estimated GFR is calculated using the 4v-MDRD Formula (with creatinine assay calibration traceable to ID-MS). Estimates of GFR are unreliable in acute renal failure due to the kinetics of creatinine accumulation. GFR estimates between 60 and 89 mL/min/1.73m² do not indicate CKD unless there is other laboratory/clinical evidence of disease. Estimated GFR should be multiplied by 1.212 for African-American patients

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Electrolytes (Sodium, Potassium, Chloride)

Laboratory	Biochemistry
Mnemonic	NA, K, CL or as part of Renal Profile (RP) or Full Profile (FP)
Specimen Type	Lithium Heparin
Special requirements and comments	Samples for potassium assay must be collected free of haemolysis
Turnaround Time	Urgent Sample: 1 hour, Routine: 4 hours
Reference Interval	On report or contact laboratory

Electrophoresis (serum Protein)

Laboratory	Send out – referral laboratory
Mnemonic	SPEP
Specimen Type	Serum
Special requirements and comments	N/A
Turnaround Time	5-7 days
Reference Interval	On report or contact laboratory

Emergency O RhD Negative uncrossmatched red cells

Sample Type	A 7.5mL EDTA sample should be taken prior to transfusion
Availability Time	Request must be present in BTB Immediately
Comment	If a delay is unlikely to result in a significant risk to the patient, it is better to give group specific, uncrossmatched blood to conserve O RhD negative stock.
Risks	O RhD negative emergency blood may not be compatible for patients with antibodies. Approximately, 2 - 4% of hospital patients may have a red cell antibody which can cause a haemolytic transfusion reaction.
Note	Emergency O RhD negative red cells are located on the top shelf of the issue fridge in the blood transfusion laboratory.
Sample Type	A 7.5mL EDTA sample should be taken prior to transfusion

Endomysium Antibodies (IgA), EMA

Laboratory	Send out – Referral laboratory
Mnemonic	EMA
Specimen Type	Serum 5mL
Special requirements and comments	N/A
Turnaround Time	2-4 working days
Reference Interval	On report or contact laboratory

Epanutin® (Phenytoin)

Laboratory	Send out – referral laboratory
Mnemonic	PHENY
Specimen Type	Serum
Special requirements and comments	Send to the laboratory without delay
Turnaround Time	4 days
Reference Interval	On report or contact laboratory.

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Epilim® (Valproate, valproic acid)

Laboratory	Send out – referral laboratory
Mnemonic	VAL
Specimen Type	Serum
Special requirements and comments	Specimen drawn before the next oral dose in a patient at steady state. There is no evidence that monitoring serum valproate levels can be valuable in the management of patients with epilepsy. Studies indicate that concentrations are no better a guide to clinical response than is dose. Measurement of serum levels may be useful in the assessment of compliance.
Turnaround Time	Routine: 4 days. Contact laboratory if urgent result required.
Reference Interval	On report or contact laboratory.

Erythrocyte Sedimentation Rate (ESR)

Laboratory	Haematology
Mnemonic	ESR
Specimen Type	Sedivette / sodium citrate (Purple)
Special requirements and comments	Place sample near end of tube / over tube label as addressograph label can interfere with sample analysis and result in rejection. Fill to line. Send to lab as soon as possible
Turnaround Time	Urgent specimens: 2 hours Routine: 8 hours
Reference Interval	Age and Sex related: Refer to report

Estradiol / Oestradiol

Laboratory	Send out – referral laboratory
Mnemonic	OEST
Specimen Type	Serum 5ml
Special requirements and comments	N/A
Turnaround Time	1-2 days
Reference Interval	On report or contact laboratory

Ethanol (alcohol) level

Laboratory	Send out – referral laboratory
Mnemonic	ALCOHOL
Specimen Type	Serum 5ml
Special requirements and comments	N/A
Turnaround Time	2 days
Reference Interval	On report or contact laboratory

Extractable Nuclear Antigens, ENA

Laboratory	Send out – referral laboratory
Mnemonic	ENA
Specimen Type	Serum 5mL
Special requirements and comments	nRNp, Sm, Ro, La, Jo1, Scl70
Turnaround Time	3-4 days
Reference Interval	On report or contact laboratory

F

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Factor II (Prothrombin)	
Laboratory	Haematology – referral laboratory
Mnemonic	FACTOR2
Specimen Type	Sodium Citrate Tube. NB: Tube must be filled to line. If above or below the line the results will be invalid and therefore specimens will not be analysed
Special requirements and comments	Requests should be received in laboratory within 4 hours of phlebotomy Details of anticoagulant therapy required
Turnaround Time	7-10 days
Reference Interval	Please refer to individual report
Factor V	
Laboratory	Haematology – referral laboratory
Mnemonic	FACTOR5
Specimen Type	Sodium Citrate Tube. NB: Tube must be filled to line. If above or below the line the results will be invalid and therefore specimens will not be analysed
Special requirements and comments	Requests should be received in laboratory within 4 hours of phlebotomy. Details of anticoagulant therapy required.
Turnaround Time	7-10 days
Reference Interval	Please refer to individual report
Factor V Leiden (FVL)	
Laboratory	Haematology – referral laboratory
Mnemonic	FACTORVL
Specimen Type	1 x EDTA sample and 1 x Sodium citrate sample
Special requirements and comments	Completed consent form required for analysis
Turnaround Time	7-10 days
Reference Interval	Please refer to individual report
Factor VII	
Laboratory	Haematology – referral laboratory
Mnemonic	FACTOR7
Specimen Type	Sodium Citrate Tube NB: Tube must be filled to line. If above or below the line the results will be invalid and therefore specimens will not be analysed
Special requirements and comments	Sample must be frozen within 1 hour of collection. 1-2 factor assays requires 2 samples, 3-4 factors requires 3 samples, more than 4 factor assays requires 4 samples
Turnaround Time	7-10 days
Reference Interval	Please refer to individual report
Factor VIII: C	
Laboratory	Haematology – referral laboratory
Mnemonic	FACTOR8c
Specimen Type	Sodium Citrate Tube NB: Tube must be filled to line. If above or below the line the results will be invalid and therefore specimens will not be analysed
Special requirements and comments	Sample must be frozen within 1 hour of collection. 1-2 factor assays requires 2 samples, 3-4 factors requires 3 samples, more than 4 factor assays requires 4 samples

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Turnaround Time	7-10 days
Reference Interval	Please refer to individual report
Factor IX	
Laboratory	Haematology – referral laboratory
Mnemonic	FACTOR9
Specimen Type	Sodium Citrate Tube NB: Tube must be filled to line. If above or below the line the results will be invalid and therefore specimens will not be analysed
Special requirements and comments	Sample must be frozen within 1 hour of collection. 1-2 factor assays requires 2 samples, 3-4 factors requires 3 samples, more than 4 factor assays requires 4 samples
Turnaround Time	7-10 days
Reference Interval	Please refer to individual report
Factor X	
Laboratory	Haematology – referral laboratory
Mnemonic	FACTOR10
Specimen Type	Sodium Citrate Tube NB: Tube must be filled to line. If above or below the line the results will be invalid and therefore specimens will not be analysed
Special requirements and comments	Sample must be frozen within 1 hour of collection. 1-2 factor assays requires 2 samples, 3-4 factors requires 3 samples, more than 4 factor assays requires 4 samples
Turnaround Time	7-10 days
Reference Interval	Please refer to individual report
Factor XI	
Laboratory	Haematology – referral laboratory
Mnemonic	FACTOR11
Specimen Type	Sodium Citrate Tube NB: Tube must be filled to line. If above or below the line the results will be invalid and therefore specimens will not be analysed
Special requirements and comments	Sample must be frozen within 1 hour of collection. 1-2 factor assays requires 2 samples, 3-4 factors requires 3 samples, more than 4 factor assays requires 4 samples
Turnaround Time	7-10 days
Reference Interval	Please refer to individual report
Factor XII	
Laboratory	Haematology – referral laboratory
Mnemonic	FACTOR12
Specimen Type	Sodium Citrate Tube NB: Tube must be filled to line. If above or below the line the results will be invalid and therefore specimens will not be analysed
Special requirements and comments	Sample must be frozen within 1 hour of collection. 1-2 factor assays requires 2 samples, 3-4 factors requires 3 samples, more than 4 factor assays requires 4 samples
Turnaround Time	7-10 days
Reference Interval	Please refer to individual report
Factor XIII	
Laboratory	Haematology – referral laboratory
Mnemonic	FACTOR13
Specimen Type	Sodium Citrate Tube

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	NB: Tube must be filled to line. If above or below the line the results will be invalid and therefore specimens will not be analysed
Special requirements and comments	Sample must be frozen within 1 hour of collection. 1-2 factor assays requires 2 samples, 3-4 factors requires 3 samples, more than 4 factor assays requires 4 samples
Turnaround Time	7-10 days
Reference Interval	Please refer to individual report

Faecal Occult Blood (FOB)

Laboratory	Biochemistry
Mnemonic	FOB
Specimen Type	Faeces samples
Special requirements and comments	Sterile Container
Turnaround Time	1 – 2 days
Reference Interval	Please refer to individual report

FBC (Full Blood Count)

Laboratory	Haematology
Mnemonic	FBC
Parameters	White Blood Cell count, Red Blood Cell count, Haemoglobin, haematocrit, Mean Cell Volume, Mean Corpuscular Haemoglobin, Mean Corpuscular Haemoglobin Concentration, Platelets, Neutrophils, Lymphocytes, Monocytes, Eosinophils, Basophils
Specimen Type	EDTA (Pink)
Special requirements and comments	After 24 hours, WBC differential and red cell indices are affected by EDTA changes. Ensure samples are not taken from a drip site as this results in haemodilution of the sample. Clotted EDTA samples will not be processed.
Turnaround Time	Urgent 1 hour Routine 2 hours
Reference Interval	Age and Sex Dependant. See laboratory report.

Ferritin

Laboratory	Biochemistry
Mnemonic	FERR
Specimen Type	Lithium Heparin
Special requirements and comments	General principles 1. Measurement of vitamin B12, folate or ferritin should only be performed following clinical assessment, and in the presence of specific indications listed below.
Turnaround Time	Same day
Reference Interval	Age and sex related – refer to laboratory report.

Fibrinogen

Laboratory	Haematology
Specimen Type	1 x Sodium citrate. NB: Tube must be filled to line. If above or below the line the results will be invalid and therefore specimens will not be analysed
Special requirements and comments	requests should be received by the laboratory within 4 hours of phlebotomy Interferences: fibrin degradation products, hirudin, heparin
Turnaround Time	1hr STAT, 4hrs Routine
Reference Interval	On report or contact laboratory

Flow Cytometry

Laboratory	Haematology – referral laboratory
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Specimen Type	Bone marrow in heparinised RPMI or 9mL EDTA
Special requirements and comments	Store at room temperature if not immediately dispatched
Turnaround Time	7-10 days
Reference Interval	Please refer to individual report

Folate (Folic Acid)

Laboratory	Biochemistry
Mnemonic	FOL
Specimen Type	Lithium Heparin
Special requirements and comments	Requests should be received by the laboratory within 8 hours of phlebotomy, add on tests within 24 hours of phlebotomy.
Indications for Vitamin B12 and Folate Testing	General principles 1. Measurement of vitamin B12, folate or ferritin should only be performed following clinical assessment, and in the presence of specific indications.
Turnaround Time	Same Day
Reference Interval	Age and Sex related refer to laboratory report

Follicle stimulating hormone

Laboratory	Send out – referral laboratory
Mnemonic	FSH
Specimen Type	Serum
Special requirements and comments	N/A
Turnaround Time	4-5 days
Reference Interval	On report or contact laboratory.

Free Light Chains (Kappa and Lambda) in serum

Laboratory	Send out – referral laboratory
Mnemonic	SFLC
Specimen Type	Serum
Special requirements and comments	N/A
Turnaround Time	7-10 days
Reference Interval	On report or contact laboratory.

Free Protein S

Laboratory	Send out – referral laboratory
Mnemonic	PROTS
Specimen Type	Sodium citrate
Special requirements and comments	Transport sample to the laboratory immediately. Sample must be frozen within 4 hours of sampling.
Turnaround Time	4-5 days
Reference Interval	On report or contact laboratory

Free T3 (triiodothyronine free hormone)

Laboratory	Send out – referral laboratory
Mnemonic	FT3
Specimen Type	Serum
Special requirements and comments	N/A

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Turnaround Time	4-5 days
Reference Interval	On report or contact laboratory
Free T4 (thyroxine free hormone)	
Laboratory	Biochemistry
Mnemonic	FT4
Specimen Type	Lithium Heparin
Special requirements and comments	N/A
Turnaround Time	Same day
Reference Interval	On report or contact laboratory
FSH	
Laboratory	Send out – referral laboratory
Mnemonic	FSH
Specimen Type	Serum 7.5mL
Special requirements and comments	N/A
Turnaround Time	4-5 days
Reference Interval	On report or contact laboratory
G	
Gamma GT (Gamma Glutamyl Transferase, GGT)	
Laboratory	Biochemistry
Mnemonic	GGT
Specimen Type	Lithium Heparin
Special requirements and comments	N/A
Turnaround Time	1hr STAT, 4 hours Routine
Reference Interval	On biochemistry report or contact laboratory
GBM (Anti-Glomerular Basement Membrane) Antibodies	
Laboratory	Send out – referral laboratory
Mnemonic	GBMA
Specimen Type	Serum
Special requirements and comments	N/A
Turnaround Time	4-5 days
Reference Interval	On report or contact laboratory
Gentamicin Assay	
Laboratory	Biochemistry
Mnemonic	GENP (Gentamicin Peak) GENT (Gentamicin Trough)
Specimen Type	Lithium Heparin
Special requirements and comments	Please refer to Antimicrobial guidelines for correct timing of sampling
Turnaround Time	1-2 hours

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Reference Interval	On biochemistry report or contact laboratory
Glucagon	
Laboratory	Send out – referral laboratory
Mnemonic	GLUC
Specimen Type	Serum 7.5mL
Special requirements and comments	Contact laboratory before initiating the test – Special tube supplied upon request Transport to the laboratory on ice. Use EDTA aprotinin tube/spin and freeze plasma in < 1 hours
Turnaround Time	7 days
Reference Interval	On report or contact laboratory
Glucose	
Laboratory	Biochemistry
Mnemonic	GLUR, GLUF, GLU2
Specimen Type	Fluoride Oxalate 4.9mL
Special requirements and comments	N/A
Turnaround Time	1hr STAT, 4 hours Routine
Reference Interval	On report or contact laboratory
Glucose (CSF)	
Laboratory	Referral laboratory
Mnemonic	CSFG
Specimen Type	CSF
Special requirements and comments	Send to laboratory immediately; do not send in pneumatic chute. Inform laboratory staff that you are sending a CSF sample Where possible perform sampling during routine hours.
Turnaround Time	2-6 hours
Reference Interval	On report or contact laboratory
Glucose 6 Phosphate Dehydrogenase (G6PD)	
Laboratory	Send out – referral laboratory
Mnemonic	G6PD
Specimen Type	EDTA
Special requirements and comments	N/A
Turnaround Time	6 – 7 days
Reference Interval	On report or contact laboratory
Group and crossmatch for massive haemorrhage	
Sample Type	7.5mL EDTA
Request form	Request must be present in BTB Meditech Order / HMC-BB-FRM-059
Turn around Time	Prioritised once a massive Haemorrhage is declared.
Comment	<ul style="list-style-type: none"> When a patient presents with potential major haemorrhage, the Transfusion laboratory must be informed immediately. Group specific, uncrossmatched red cell concentrates may be released, if time doesn't allow for a full crossmatch.

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	<ul style="list-style-type: none"> One individual needs to be identified as a liaison person to communicate with the transfusion laboratory until the haemorrhage is under control. <p>Please refer to HMC-HV-SOP-006 Management of Massive Haemorrhage.</p>
Sample Type	7.5mL EDTA
Group (Type) and Screen	
Sample Type	7.5mL EDTA
Request form	Meditech Order / HMC-BB-FRM-059
Turn around Time	Same Day* *1 hour after receipt for urgent samples
Comment	A blood group and an antibody screen will be performed on the sample. (The same sample can be used to crossmatch blood up to 72 hours following sample collection.)
Sample Type	7.5mL EDTA
Group and serological crossmatch	
Sample Type	7.5mL EDTA
Request form	Request must be present in BTB Meditech Order / HMC-BB-FRM-059
Turn around Time	1 – 2 hours after receipt
Comment	A blood group and an antibody screen will be performed on the sample and the sample will be serologically crossmatched for the number of units requested, or in the case of surgical patients, the number of units specified in the Maximum Surgical Blood Order Schedule (MSBOS). Any deviation from the agreed MSBOS needs to be clearly communicated to the laboratory.
Sample Type	7.5mL EDTA
Group specific, uncrossmatched blood	
Request Form	Request must be present in BTB Meditech Order / HMC-BB-FRM-059
Turn Around Time	10-15 minutes from receipt of blood sample in Blood Transfusion laboratory
Risks	Risks associated with use are identical to risks associated with use of O RhD negative uncrossmatched blood. Group specific blood is no safer, but uses resources better, i.e. unnecessary use of O RhD negative blood is avoided. Units are labelled “uncrossmatched blood, transfuse with care”.
Note	An emergency crossmatch for 4 red cell units will take 45 minutes provided the antibody screen is negative - see section on RCC crossmatch in the presence of a positive antibody screen for further information, if necessary.
Request Form	Request must be present in BTB Meditech Order / HMC-BB-FRM-059
Growth Hormone	
Laboratory	Send out – referral laboratory
Mnemonic	GH
Specimen Type	Serum
Special requirements and comments	Transport to the laboratory immediately. Sample must be centrifuged and frozen in less than 4 hour.
Turn around Time	5 – 6 days
Reference Interval	On report or contact laboratory
H	

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Haemochromatosis screen

Laboratory	Referral laboratory
Mnemonic	HAEM
Specimen Type	EDTA
Special requirements and comments	Consent form must be completed – Contact laboratory for Consent form
Turn around Time	7 – 10 days
Reference Interval	See report or contact laboratory

Haemaglobinopathy screen

Laboratory	Haematology – referral laboratory
Mnemonic	HAEMOGLOBINOPAT
Specimen Type	2 x 2.7mL EDTA
Special requirements and comments	Attach clinical details and results of most recent FBC.
Turn around Time	Y47-10 days
Reference Interval	Refer to individual report

Haemoglobin A1c (HbA1c)

Laboratory	Biochemistry – referral laboratory
Mnemonic	HBA1C
Specimen Type	EDTA
Special requirements and comments	N/A
Turn around Time	2-3 days
Reference Interval	See report or contact laboratory

Haptoglobin

Laboratory	Haematology – referral laboratory
Mnemonic	HAP
Specimen Type	10mL serum
Special requirements and comments	
Turn around Time	4-5 days
Referral Interval	See report or contact laboratory

HDL Cholesterol

Laboratory	Biochemistry
Mnemonic	HDL
Specimen Type	Lithium Heparin
Special requirements and comments	Test May only be ordered as part of Lipid Profile
Turn around Time	Same day
Reference Interval	On report or contact laboratory

Hepatitis A

Laboratory	Referral Laboratory
Mnemonic	HEPAIGG and HEPAIGM (Can be ordered as part of HEP SCREEN (A,B,C))
Specimen Type	Serum

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Special requirements and comments	N/A
Turnaround Time	Serology: 4 days Molecular: 8-9 days
Reference Interval	On report or contact laboratory
Hepatitis B	
Laboratory	Referral Laboratory
Mnemonic	HEPBSAG (Can be ordered as part of HEP SCREEN (A, B, C) Refer to Meditech for additional order codes or Contact laboratory
Specimen Type	Serum
Special requirements and comments	N/A
Turnaround Time	Serology: 5-9 days Molecular: 9 days
Reference Interval	On report or contact laboratory
Hepatitis C	
Laboratory	Referral Laboratory
Mnemonic	HEPCAB and HEPCAG (Can be ordered as part of HEP SCREEN (A,B,C)
Specimen Type	Serum
Special requirements and comments	N/A
Turnaround Time	Serology: 5-9 days Molecular: 9 days
Reference Interval	On report or contact laboratory
Hepatitis E	
Laboratory	Referral Laboratory
Mnemonic	HEPEIGG and HEPEIGM
Specimen Type	Serum
Special requirements and comments	N/A
Turnaround Time	Serology: 5-9 days Molecular: 9 days
Reference Interval	On report or contact laboratory
HIV	
Laboratory	Referral Laboratory
Mnemonic	HIV
Specimen Type	Serum
Special requirements and comments	N/A
Turnaround Time	Serology: 5-9 days Molecular: 9 days
Reference Interval	On report or contact laboratory
Homocysteine	
Laboratory	Referral Laboratory
Mnemonic	

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Specimen Type	Serum
Special requirements and comments	Specimens should be delivered to the laboratory immediately. Required to be frozen within 1 hour.
Turnaround Time	4 days
Reference Interval	On report or contact laboratory

I

Immunofixation

Laboratory	Send out – referral laboratory
Mnemonic	IF
Specimen Type	Serum 5mL
Special requirements and comments	n/a
Turn around Time	7 days
Reference interval	On report or contact laboratory

Immunoglobulin A (IgA)

Laboratory	Send out – referral laboratory
Mnemonic	IGA
Specimen Type	Serum 5mL
Special requirements and comments	N/A
Turn around Time	7 days
Reference interval	On report or contact laboratory

Immunoglobulin E (IgE)

Laboratory	Send out – referral laboratory
Mnemonic	IGE
Specimen Type	Serum 5mL
Special requirements and comments	N/A
Turn around Time	4-5 days
Reference interval	On report or contact laboratory

Immunoglobulin G (IgG) Subclasses

Laboratory	Send out – referral laboratory
Mnemonic	IGGSUB
Specimen Type	Serum 5mL
Special requirements and comments	N/A
Turn around Time	5-7 days
Reference interval	On report or contact laboratory

Immunoglobulin G (IgG)

Laboratory	Send out – referral laboratory
Mnemonic	IGG
Specimen Type	Serum 5mL

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Special requirements and comments	n/a
Turn around Time	3 -4 days
Reference interval	On report or contact laboratory
Immunoglobulin M (IgM)	
Laboratory	Send out – referral laboratory
Mnemonic	IGM
Specimen Type	Serum 5mL
Special requirements and comments	N/A
Turn around Time	7 days
Reference interval	On report or contact laboratory
Infectious Mononucleosis	
Laboratory	Haematology
Mnemonic	MONO
Specimen Type	2.7mL EDTA
Special requirements and comments	Specimens which are contaminated or grossly haemolysed should not be processed
Turn around Time	2 hours
Reference interval	Positive / Negative
Influenza screen (Flu Profile – A/B & RSV)	
Laboratory	Microbiology
Mnemonic	FLU
Specimen Type	Viral swab – contact laboratory
Special requirements and comments	Nasopharyngeal swab – refer to instructions in section 16.8
Turn around Time	2-3 hours
Reference interval	Positive / Negative
Influenza screen (Flu Extended)	
Laboratory	Referral laboratory
Mnemonic	FLU EXTENDED
Specimen Type	Viral swab – contact laboratory
Special requirements and comments	Performing testing post initial Influenza screen and where influenza is still suspected Extended panel
Turn around Time	5 – 7 days

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INR (International normalised ratio)	
Laboratory	Haematology
Mnemonic	PT (INR reported as part of PT)
Specimen Type	Sodium Citrate tube NB: Tube must be filled to line. If above or below the line the results will be invalid and therefore specimens will not be analysed
Special requirements and comments	Details of anticoagulant therapy required. Do not refrigerate PT samples. Transport samples to laboratory as soon as possible Perform test within 2-4 hours of collection or long term storage at -20°C. Maintain the correct anticoagulant/blood sample volume ration of 1:9 Interferences: Heparin, microclots in sample, thrombin inhibitors
Turn around Time	1hr STAT, 4 hours routine
Reference interval	N/A
Insulin	
Laboratory	Send out – referral laboratory
Mnemonic	INSULIN
Specimen Type	Clotted
Special requirements and comments	Fasting sample. Send to lab immediately (ASAP)
Turn around Time	7 days
Reference interval	On report or contact laboratory
J	
JAK2 V617F	
Laboratory	Haematology – referral laboratory
Mnemonic	JAK2SCREEN
Specimen Type	Bone marrow (RPMI) or 9.0mL EDTA
Special requirements and comments	JAK2 V617F is a mutation associated with MPD
Turnaround Time	14-21 days
Reference Interval	Please refer to individual report
L	
Lactate	
Laboratory	Biochemistry
Mnemonic	LACT
Specimen Type	Fluoride Oxalate
Special requirements and comments	N/A
Turn around Time	STAT < 1 hour
Reference Interval	On report or contact laboratory
Lactate Dehydrogenase	
Laboratory	Biochemistry
Mnemonic	LDH
Specimen Type	Lithium Heparin

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Special requirements and comments	N/A
Turn around Time	1 hour STAT, 4 hours Routine
Reference Interval	On report or contact laboratory
LAP/NAP Score	
Laboratory	Haematology – referral laboratory
Mnemonic	
Specimen Type	10mL Lithium Heparin
Special requirements and comments	By prior arrangement and approval only
Turn around Time	2 days
Reference Interval	Please refer to individual report
Reference Interval	On report or contact laboratory
LDL Cholesterol	
Laboratory	Biochemistry
Mnemonic	LDLD
Specimen Type	Lithium Heparin
Special requirements and comments	Test May only be ordered as part of Lipid Profile
Turn around Time	Same day
Reference Interval	On report or contact laboratory
Lipoprotein A	
Laboratory	Send Out – Referral Laboratory
Mnemonic	LPA
Specimen Type	Serum
Special requirements and comments	N/A
Turn around Time	4 - 5 Days
Reference Interval	On report or contact laboratory
Lithium	
Laboratory	Send Out – Referral Laboratory
Mnemonic	LI
Specimen Type	Serum
Special requirements and comments	Contact laboratory regarding Urgency
Turn around Time	Same day
Reference Interval	On report or contact laboratory
Liver/Kidney Microsome Antibodies (LKM)	
Laboratory	Send Out – Referral Laboratory
Mnemonic	LKM
Specimen Type	Serum 5ml
Special requirements and comments	n/a
Turn around Time	3 – 4 days
Reference Interval	On report or contact laboratory

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Lupus Investigation	
Laboratory	Send Out – Referral Laboratory
Mnemonic	LUPUS INVESTIG
Specimen Type	Sodium Citrate
Special requirements and comments	DRVVT50:50 (PT/Normal) , DRVVT Corrected Ratio, DRVVT Patient, DRVVT normal, DRVVT Ratio, Ratio correction
Turn around Time	4 – 5 days
Reference Interval	On report or contact laboratory

Lymphocytes subsets	
Laboratory	Haematology – referral laboratory
Mnemonic	
Specimen Type	2 x 2.7mL EDTA
Special requirements and comments	Stable at RT for 24 hours. To be sent Mon-Thurs only
Turn around Time	7-10 days
Reference Interval	Please refer to individual report

M

Magnesium	
Laboratory	Biochemistry
Mnemonic	MG
Specimen Type	Lithium Heparin
Special requirements and comments	N/A
Turnaround Time	1 hour STAT 4 hours Routine
Reference Interval	On report or contact laboratory

Malaria Parasites (Giemsa Stain)	
Laboratory	Haematology
Mnemonic	MALARIA SCREEN
Specimen Type	2.7mL EDTA
Special requirements and comments	Sample sent to the laboratory as soon as possible Indication must be provided as to why test requested
Turnaround Time	24 hours
Reference Interval	Positive:- report species, stages and % parasitaemia Negative:-NO parasites seen

Malaria Parasites (Fields Stain)	
Laboratory	Haematology
Mnemonic	MALARIA SCREEN
Specimen Type	2.7mL EDTA
Special requirements and comments	Sample sent to the laboratory as soon as possible Indication must be provided as to why test requested
Turnaround Time	24 hours
Reference Interval	Positive:-report species and stages Negative:-NO parasites seen

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Malaria Rapid Diagnostic Tests

Laboratory	Haematology
Mnemonic	MALARIA SCREEN
Specimen Type	2.7mL EDTA
Special requirements and comments	Sample sent to the laboratory as soon as possible Indication must be provided as to why test requested If the test cannot be performed immediately, the blood may be stored up to 3 days at 2-8°C.
Turnaround Time	1 hour urgent 2 hours - routine
Reference Interval	Positive:-report species and stages Negative:-NO parasites seen

Metanepharines

Laboratory	Send out – referral laboratory
Mnemonic	METAU
Specimen Type	Urine
Special requirements and comments	24 hour collection. Transport frozen.
Turn around Time	7 days
Reference Interval	On report or contact laboratory

Mitochondrial Antibodies (MITA)

Laboratory	Send out – Referral laboratory
Mnemonic	AMA
Specimen Type	Serum 4.9mL
Special requirements and comments	N/A
Turnaround Time	3 -4 days
Reference Interval	On report or contact laboratory

Microalbumin

Laboratory	Send out – Referral laboratory
Mnemonic	MICROALBUMIN
Specimen Type	Spot Urine
Special requirements and comments	N/A
Turnaround Time	4 days
Reference Interval	On report or contact laboratory

Myelin Associated Glycoprotein Antibody

Laboratory	Send out – Referral laboratory
Mnemonic	ANTI-MAG
Specimen Type	Serum
Special requirements and comments	
Turnaround Time	Up to 8 weeks
Reference Interval	On report or contact laboratory

N

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NMDA Receptor Antibodies	
Laboratory	Send out – Referral laboratory
Mnemonic	NMDA
Specimen Type	Serum
Special requirements and comments	
Turn around Time	Up to 8 weeks
Reference Interval	On report or contact laboratory
Neuronal antibodies	
Laboratory	Send out – Referral laboratory
Mnemonic	PARANEURO
Specimen Type	Serum
Special requirements and comments	Yo, HU, RI
Turn around Time	7-10 days
Reference Interval	On report or contact laboratory
P	
Parathyroid Hormone	
Laboratory	Biochemistry
Mnemonic	PTHi
Specimen Type	Serum
Special requirements and comments	Nil
Turnaround Time	1 HOUR (**STAT Post Op, In Theatre/Recovery) Routine: 4 hours
Reference Interval	On report or contact laboratory
Phosphorous (Phosphate)	
Laboratory	Biochemistry
Mnemonic	PHOS
Specimen Type	Lithium heparin
Special requirements and comments	This test forms part of Full Profile (FP)
Turnaround Time	STAT: 1 hour Routine: 4 hours
Reference Interval	On report or contact laboratory
PML-RARA	
Laboratory	Haematology – referral laboratory
Mnemonic	PML-RARA
Specimen Type	5.0mL EDTA
Special requirements and comments	Attach clinical details
Turnaround Time	3 weeks
Reference Interval	Please refer to individual report
PNH Screen (Flow Cytometry)	
Laboratory	Haematology – referral laboratory

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Mnemonic	FLOW
Specimen Type	5.0mL EDTA
Special requirements and comments	Attach clinical details
Turnaround Time	3 weeks
Reference Interval	Please refer to individual report
Protein (CSF)	
Laboratory	Referral laboratory
Mnemonic	CSFP
Specimen Type	CSF
Special requirements and comments	Send to laboratory immediately; do not send in pneumatic chute. Inform laboratory staff that you are sending a CSF sample Where possible perform sampling during routine hours.
Turnaround Time	2-6 hours
Reference Interval	On report or contact laboratory
Laboratory	Referral laboratory
Protein c	
Laboratory	Haematology – referral laboratory
Mnemonic	PROTC
Specimen Type	2 x Sodium Citrate Tube 2.0ml or if ordered as part of Thrombophilia screen 4 x sodium citrate samples NB: Tube must be filled to line. If above or below the line the results will be invalid and therefore specimens will not be analysed
Special requirements and comments	Send to laboratory immediately. Sample must be frozen within 1 hour of collection. State current clinical details and anticoagulant treatment. . Must be performed at least 1 month after ceasing an anti-vitamin K treatment. Generally requested as part of Thrombophilia screening. Details of anticoagulant therapy required.
Turn around Time	5 days
Reference Interval	Please refer to individual report
Protein S	
Laboratory	Haematology – referral laboratory
Mnemonic	PROTS
Specimen Type	2 x Sodium Citrate Tube 2.0ml NB: Tube must be filled to line. If above or below the line the results will be invalid and therefore specimens will not be analysed
Special requirements and comments	Send to laboratory immediately. Sample must be frozen within 1 hour of collection. State current clinical details and anticoagulant treatment. . Must be performed at least 1 month after ceasing an anti-vitamin K treatment.
Turn around Time	5 days
Reference Interval	Please refer to individual report
Prothrombin Time (PT)	
Laboratory	Haematology
Mnemonic	PT or as part of Coag screen (COAG)
Specimen Type	Sodium Citrate tube NB: Tube must be filled to line. If above or below the line the results will be invalid and therefore specimens will not be analysed
Special requirements and comments	Details of anticoagulant therapy required. Do not refrigerate PT samples. Transport samples to laboratory as soon as possible Perform test within 2-4 hours of collection or long term storage at -20°C. Maintain the correct anticoagulant/blood sample volume ration of 1:9 Interferences: Heparin, microclots in sample, thrombin inhibitors

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Turn around Time	1hr STAT, 4 hours routine
Reference Interval	Please refer to individual report
Prostate Specific Antigen	
Laboratory	Biochemistry
Mnemonic	PSAG
Specimen Type	Serum
Special requirements and comments	N/A
Turn around Time	Same day
Reference Interval	On report or contact laboratory

Q

Quantiferon

Laboratory	Referral Laboratory
Mnemonic	QUANTIF ML
Specimen Type	4 Specific Tubes for blood sampling (Contact laboratory for sample tubes)
Special requirements and comments	<p>Protocol QuantiFERON[®] -TB Gold Plus</p> <ul style="list-style-type: none"> • Label tubes appropriately and ensure strictly 1 ml of blood is taken into each tube. • Immediately after filling the tubes, gently invert them 10 times to ensure the entire inner surface of the tube is coated with blood, to solubilise antigens on tube walls. • Samples should be transferred to a 37°C incubator as soon as possible, and within 16 hours of collection. • Prior to incubation, maintain the tubes at room temperature (22°C ± 5°C). • Please do not refrigerate or freeze the blood samples prior to incubation. • Incubate the samples upright at 37°C for 16 – 24 hours. • Following incubation, within 3 days, samples should be centrifuged for 15 minutes at 2000 – 3000 RCF(g). • The gel plug will separate the cells from the plasma. If this does not occur, the tubes should be centrifuged again at a higher speed. • After incubation and prior to centrifugation, samples may remain at a temperature between 4-27°C for up to 3 days; post centrifugation samples may be stored at a temperature between 2-8°C. • All Quantiferon samples received in the laboratory must be accompanied by the attached Quantiferon TB Request Form, and also available for download here. • When sending the samples to our laboratory please ensure that the transportation docket clearly specifies the correct temperature at which it must be carried i.e.: <ul style="list-style-type: none"> • If samples have not been incubated, please tick Ambient Temp • If samples have been incubated, please tick refrigerated +4°C
Turn around Time	10 days
Reference Interval	On report or contact laboratory

R

Reticulocyte count

Laboratory	Haematology
Mnemonic	RETICS
Specimen Type	2.7mL EDTA
Special requirements and comments	Perform within 8 hours of taking the sample or 24 hours if sample is stored at 4°C.
Turnaround Time	4 hours
Reference Interval	On report or contact laboratory

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Rheumatoid Factor

Laboratory	Send out – referral laboratory
Mnemonic	RF
Specimen Type	Serum
Special requirements and comments	N/A
Turnaround Time	2 -3 days
Reference Interval	On report or contact laboratory

S

SARS-CoV-2 (COVID19)

Laboratory	Microbiology / Referral laboratory
Mnemonic	COVID19
Specimen Type	Viral swab – contact laboratory
Special requirements and comments	Refer to section 16.8 for details of procedure for collecting nasopharyngeal swabs
Turnaround Time	STAT: 1-2 hours dependant on urgency Routine: 24 hours
Reference Interval	On report

Sickle cell

Laboratory	Haematology – Send out test
Mnemonic	SIC
Specimen Type	2.7mL EDTA
Special requirements and comments	Perform within 8 hours of taking the sample or 24 hours if sample is stored at 4°C.
Turnaround Time	2-3 days
Reference Interval	Positive / Negative

Synacthen

Laboratory	Send Out – Referral Laboratory
Mnemonic	SYN
Specimen Type	2.7mL EDTA - Sample (dry or EDTA tube) at time interval 0 (8 a.m.) (T0). IM injection of the correct dose of Synacthen®. Samples (dry or EDTA tubes) according to the doctor's instructions or T+30 and T+60 min after the Synacthen® injection.
Special requirements and comments	Fasting for 12 hours and at rest for 30 min. Assays: Cortisol and/or: 17-hydroxyprogesterone, 21-deoxycortisol, 11-deoxycortisol, 17-hydroxypregnenolone, dehydroepiandrosterone, androstenedione, 11-deoxycorticosterone, aldosterone. Perform within 8 hours of taking the sample or 24 hours if sample is stored at 4°C. After centrifugation of the samples, store the serum or plasma at +4°C.
Turnaround Time	2-3 days
Reference Interval	Please refer to individual report

T

t (11,14)

Laboratory	Haematology – referral laboratory
Mnemonic	T11CD2

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Specimen Type	Bone Marrow (RPMI) or 9.0ml EDTA
Special requirements and comments	Translocation seen in Multiple myeloma and mantle cell Lymphoma
Turnaround Time	21 days
Reference Interval	Please refer to individual report
t (14;18)	
Laboratory	Haematology – referral laboratory
Mnemonic	
Specimen Type	Bone Marrow (RPMI) or 9.0ml EDTA
Special requirements and comments	Translocation seen in B cell non-hodgkins lymphoma (B-NHL)
Turnaround Time	21 days
Reference Interval	Please refer to individual report
Troponin (hsTroponin I)	
Laboratory	Biochemistry
Mnemonic	HSTROP
Specimen Type	Lithium heparin
Special requirements and comments	Two samples should be collected, Initial sample at admission and second sample 3-6 hours later.
Turnaround Time	90 minutes
Reference Interval	On report or contact laboratory
Tryptase (Mast Cell Tryptase)	
Laboratory	Send Out – Referral Laboratory
Mnemonic	TRY
Specimen Type	Serum
Special requirements and comments	Contact laboratory regarding Urgency
Turnaround Time	9 days
Reference Interval	On report or contact laboratory
TSH (Thyroid Stimulating Hormone)	
Laboratory	Biochemistry
Mnemonic	TSHs
Specimen Type	Lithium Heparin
Special requirements and comments	This assay is also available as part of Thyroid Function Test (TFTs)
Turnaround Time	Same day
Reference Interval	On report or contact laboratory
Total Protein	
Laboratory	Biochemistry
Mnemonic	TP
Specimen Type	Lithium Heparin
Special requirements and comments	This test is included in the Full Profile (FP) and Liver Profile (LP)
Turnaround Time	STAT: 1 hour Routine: 4 hours

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Reference Interval	On biochemistry report or contact laboratory
Total Protein (24 hour)	
Laboratory	Biochemistry
Mnemonic	TP24
Specimen Type	24 hour Urine collection (Plain bottle)
Special requirements and comments	Contact laboratory to obtain collection container Refer to section 16.6 for instruction on collecting 24 hour urine
Turnaround Time	STAT: 1 hour Routine: 4 hours
Reference Interval	On biochemistry report or contact laboratory
Triglycerides	
Laboratory	Biochemistry
Mnemonic	TRIG
Specimen Type	Lithium Heparin
Special requirements and comments	This test is included in the Fasting Lipid Profile (FLP)
Turnaround Time	Routine: 4 hours
Reference Interval	On biochemistry report or contact laboratory
U	
Urea	
Laboratory	Biochemistry
Mnemonic	UREA
Specimen Type	Lithium Heparin
Special requirements and comments	This assay is also available as part of the Full Profile (FP) or Renal Profile (RP)
Turnaround Time	Urgent: 1 hour Routine: 4 hours
Reference Interval	On Biochemistry report or contact laboratory
Uric Acid (Urate)	
Laboratory	Biochemistry
Mnemonic	UA
Specimen Type	Lithium Heparin
Special requirements and comments	This assay is also available as part of the Full Profile (FP) or Renal Profile (RP)
Turnaround Time	STAT: 1 hour Routine; 4 hours
Reference Interval	On Biochemistry report or contact laboratory
Urine Culture	
Laboratory	Microbiology
Mnemonic	UCULT
Specimen Type	Urine – Indicate Source (MSU, CSU)
Special requirements and comments	Sterile leak-proof container sealed in a biohazard bag. A minimum of 1ml for specimens
Specimen collection	Collect urine specimens by the clear-voided midstream technique. First morning specimen preferred Urinary catheter tips are not cultured

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Turnaround Time	Negative culture: 2-3 working days Positives culture: 4-5 working days
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V

Vancomycin

Laboratory	Biochemistry
Mnemonic	VANCOR (Random) VANCOTR (Trough)
Specimen Type	Lithium heparin
Special requirements and comments	Please refer to Antimicrobial guidelines for sampling times and levels
Turnaround Time	2 hours
Reference Interval	On Biochemistry report or contact laboratory

Varicella Zoster Virus

Laboratory	Referral Laboratory
Mnemonic	VZ: Varicella Zoster IgG Ab VZM Varicella Zoster IgM Ab VZV DNA Varicella Zoster Virus DNA
Specimen Type	VZ: Varicella Zoster IgG Ab and VZM Varicella Zoster IgM Ab: Serum VZV DNA Varicella Zoster Virus DNA: Viral Swab
Special requirements and comments	N/A
Turnaround Time	Serology: 5-9 days Molecular: 7 days
Reference Interval	On report or contact laboratory

Vitamin A

Laboratory	Referral laboratory
Mnemonic	VITA
Specimen Type	Serum 5ml
Special requirements and comments	Transport to laboratory immediately. Sample must be frozen in < 1 hour
Turnaround Time	7 -10 days
Reference Interval	On report or contact laboratory

Vitamin B1

Laboratory	Send out – referral laboratory
Mnemonic	VIT B1
Specimen Type	EDTAWB (EDTA Whole Blood)
Special requirements and comments	Sample must be frozen in <4 hours, transport directly to the laboratory. Protect from light using aluminium foil
Turnaround Time	7 – 10 days
Reference Interval	On report or contact laboratory

Vitamin B6 (Pyridoxal phosphate)

Laboratory	Send out – referral laboratory
Mnemonic	VIT B6
Specimen Type	EDTAWB (EDTA Whole Blood)

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Special requirements and comments	Sample must be frozen in <4 hours, transport directly to the laboratory. Protect from light using aluminium foil
Turnaround Time	7 – 10 days
Reference Interval	On report or contact laboratory

Vitamin B12

Laboratory	Biochemistry
Mnemonic	B12
Specimen Type	Lithium Heparin
Special requirements and comments	N/A
Turnaround Time	Same day
Reference Interval	On report or contact laboratory

Vitamin D – 25-hydroxyvitamin D – D2 + D3

Laboratory	Send out – referral laboratory
Mnemonic	VITD
Specimen Type	Serum 5ml
Special requirements and comments	N/A
Turnaround Time	3 -4 days
Reference Interval	On report or contact laboratory

Vitamin D – 1,25-dihydroxyvitamin D

Laboratory	Send out – referral laboratory
Mnemonic	VIT D 1,25
Specimen Type	
Special requirements and comments	Transport to laboratory immediately, sample must be frozen in < 4 hours
Turnaround Time	7 1-0 days
Reference Interval	On report or contact laboratory

VMA (Vanillylmandelic Acid)

Laboratory	Send out – referral laboratory
Mnemonic	VMA
Specimen Type	Urine
Special requirements and comments	24 hour collection. Transport frozen.
Turn around Time	7 days
Reference Interval	On report or contact laboratory

W

Wound swab

Laboratory	Microbiology
Mnemonic	SWABCULT
Specimen Type	Skin / superficial wound Abscesses Post operative wounds Deep wounds

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	Ulcer swabs
Special requirements and comments	Specimens should be transported to the laboratory as soon as possible
Turnaround Time	4-5 working days
Xanthochromia	
Laboratory	Send out – referral laboratory
Mnemonic	XANTHOCHROMIA
Specimen Type	CSF (PROTECTED FROM LIGHT)
Special requirements and comments	Protect from light immediately on collection Specimens should be transported to the laboratory as soon as possible. Requests outside hours must be discussed with laboratory. Laboratory inform referral laboratory when sending
Turnaround Time	24 hours Mon-Fri