



Portiuncula University Hospital (PUH)

Laboratory User Guide

Version 13



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TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 2 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Table of Contents

1.0	General Information	6
1.1	Introduction	6
1.2	Quality Policy Statement	6
1.3	Confidentiality and GDPR	8
1.4	Complaints and Feedback	9
1.5	Location and Access to Pathology Department	9
1.6	Pathology Department Opening Hours	10
1.7	Pathology Department Contact Information	11
	Table 1 General Pathology Contact Information	11
	Table 2 Biochemistry Contact Information	11
	Table 3 Haematology and Blood Transfusion Contact Information	12
	Table 4 Histopathology Contact Information	12
	Table 5 Microbiology Contact Information	13
1.8	Clinical Advisory Services	13
1.9	On Call Service	15
1.10	Phlebotomy	15
1.11	General Practice	15
2.0	Specimen containers, specimen handling and request forms	16
2.1	Consumable Supplies	16
2.2	The Request Form	17
2.3	Specimen Acceptance Criteria	17
2.3.1	Sample receipt	17
2.4	Essential Identifiers, Desirable Identifiers and Mandatory Requirements	18
	Table 6: Requirements for details on request form	19
	Table 7: Requirements for details on Specimen	20
	Table 8: Pre-Analytical Quality Issues	21
3.0	Transport and Delivery of Specimens	21
3.1	Internal Transport of Specimens	22
3.2	Delivery of specimens to PUH from external locations (GP's/HSE)	23
3.3	Referral samples	23

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 3 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

4.0 Processing and Reporting of Test Results.....	23
4.1 Turnaround Times	23
4.2 Urgent Requests	23
4.3 Requesting additional examinations (Test add-ons)	24
4.4 Default Testing	24
4.5 Electronic reporting of results	24
4.6 Telephoned Results	25
4.7 Faxed Reports.....	25
4.8 Printed Reports	25
5.0 Clinical Biochemistry Department	26
5.1 Profile	26
5.2 Clinical Advice and Service	26
5.3 Biochemistry Request Form	26
5.4 Biochemistry Out-Of-Hours	27
5.5 Turnaround Time For Urgent Specimens	27
5.6 Test Profiles Available.....	28
5.7 Critical Limits	28
5.8 Add-on Tests	31
5.9. Specimen Retention Policy	31
5.10 Antibiotic Tests	31
5.11 Point Of Care Testing	31
5.12 24h Urine Collections.....	32
5.13 BD Barricor Tubes (Ref 365051)	32
6.0 Blood Transfusion Department	33
6.1 Profile	33
6.2 Clinical Advice and Service	33
6.3 Transfusion Request Forms.....	33
6.4 Transfusion Out-Of-Hours.....	34
6.5 Test Profiles and Turnaround times.....	35
6.6 Critical Limits.....	38
6.7 Specimen and Request Form Labelling Requirements.....	38

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 4 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

6.7.1 Completing The Request Form And Sample Labelling	39
6.7.2 Labelling at Patient's bedside:	39
6.7.3 Using Bloodtrack PDA Devices:	40
6.7.4 Add-On Requests	41
6.8 Requesting Blood and Blood Components.....	42
6.8.1 Second sample policy for Transfusion	42
6.8.2 Red Cell Concentrates (RCCs)	43
6.8.3 Paedipacks	43
6.8.4 Platelets:	44
6.8.5 Frozen Plasma:	44
6.8.6 Anti-D immunoglobulin (Ig):.....	44
6.8.7 Blood Derivatives (Albumin, Elocta, Alprolix, Novoseven® , Prothrombin Complex (Praxbind), Riastap, , Wilate® ,)	44
6.8.8 Transport of Blood with a Patient to an External Location	45
6.8.9 Haemovigilance Procedures and Guidelines	45
6.9 Fetal Maternal Haemorrhage Investigations by Kleihauer-Betke Test (KBT)	46
6.10 Management Of Transfusion Reactions.....	47
7.0 Haematology Department.....	48
7.1 Profile	48
7.2 Clinical Advice and Service	48
7.3 Haematology Request Forms	49
7.4 Test Profiles.....	49
7.5 Haematology Out-Of-Hours	50
7.6 Turnaround Times	51
7.7 Reference Ranges	51
7.8 Critical Alert values	52
7.9 Add-on Tests	53
7.10 Specimen Retention Policy	53
7.11 Test Stability and limitations Associated with Test Methodology	53
8.0 Histopathology Department	56
8.1 Profile	56
8.2 Clinical Advice and Service	56

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 5 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

8.3	Histopathology Request Form	56
8.4.1	Routine Histopathological Examinations	57
8.4.2	Cytology Samples	57
8.4.3	Cytogenetics.....	58
8.5	Autopsy	58
9.0	Medical Microbiology Department	62
9.1	Profile	62
9.2	Clinical Advice and Service	62
9.3	Microbiology Request Form.....	62
9.4	Test Profiles.....	62
9.5	Microbiology Out-Of-Hours	63
9.6	Guidelines for Requesting Microbiology Tests	63
9.6.1	Specimen Retention	63
9.6.2	Unsuitable Specimens and Additional Examinations	64
9.6.3	General Collection and Transport Guidelines	64
9.6.4	Blood Cultures	65
9.6.5	CSF Specimens	67
9.6.6	Enteric Samples (Faeces)	67
9.6.7	Fluids for Culture and Sensitivity	68
9.6.8	Sputum and TB Specimens.....	68
9.6.9	Swabs for Culture and Sensitivity	69
9.6.10	Swabs for Viral Investigation.....	69
9.6.11	Tissues.....	69
9.6.12	Urine Samples.....	69
9.6.13	Dermatophyte Culture – Collection and Transport	69
9.7	Referrals	70
9.8	Turnaround Times	70
Appendix 1: Test Directory and Order of Draw (Adult Tubes).....		72
Appendix 2: Test Directory and Order of Draw (Paediatric Tubes)		73
Appendix 3: Test Directory and Order of Draw		74
Appendix 4: Register of Changes to Laboratory User Guide (Version 12 to Version 13)		

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 6 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

1.0 General Information

1.1 Introduction

The purpose of this manual is to act as a reference guide for all users of the Pathology Service in Portiuncula University Hospital (PUH). The Pathology Department strives to provide a service that consistently meets the needs and expectations of the medical profession while contributing to patient well-being. The Pathology Department aims to provide a quality driven, patient centred service.

This user manual has been prepared for the benefit of our users and employees, in our capacity to provide continuous improvement to our service. Every effort has been made to ensure that the information provided herein is current and accurate. The manual will be subject to regular review and revision. A controlled up to date electronic version of this manual is available on the Saolta Website (saolta.ie/publications), hospital wide in Q-Pulse software, and in a dedicated 'Training' Folder located on desktop computers. Any printed copies are uncontrolled documents.

The manual should be used as a guide only, any queries arising or required in relation to laboratory services should be addressed by directly contacting the relevant laboratory department.

The Pathology Department at the Portiuncula Hospital, Ballinasloe is comprised of the following key disciplines: Blood Transfusion, Clinical Biochemistry, Haematology, Histology and Medical Microbiology.

We are committed to providing the very best service possible, and will where feasible, implement any improvements / suggestions put forward by our users. The laboratory has achieved the quality standard ISO 15189 (Irish National Accreditation Board/Irish Medicines Board) for Blood Transfusion and Haemovigilance. We are currently preparing the remaining departments for the accreditation process.

1.2 Quality Policy Statement

Our Laboratory (including Haemovigilance & Traceability) is committed to good professional practice through Quality & Safety in Testing, Support and Service for good Patient Care.

Our mission is to provide our clients with efficient turnaround times for test results and services, which are of the best possible quality and consistently meet performance and safety criteria.

In order to achieve our quality & safety policy and objectives, our laboratory shall execute tests

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 7 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

efficiently, economically and on time with standards that consistently meet or exceed our client's requirements.

This is accomplished through accreditation to standard ISO 15189 ensuring a continuing program to improve upon operational procedures and systems while striving to supply accurate and exact test results.

Management's responsibility is to provide direct leadership and resources to ensure continued conformance with these requirements. A cornerstone of our laboratory's Quality & Safety Policy is that excellence in the quality & safety of the examinations and client service is the result of collective effort and commitment from all its team members.

In the interest of good Patient Care this laboratory provides a Haemovigilance & Traceability service consistent with EU Directive 2002/98/EC, and the HPRA (formerly IMB) -INAB document - AML-BB (current version) - in relation to Article 14 (Traceability) and Article 15 (Haemovigilance), and applicable INAB Regulations.

All personnel concerned with examination activities are familiar with the quality and safety documentation and implement the policies and procedures at all times. The quality & safety system is under regular review and audit. All employees are invited to suggest possible improvements in working practice to the management.

Testing is influenced primarily by clinical need within the constraints of available resources.

Objective evidence in support of our laboratory's Quality & Safety Policy is the responsibility of the Laboratory Directorate (designated Consultant Clinical Specialist / Laboratory Chief Medical Scientist).

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

- Operate a quality management system to integrate the organisation, procedures, processes and resources.
- Set quality objectives and plans in order to implement this quality policy.
- Ensure that all personnel are familiar with this quality policy to ensure user satisfaction.
- Commit to the health, safety and welfare of all its staff. Visitors to the department will be treated with respect and due consideration will be given to their safety while on site.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 8 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

- Uphold professional values and is committed to good professional practice and conduct.

The Pathology Laboratory incorporating Haemovigilance complies with the International standard ISO 15189 (current edition) and EU Directive 2002/98/EC for the scope of services and tests defined in our scope of accreditation and is committed to:

- Ensuring staff are familiar with this policy and all other policies and procedures relevant to their work.
- Staff recruitment, training, development and retention at all levels to provide a full and effective service to its users.
- The proper procurement and maintenance of such equipment and other resources as are required for the provision of the 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 and transfusion of blood, blood components and blood products.
- The traceability of Blood and Blood Components and notification to the National Haemovigilance Office of Near Misses, Serious Adverse Reactions and Events.

The scope of accreditation for the Pathology Laboratory and Haemovigilance at Portiuncula University Hospital is controlled by the Irish National Accreditation Board (INAB) and detailed in Scope Registration Number 202MT on the INAB website www.inab.ie.

1.3 Confidentiality and GDPR

All staff working in the Pathology Department are legally required under the Data Protection Acts to ensure the security and confidentiality of all personal data they collect and process on behalf of

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 9 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

service users and employees. Data protection rights apply whether the personal data is held in electronic format or in a manual or paper based form.

It is the responsibility of all staff, as defined in their contract of employment to ensure that all information which they have access to as part of their work is treated in the strictest confidence and protected from, unauthorised access. All Staff are asked to sign a confidentiality agreement during their laboratory induction programme.

HSE Data Protection Policy is available from: <https://www.hse.ie/eng/gdpr/hse-data-protection-policy/hse-data-protection-policy.pdf>.

1.4 Complaints and Feedback

The Laboratory has a documented procedure for the management of complaints and compliments.

Users of the service may make a complaint/compliment about any aspect of the pathology service to any member of staff. Complaints/compliments may be received verbally, by letter, fax or e-mail.

Alternatively, the complainant may:

- Complete the HSE Leaflet titled 'your service your say'
- Email: yoursay@hse.ie
- Use website comments and complaints facility www.hse.ie
- Contact HSE information line 1850 241 850
- Use website www.healthcomplaints.ie for more information

All complaints are acknowledged, investigated and responded to within a specified timeframe.

1.5 Location and Access to Pathology Department

To access the Pathology department from the main entrance of the hospital; turn right past reception and continue down the corridor past the coffee shop and turn left to the lifts / stairs. The laboratory is located on the second floor on the right of the lifts / stairs. Access from accident and emergency is from the lifts / stairs at the end of the corridor behind the waiting area. Access to Pathology Laboratories is restricted to hospital personnel on related laboratory business via swipe card during lunch hour and outside of normal laboratory hours. Access to Pathology Reception is restricted to hospital personnel at all times via swipe card. GP samples arriving during lunch or out of hours can be left in the GP sample collection box outside the main

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 10 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

laboratory entrance.

Postal Address:

Pathology Department
Portiuncula University Hospital
Dunlo,
Ballinasloe,
Co. Galway, H53 T971

1.6 Pathology Department Opening Hours

Department/activity	Opening Hours
Laboratory Office	Monday to Friday 09:30 – 17:30
Phlebotomy Out-patient Service	Monday to Friday 09:30am – 17:00
Phlebotomy In-patient Service	Monday to Friday 07:30 – 10:30 Saturday and Sunday (<i>Urgent requests only</i>) 07:30 -10:00
Specimen Reception	Monday - Friday 08:45 – 17:00
Routine Laboratory Diagnostic Service	Monday to Friday 08:00 – 20:00

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 11 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Emergency out of hours service (on call diagnostic service)	Monday to Saturday 20:00 – 08:00 12:30 Saturday – 08:00 Monday Public Holidays 09:00 – 08:00
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1.7 Pathology Department Contact Information

Insert **(09096) 48** before extension number for direct access from outside the hospital

Table 1 General Pathology Contact Information

General Pathology	Contact Name	Contact
Laboratory Office	Mary O Neill	Ext 8259
Specimen Reception		Ext 8259
Phlebotomy Department		Ext 4615
Laboratory Chief Medical Scientist	Pat Kelly	Ext 8371 PatJ.kelly@hse.ie
Laboratory Quality Manager	Declan Lyons	Ext 4689 Declan.lyons3@hse.ie
Medical Scientist On Call	Rotational	Contact Main Switchboard

Table 2 Biochemistry Contact Information

Biochemistry	Contact Name	Phone/Bleep
Principal Biochemist	Rita O Hara	Ext 8264

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 12 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

		Rita.OHara@hse.ie
Chemical Pathologist	Dr Michael Louw	Contact Main Switchboard
General Biochemistry Lab Chief Medical Scientist	Maura Taaffe	Ext 8219 MauraC.Taaffe@hse.ie

Table 3 Haematology and Blood Transfusion Contact Information

Haematology and Blood Transfusion	Contact Name	Phone/Bleep
Consultant Haematologist (General Haematology)	Dr. Niamh Keane (Rotational)	Ext 5160 Ext 8266 <u>Contact Main Switchboard</u>
Consultant Haematologist (Blood Transfusion)	Dr Amjad Hayat (Rotational)	Ext 8370 <u>Contact Main Switchboard</u>
General Haematology Laboratory Chief Medical Scientist	Paula McMorrow	Ext 8366 Paulam.mcmorrow@hse.ie
General Blood Transfusion Laboratory Senior Medical Scientist	Joan Maloney	Ext 8370 Joan.maloney@hse.ie
Haemovigilance Officer	Helena Roddy	Ext 4535 Bleep 700

Table 4 Histopathology Contact Information

Histopathology	Contact Name	Phone/Bleep
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TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 13 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Consultant Histopathologist	Dr Suzanne Schneider	Ext 8217
Consultant Histopathologist	Dr Emer Caffrey	Ext 5189
General Histology Laboratory Senior Medical Scientist	Maria Mc Tigue	Ext 8368 Maria.mcTigue@hse.ie
Mortuary Mortuary Technician	John Crosby	Ext 8309

Table 5 Microbiology Contact Information

Microbiology	Contact Name	Phone/Bleep
Consultant Microbiologist	Dr Ruth Waldron Dr Dimitar Nashev (Rotational)	Contact via hospital reception switchboard
Routine Microbiology Laboratory Chief Medical Scientist	Joe Bergin	Ext 8369 Joe.bergin@hse.ie
Surveillance Scientist	Michelle Flanagan	Ext 8369 Michelle.Flanagan@hse.ie

1.8 Clinical Advisory Services

Advice is available on the choice of examinations and the use of the service, including repeat frequency and required type of sample. Where appropriate, interpretation of the results of examinations shall be provided.

Staff grade	Advice available	Contact details
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TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 14 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Medical Scientists, Biochemists	<p>Labelling & specimen requirements</p> <p>Choice of examinations</p> <p>Clinical indications and limitations of examination procedures and interpretation of results</p>	Department phone numbers
Clerical Staff	Hours of operation, labelling requirements, deal with phone queries and provide validated report results.	Lab office Ext 8259
Laboratory Aides	Hours of operation, labelling requirements and specimen acceptance/rejection criteria	Specimen Reception Ext 8259
Haemovigilance Officer (HVO)	Questions relating to the traceability of blood and blood products	Ext 4535 Bleep 700
Histopathology queries refer to a Consultant Pathologist.		<p>Contact Dr. Suzanne Schneider Ext 8217</p> <p>Dr. Emer Caffrey Ext 5189</p>
<p>Clinical Transfusion Medicine or Haematology queries refer to the Consultant Haematologist.</p> <p>A consultant haematologist is on site in PUH on a Wednesday where they can be contactable via the haematology laboratory.</p>		<p>Rota and bleep lists are available in the transfusion medicine laboratory Ext 8370 or via hospital reception.</p>
<p>Clinical Microbiological or Infection control queries are provided by the Consultant Microbiologist.</p> <p>A consultant Microbiologist is on site in PUH on a Tuesday where they can be contactable via the hospital reception switchboard.</p>		<p>Rota and bleep lists via hospital reception.</p>
<p>Clinical chemistry/ biochemistry queries are directed to the Principal Biochemist and/or Chemical Pathologist. This includes queries for POCT blood gases or glucose testing</p>		<p>Contact Rita O Hara Ext 8264.</p> <p>Dr Michael Louw (Switchboard)</p>

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 15 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

1.9 On Call Service

The service should meet the clinical need for safe patient care, but with this in mind, the necessity to take a sample prior to instituting treatment does not always imply that the result is required urgently.

Before requesting a test to be analysed 'out of hours', a clinician should consider:

- Will the result, whether high, low or normal affect my diagnosis?
- Will the result, if available early, affect treatment?

Emergency samples on-call out of hours service

20:00h – 08.00h weekdays

12:30h (Sat) – 08:00 (Mon) weekend

Laboratory staff are on-site when required during this period. Please make contact with the on-call laboratory personnel via the Hospital Switchboard. Ensure that samples are transported to the laboratory before making contact with the laboratory personnel.

It is essential that requests are restricted to emergency samples only. Where demand is high processing of samples will be prioritised and/or processed in batches

There are 2 Medical Scientists covering the 'out of hours' service at all times.

1.10 Phlebotomy

The Phlebotomy Department is located on the ground floor of Portiuncula University Hospital before the entrance to the Out Patients department (OPD). A Phlebotomy inpatient service is available from 7.30a.m until 10.30p.m Monday to Friday with urgent requests processed Saturday and Sunday mornings 07.00 to 10.00. Outpatient phlebotomy services are available from 09.30 - 17.00 Monday to Friday. For most routine laboratory procedures, consent can be inferred when the patient presents at phlebotomy with a referral request from a doctor and willingly submits to venepuncture. Patients in a hospital bed can refuse venepuncture. Contact Phlebotomy on ext. 4615 for details of the service provided.

1.11 General Practice

General Practitioners may send appropriately packaged patient blood specimens by post/courier or they may ask the patients to attend the phlebotomy department with a referral letter.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 16 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

All specimens or samples directed to the pathology department are required to be packaged and transported in accordance with the European Agreement concerning the International Carriage of Dangerous Goods by Road (UNADR). A delivery service is provided by Westdoc to all GPs in the hospital catchment area on Tuesday and Thursdays each week. Ballinasloe-town based GPs can avail of a twice daily collection and delivery service by a contracted courier.

2.0 Specimen containers, specimen handling and request forms

2.1 Consumable Supplies

Sufficient consumable supplies can be obtained from stores during working hours.

Wards looking for Laboratory supplies can do so between the hours of 9 am and 5:30 pm – Monday to Friday only.

The laboratory supplies the following:

- ☐ All tubes for blood collection
- ☐ Containers for sputum and mid-stream urines
- ☐ Swabs for viral investigations and transport swabs
- ☐ Biopsy vials containing formalin. (Refer to the histology section of this manual for advice on the care necessary with formalin).
- ☐ Timed urine collection containers, which may contain no preservative (plain) or 20ml of 0.5M molar hydrochloric acid as necessary for various investigations.
- ☐ Blood culture bottles
- ☐ Collection kits for Chlamydia/Gonorrhoea testing
- ☐ Specimen bottles for Quantiferon testing

Pre-filled formalin pots for biopsy/small surgical specimens are available from the Stores Dept (these are not available from laboratory stores)

All users must use approved specimen containers & blood collection bottles. In-house – forms can be requisitioned from the hospital supplies department. Specimen containers are available directly from the laboratory.

- The **BD Vacutainer** system is in use for adult samples.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 17 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

- The **BD Microtainer** system is in use for Paediatric FBC & grouping samples.
- The **Sarstedt S-Monovette** blood collection system is in use for Paediatric samples in Biochemistry & Coagulation Department Portiuncula Hospital.
- The **Tube Guide Including Order of Draw** is detailed on Appendix 1 of the User Guide.

2.2 The Request Form

The request form forms the basis of the contract between the Pathology Laboratory and its users. Correctly designed and properly completed request forms are essential for the performance of all laboratory tests to the benefit of the patient and the satisfaction of the requesting physician.

A member of nursing staff or medical staff completes the appropriate request form for in house patients. If the test requires a blood specimen, the appropriate request card is sent to Phlebotomy or the phlebotomist is bleeped. If the request is out of these hours, the house doctor or a member of the nursing staff must take the specimen. Administration staff located in phlebotomy complete the appropriate request forms for tests requested on an outpatient or day patient, using a referral letter from the GP or Consultant.

The provision of legible fully completed request form including appropriate clinical details, date & time, contact details / Bleep No., together with a properly collected specimen, allows the laboratory to issue relevant and accurate results.

There are 6 controlled and approved request forms in use:

- Biochemistry (**LAB-QR-FORM-042**)
- Blood Transfusion (**LAB-QR-FORM-031**)
- Cord Blood & Post Natal Request Form (**LAB-QR-FORM-0138**)
- Haematology/Coagulation (**LAB-QR-FORM-043**)
- Histology and Cytology (**LAB-QR-FORM-044**)
- Microbiology (**LAB-QR-FORM-041**)

2.3 Specimen Acceptance Criteria

2.3.1 Sample receipt

Samples with request forms received in the laboratory should have the date and time of receipt recorded on the request form.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 18 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Specimens are then labelled with a unique laboratory accession number; they are then recorded in the Laboratory Information System linking the unique laboratory accession number to the patient's details provided on the request form.

The **turnaround time** for each test is noted in the **Test Directory** at the end of this document and is defined as the time taken for sample analysis from time of receipt to time authorisation of result

Before accepting a clinical specimen, laboratory staff must ensure that certain minimum criteria for sample identification are met. The responsibility for requesting a laboratory service or test lies with an authorised and trained practitioner (normally a clinician). It is the responsibility of the requester to ensure that samples are correctly labelled and request forms are completed to agreed standards.

The use of Blood Track PDA's for labelling Blood Transfusion sample bottles is mandatory in PUH. Hand held devices are available in all clinical areas. During an emergency situation, where the use of a Bloodtrack PDA is not possible, handwritten specimens may be accepted, provided they conform to the essential requirements listed in table below. Communication with the blood transfusion laboratory is necessary in such cases to allow acceptance of such specimens.

All requests should be submitted by completing the relevant laboratory sample request form(s) and inserting the appropriately labelled specimen into the plastic bag attached to the sample request form. With respect to large samples e.g. 24hr urines and specimens for histopathology, the request card should be appropriately attached to the container.

Requests must arrive within the sample stability for the test(s) being requested (Refer to Test directory in Appendix below)

Large addressograph labels **must not** be used on specimens with the exception of Histology specimens where the use of an addressograph label is recommended. When the printed label is too big it obscures the sample from view and may also cause equipment failure due to jamming of the system.

2.4 Essential Identifiers, Desirable Identifiers and Mandatory Requirements

Patient demographics on the request form must be legible, consistent and must match the information on the specimen container.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 19 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

The following essential information must be documented in a legible manner on the **request form**

If the below mandatory requirements are not met, the sample will be rejected.

Table 6: Requirements for details on request form

REQUEST FORM ISSUES	ACTION
No request form provided with Specimen	Specimen not processed. Repeat Specimen and request form sought, if possible, from the Requestor. Reason for rejection recorded on LIS.
Incorrect or absence of any of the three ESSENTIAL patient identifiers on INTERNAL request forms:- <ul style="list-style-type: none"> • PID Number • Full Name • Date of Birth 	Specimen not processed. Requestor or location informed. Request rejected and repeat specimen and form requested. Reason for rejection recorded on LIS.
Incorrect or absence of any of the three ESSENTIAL patient identifiers on EXTERNAL request forms:- <ul style="list-style-type: none"> • Full Name • Date of Birth • Full Home Address 	
No signature of the requestor or the specimen taker	If signature of the requestor is deemed essential for processing (departmental requirements may vary), the specimen may not be processed or test results released until form amended. The requestor or the specimen taker, as appropriate, may amend the request form in the laboratory. The Amendment Report must be signed. Alternatively, PUH staff could be facilitated by sending the Amendment Report Form via chute/porter to the Requestor or Specimen Collector, as appropriate, and asking for a repeat Request Form to be returned with the signed Amendment Report Form to the Laboratory.
Specimen type and site, where appropriate, not indicated on Microbiology Request Form.	
Specimen type and site not indicated on Histopathology Request Form (and also not indicated on container).	The appropriate <u>Amendment Report/Deviation from Sample Identification Policy form</u> must be completed by the requestor/ sample collector and/or laboratory staff member. Record event as incident code on LIS. Complete a non-conformance only if a serious sample mislabeling error has occurred.
No date and time collected recorded	The date at a minimum should be confirmed, and if relevant to the test being performed, the collection time should be confirmed with the collector.
Inadequacy or absence of the following details:- <ul style="list-style-type: none"> • Address (In-House samples only) • Ward or Location • Gender • Patient's GP/Consultant • Clinical Information 	If any of the details opposite are absent or incorrect, and deemed necessary for processing, they may be sought and added to the form. All information added to the original request form should be initialed and dated. A second specimen and form is requested if the details cannot be provided by the requester.
Incorrect test requested	

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 20 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

No test requested	
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The following essential information must be documented in a legible manner on the **Specimen**.

If the below mandatory requirements are not met, the sample will be rejected.

Table 7: Requirements for details on Specimen

SPECIMEN ISSUES	ACTION
Specimen unlabelled	Specimen not processed, Requestor informed and repeat requested. Reason for rejection recorded on LIS.
No specimen received	Request rejected Requestor informed and repeat requested. Reason for rejection recorded on LIS.
<i>The use of Blood Track PDA's for labelling Blood Transfusion sample bottles is mandatory in PUH.</i>	<i>During an emergency situation, where the use of a Bloodtrack PDA is not possible, handwritten specimens may be accepted, provided they conform to the essential requirements listed.</i>
Incorrect or absence of any of the three ESSENTIAL patient identifiers on internal specimens:- <ul style="list-style-type: none"> • Full Name • PID Number / Chart Number • Date of Birth 	Requestor informed a second specimen must be collected. Reason for rejection recorded on LIS.
Incorrect or absence of any of the two ESSENTIAL patient identifiers on external specimens:- <ul style="list-style-type: none"> • Full Name • Date of Birth 	If the essential patient identifiers contain minor discrepancies (but there is no doubt as to the identity and provenance of the sample), the sample may be processed once <u>the appropriate Amendment Report/Deviation from Sample Identification Policy form</u> is completed by the requestor/ sample collector and/or laboratory staff member.
Miscellaneous specimen issues as deemed necessary by individual departments.	A second specimen must be collected. Reason for rejection recorded on LIS.

All identifiers must be correct and complete. Specimen tubes must be labeled immediately after they are drawn and must never be pre-labeled.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 21 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

These criteria for sample acceptance are essential for patient safety and are in place to reduce the risk of potential harm caused by labeling errors. The policy is strictly enforced and specimens not meeting the minimum criteria will be rejected.

Table 8: Pre-Analytical Quality Issues

Specimen Appearance/ Pre-Analytical Quality Issues	Action
<ul style="list-style-type: none"> • Evidence of Haemolysis • Gross Lipaemia • Presence of clots in specimens for FBC and coagulation tests • Age of specimen • Miscellaneous quality issues • Evidence of Incorrect Centrifugation • Absence of HAMS fluid/Biopsy transport medium for cytogenetics tissue sample. • Absence of formalin fixative in tissue specimens • Absence of cytology fixative in fluids for cytology • Presence of inappropriate fixative e.g. cytology specimens should not be added to formalin • Cytogenetics samples taken out of hours- must be placed on top shelf of Histology laboratory fridge along with request card and consent form • PRESENCE of any fixative for fluids for crystal investigation 	<ul style="list-style-type: none"> ➤ The individual Pathology Departments will make a decision on whether or not the specimen is suitable for testing and a second specimen requested as appropriate. ➤ Specimen quality issues are recorded on the LIS. ➤ The individual laboratories may report results within a multi test profile on analytes unaffected by the specimen quality, while not reporting affected analytes in the profile. ➤ If tested or appropriate the report will show the specimen quality issue.

3.0 Transport and Delivery of Specimens

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 22 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

The transport of specimens to the Laboratory must follow UN (UN 3373) regulations and guidelines in order to minimise the risk of infection to those who may come in contact with the specimens e.g. taxi drivers, couriers, postal workers, porters, laboratory staff etc. Consignors of specimens must ensure that packages are prepared in such a manner as to meet the requirements for packaging and transport of biological material by road, rail or post in accordance with the ADR regulations (or any such regulations that may be effected from time to time) and in accordance with any special criteria as required by the laboratory at PUH.

3.1 Internal Transport of Specimens

The transport of specimens to the laboratory is by the use of the portering services or the Pneumatic Air Tube System (PTS)). All samples are delivered directly to the laboratory specimen reception, Mon to Fri 09.00-17.30 with the exception of histology, blood transfusion and samples that require transport on ice eg ammonia and lactate samples which should be delivered directly to the relevant laboratory. Out of hours including Saturday and Sunday samples should be sent to the specific department.

To send a sample:

- Place the sample in the bag attached to the request form.
- Seal the bag attached to the request form by removing the strip and folding the bag onto the sticky surface.
- Place the bag in the correct carrier type – do not overload
- Dial the station address number and without delay place carrier on the station for dispatch. The station address number is found on the front panel of the Pneumatic tube system.
- Check for any messages on the station. During busy periods there may be a delay in the carrier leaving the station. It is the sender of the samples responsibility to ensure that the samples have been sent during these periods.

Samples/items that should not be transported by Pneumatic Tube System

- Histology and Cytology Specimens
- CSF samples
- Blood Gas specimens
- Units of blood/ Blood components/ Anti-D

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 23 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Breakdown

If the pneumatic system fails or is faulty, contact APT direct during routine hours on 01 841 3005 or out of hours 087 2580328 for 24/7 cover.

3.2 Delivery of specimens to PUH from external locations (GP's/HSE)

All specimens or samples directed to the pathology department in PUH are required to be packaged and transported in accordance with the European Agreement concerning the International Carriage of Dangerous Goods by Road (UNADR). A delivery service is provided by Westdoc to all GPs in the hospital catchments area on Tuesday /Thursday each week. Ballinasloe-town based GPs can avail of a twice daily collection and delivery service by a contracted courier.

3.3 Referral samples

All referral tests must be sent as soon as possible to the laboratory. Some referral tests require specific storage conditions and are detailed in the Directory of Tests section. If there is any doubt about the taking and storing of referral samples contact the Pathology Laboratory for advice.

The Pathology Department prepares and dispatches referrals from both in house and external locations.

All Galway University Hospital (GUH) Laboratory samples are separated out at reception for dispatch daily.

4.0 Processing and Reporting of Test Results

4.1 Turnaround Times

Turnaround time is given as the maximum number of working hours/days between **sample receipt in the laboratory and the issuing of a report under normal operating conditions**. The turnaround time for individual tests is given under each test heading in the Directory of Tests section of this manual. The target turnaround time for urgent tests is generally shorter where every effort is made to process the samples as soon as possible.

4.2 Urgent Requests

A request is deemed urgent if;

- A phone call is received from clinician/ward staff requesting that it be processed

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 24 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

urgently

- The request form is labelled 'Urgent'.
- The individual delivering the sample informs the medical scientist that the sample is Urgent.

Specimens received from the following areas should be prioritised, where possible, even in the absence of any communication as to their urgent status:

- Emergency Dept,
- ICU/CCU
- St. Therese's/SCBU
- Oncology (Pre-chemo)
- Warfarin clinic (Tuesdays)

4.3 Requesting additional examinations (Test add-ons)

Clinicians may occasionally request a test be added on to an existing sample. Tests may be added to a sample already in the laboratory if the sample is still within allowed stability period and sufficient volume is available (Refer to departmental subsections and test directory in appendix).

A new request form must be sent to the laboratory for all add on requests, however processing of add-ons may begin immediately before request form is received.

4.4 Default Testing

In the event of the absence of a test request from the request form the following default tests will be undertaken:

Department	Default test
Biochemistry 24hr Urine Serum/Plasma sample Fluoride oxalate sample	Protein U/E Glucose
Microbiology Urine sample	Culture and Sensitivity

4.5 Electronic reporting of results

Laboratory results, once authorised on the Laboratory Information Management System (LIMS),

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 25 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

are available on the hospital computer network (WinPath Ward Enquiry) and to general practitioners & out-patient centres registered with Healthlink. Certain results such as HIV testing are suppressed from electronic reporting.

The WinPath Ward Enquiry is password controlled and passwords and training on the use of this facility is available from the hospital IT Department (ext. 8289). Using the Ward Enquiry, results are available for all laboratory departments to ward users.

Healthlink is the name given to the Department of Health and Children funded project which facilitates electronic links to be established between General Practitioners, Hospitals and the HSE, allowing for the timely and secure transfer of patient related administration, clinical data and laboratory reports. Portiuncula University Hospital laboratory reports are transmitted twice daily to Healthlinks (09:50 & 16:50).

For further information contact:

National Healthlink Project

Ph. 01 8825606	Fax. 01 8307728	www.healthlink.ie
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4.6 Telephoned Results

It is the Laboratory Policy to telephone reports only when results for specific clinical parameters have reached critical levels (See departmental sub-sections). Under no circumstances will a result be given to a patient/guardian. For external users, please provide a contact number for phoning urgent results, especially if required after normal surgery hours.

4.7 Faxed Reports

It is the policy of the laboratory **not to fax** reports for reasons of confidentiality of patient results.

4.8 Printed Reports

Printed results are available for departments which require paper reports although the pathology department in PUH try to adopt a paperless policy. Wards such as Maternity, OPD, Paediatrics and certain G.P practices all avail of printed hardcopy reports, which are printed with reference ranges and / or suitable comments whenever appropriate.

The primary report received for tests referred to external laboratories is delivered to the

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 26 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

requesting Consultant/ General practitioner as appropriate.

Printed reports are delivered by portering staff to the wards. General practitioner reports are posted daily.

5.0 Clinical Biochemistry Department

5.1 Profile

The department provides Clinical Biochemistry and Endocrinology tests, and a comprehensive analytical and interpretative service including assessment of liver function, kidney function, carbohydrate and lipid metabolism, hormones, proteins and enzymes. The Clinical Chemistry Department supports Point of Care in the Hospital, including Blood Gas analysers and Glucometers Cobas IT system

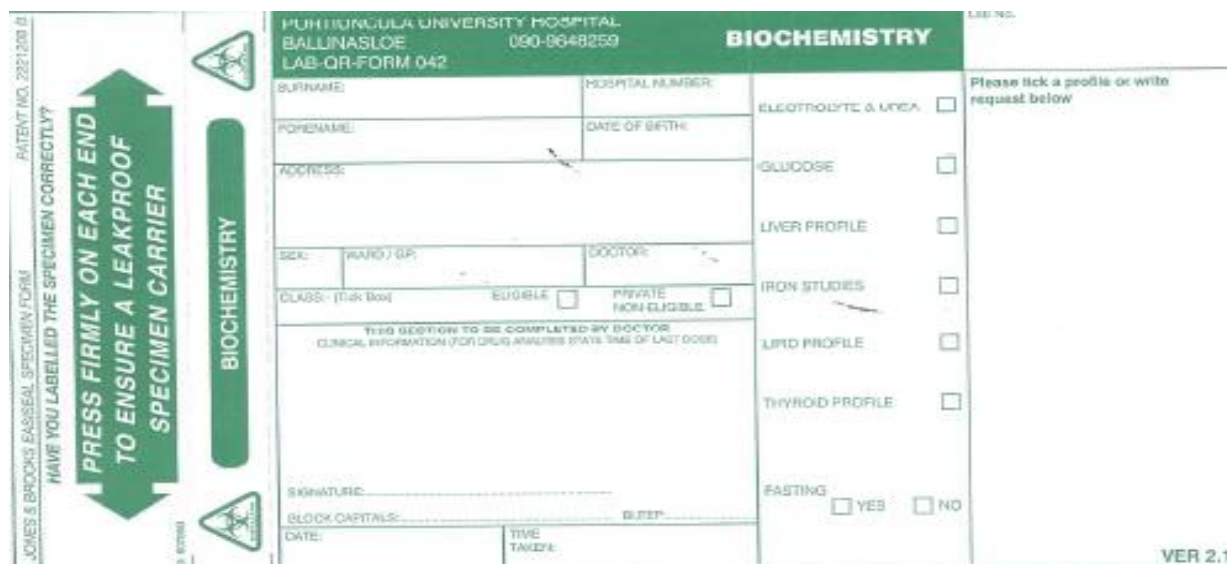
5.2 Clinical Advice and Service

Clinical advice and interpretation is available from the Principal Clinical Biochemist and Chemical Pathologist.

5.3 Biochemistry Request Form

All Biochemistry test requests should be completed on a LAB-QR-FORM-042

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 27 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024



The form is titled 'BIOCHEMISTRY' and is for 'PUHLINCOLLA UNIVERSITY HOSPITAL BALLINASLOE'. It includes fields for patient information (Surname, Forename, Address, Date of Birth, Sex, Ward / GP, Doctor, Class, Eligible, Private, Non-Eligible) and test selection (Electrolyte & Urea, Glucose, Liver Profile, Iron Studies, Lipid Profile, Thyroid Profile, Fasting). It also has a section for clinical information and a signature line. The form is labeled 'LAB-QR-FORM 042' and 'VER 2.1'.

5.4 Biochemistry Out-Of-Hours

A detailed list of all tests available out of hours is provided in the section "*On Call Emergency test listing*". Medical Scientist should be contacted when sending urgent samples. Access to out of hour's service for GP's is available but the laboratory must be contacted in advance. For external users, please provide a contact number for phoning urgent results, especially if required after normal surgery hours.

5.5 Turnaround Time For Urgent Specimens

Laboratory requests from the following hospital wards/departments are given priority processing

ICU/CCU	Emergency Department	Oncology
Paediatrics	SCBU	AMAU

Urgent samples from other sources will receive similar priority but consultation with the laboratory is necessary in advance.

Routine turnaround times for all tests (In-house & GP requests) are listed in the test directory section of the User Manual.

Category	Target turnaround time
Urgent Requests (barricor bottle)	1 hour

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 28 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Priority Requests	2 hour
Routine Requests	1 day

Please note: If an incorrect location or doctor or no contact details is given this may lead to delays in reporting critical results.

5.6 Test Profiles Available

U/E	Sodium, Potassium, Urea, Creatinine, eGFR (Chloride & Bicarbonate available on request)
LFT	Alk Phos, GGT, Total Bilirubin, Albumin, ALT, AST
Lipids	Cholesterol, Triglycerides, HDL, LDL
TFT	Free T4, TSH,
Iron studies	Iron, UIBC, TIBC, Ferritin, Transferrin saturation
Bone Profile	Calcium, Albumin, Phosphate, Alk Phos, Magnesium
Drugs of abuse – urine screen	Amphetamines, Barbiturates, Benzodiazepines, Cocaine, Ecstasy, Methamphetamines, Morphine, Methadone, TCA's, Cannabis
Toxicology Screen - Blood	Ethanol, Salicylate, Paracetamol

5.7 Critical Limits

Results falling outside defined critical limits will be telephoned to the requesting source. In general

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 29 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

this protocol refers to unexpected results or the first time the critical limit has been exceeded.

Test	Less than	Greater than	Conditions*
ALT (U/L)		>1000	
Ammonia (mmol/L)		>100	
Amylase (U/L)		>200	
Bicarbonate (mmol/L)	<15		Not required in dialysis patients
B12 (pg/ml)	<190		Phone first time in an episode
Bilirubin (umol/L)		>300	Newborn, full term (1-5 days)
Calcium (mmol/L)	<1.8	>3.0	Phoning should be based on adjusted calcium when available
CK (U/L)		>3000 >700	In-patients External patients only
Creatinine (umol/L)		> 200 umol/L	Phone first time in an episode and if value rises by 150 – 200 umol/L from baseline
CRP (mmol/L)		> 300	(Not ICU)
Digoxin (ug/L)		>2.3	Give K+ value also
eGFR (ml/min)		<15	Not required for dialysis patients

Test	Less than	Greater than	Conditions*
F-T4 (pmol/L)	<6.0	> 40.0	
Glucose(mmol/L)	< 2.5	>15 / > 30	Not known diabetic/ Known diabetic

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 30 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Test	Less than	Greater than	Conditions*
Iron (mmol/L)		>50	
Lithium (mmol/L)		> 1.4	
Lactate (mmol/L)		5.0	Phone first time in an episode.
Magnesium (mmol/L)	< 0.5	>2.0	
Osmolality (serum) (osm/kg)		>350 Osm/kg	
Paracetamol (mg/L)			Phone if detectable
Phosphate (mmol/L)	< 0.5		
Potassium (mmol/L) (Plasma)	< 3.5 <2.5 <2.5	>5.5 > 6.0 <5.6	CCU patients All other patients
Protein/Creatinine Ratio (mg/mmol)		> 30	ANC/GP pregnant patients
Salicylate (mg/L)			Phone if detectable
Sodium (mmol/L)	< 120	>150	
24hr Urine Protein (g/24hrs)		> 0.3	ANC/ GP pregnant patients All Maternity patients
Triglyceride (mmol/L)	-	>20	
Troponin T (hs) (ng/L)		> 14 > 100	GP and External Users InPatients
TSH (mIU/L)		>50	

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 31 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Test	Less than	Greater than	Conditions*
Urea (mmol/L)		>50% increase	In 48 hrs (delta check)
Urate (umol/L)		>500 />1000	Maternity Patients / All Other Patient
Where a test result is grossly abnormal, laboratory staff will use their professional judgment, and may consider contacting the requesting clinician or doctor on call.			

*** unexpected result/ first time the critical limit is exceed**

5.8 Add-on Tests

For Biochemistry add-on tests, complete a request card, state "specimen already in lab" and add Biochemistry Laboratory Number if available.

Note 1: These specimens take longer to process as they are not readily accessible.

Note 2: Some test requests are not suitable as add-on tests (e.g. Ethanol, CO₂)

5.9. Specimen Retention Policy

Clinical Biochemistry specimens are stored for 1 week at 4 – 8 °c

5.10 Antibiotic Tests

It is imperative that clinical details include information as to whether the sample relates to a Trough or Peak (Gentamicin/Vancomycin).

5.11 Point Of Care Testing

Blood gas analysers and glucometers:

Use of the analysers is only permitted following training and password is then issued which is organised by the Clinical Biochemistry Department. If training in the use of any of the Blood Gas analysers is required, please contact the laboratory at ext.8219.

Analysers are located in the following departments:

- Emergency Department (ED 1)

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 32 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

- Respiratory ED (ED 2)
- Intensive Care Department
- Labour Ward,
- St Johns ward
- SCBU

Glucometer Training: training is provided by link nurses in the hospital and after completion of training, users are certified by the Biochemistry Department to use the system

If an unexpected result is obtained, please recheck by using a laboratory method or repeat blood sample.

5.12 24h Urine Collections

Approved containers are available from specimen reception staff in the laboratory. Depending on the test requested the container may require an additive. Please ensure that the identification on the container includes patient's name, DOB, address, MRN (if available), name and source of requesting doctor. After completing the collection, arrange delivery of the container to laboratory reception accompanied by the laboratory request form.

5.13 BD Barricor Tubes (Ref 365051)

Tests available on Barricor (light green cap lithium heparin bottles):

- U/E (potassium different reference interval)
- Glucose (if delivery to laboratory immediately)
- LFT's, Amylase, Troponin T, Bone Profile (Calcium, Phosphate, Magnesium, Albumin, Alk Phos), Lipids, LDH, Urate, CRP, Toxicology screen (Paracetamol, Salicylate & Ethanol), CK, proBNP
- HCG, TFT's, PSA, Iron Studies, Oestradiol & Progesterone
- **Note 1:** Lithium, T. Protein, B12 and Folate **cannot** be analysed on this bottle
- **Note 2:** Referral tests and other tests not listed cannot be analysed on light green capped bottle.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 33 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

6.0 Blood Transfusion Department

6.1 Profile

Blood and blood products are issued from the department for patients in Portiuncula Hospital. The department provides a group and antibody screening service to in-house patients of PUH only, and an antenatal service (including targeted Routine Antenatal Anti-D prophylaxis) to Department of Obstetrics & Gynaecology and to Consultants in private practice. The service is not available directly to general practice.

A Haemovigilance service is also available in Portiuncula University Hospital. Haemovigilance is a set of surveillance procedures from the collection of blood and its components to the follow-up of recipients. In addition, haemovigilance is used to collect and assess information on unexpected or undesirable effects resulting from the therapeutic use of labile blood products, and to prevent their occurrence or recurrence.

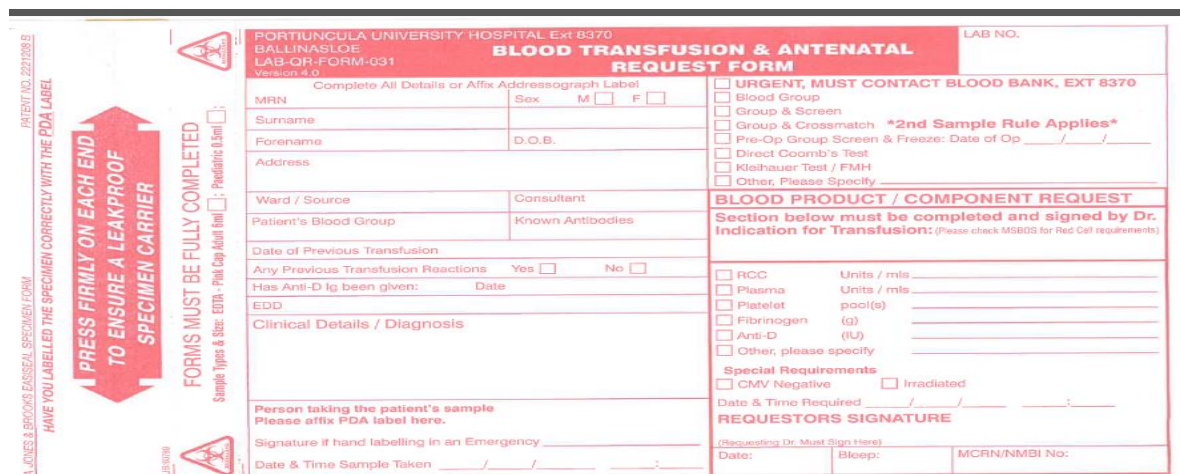
The role of the Haemovigilance Officer is to implement and maintain blood transfusion guidelines, facilitate continuous education of clinical staff and to investigate undesirable effects of transfusion.

6.2 Clinical Advice and Service

Clinical support from a Consultant Haematologist in GUH is available. Refer to Section 1.6 Clinical advisory services.

6.3 Transfusion Request Forms

There are two request forms in use for the Blood Transfusion department. All group and screen test requests, along with blood and blood component orders, must use **LAB-QR-FORM-031**:



PORTIUNCULA UNIVERSITY HOSPITAL Ext 8370
BALINASHLOE
LAB-QR-FORM-031
Version 4.0

BLOOD TRANSFUSION & ANTENATAL REQUEST FORM

LAB NO. _____

Complete All Details or Affix Addressograph Label

MRN _____ Sex: M ☐ F ☐

Surname _____

Forename _____ D.O.B. _____

Address _____

Ward / Source _____ Consultant _____

Patient's Blood Group _____ Known Antibodies _____

Date of Previous Transfusion _____

Any Previous Transfusion Reactions Yes ☐ No ☐

Has Anti-D Ig been given: Date _____

EDD _____

Clinical Details / Diagnosis _____

Person taking the patient's sample
Please affix PDA label here.

Signature if hand labelling in an Emergency _____

Date & Time Sample Taken ____/____/____ : ____

URGENT, MUST CONTACT BLOOD BANK, EXT 8370

☐ Blood Group

☐ Group & Screen

☐ Group & Crossmatch *2nd Sample Rule Applies*

☐ Pre-Op Group Screen & Freeze: Date of Op ____/____/____

☐ Direct Coomb's Test

☐ Kleihauer Test / FMH

☐ Other, Please Specify _____

BLOOD PRODUCT / COMPONENT REQUEST

Section below must be completed and signed by Dr.
Indication for Transfusion: (Please check MSBOS for Red Cell requirements)

☐ RCC Units / mls _____

☐ Plasma Units / mls _____

☐ Platelet pool(s) _____

☐ Fibrinogen (g) _____

☐ Anti-D (IU) _____

☐ Other, please specify _____

Special Requirements

☐ CMV Negative ☐ Irradiated

Date & Time Required ____/____/____ : ____

REQUESTORS SIGNATURE

(Requesting Dr. Must Sign Here)

Date: _____ Blood: _____ MCRN/NMBI No: _____

INSTRUCTIONS:

PRESS FIRMLY ON EACH END TO ENSURE A LEAKPROOF SPECIMEN CARRIER

FORMS MUST BE FULLY COMPLETED

Sample Types & Size: EDTA - Pink Cap Adult 10ml ☐ - Paediatric 5ml ☐

ALWAYS & BROOKS EASSEAL SPECIMEN FORM PATIENT NO. 2201028 B HAVE YOU LABELLED THE SPECIMEN CORRECTLY WITH THE PDA LABEL

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 34 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

There is a Cord blood & post natal request form (**LAB-QR-FORM-0138**) to be used post-delivery for Rhesus negative mothers in Portiuncula Hospital. This form accompanies a new process whereby mother and baby (cord blood) will now be patient linked on Winpath. The form also facilitates users to complete an Anti-D prescription request in the event of a Rhesus positive baby, and allows the user to request a kleihauer test, while recording the time of delivery.

PATENT NO. 2221208 B A JONES & BROOKS ELASISAL SPECIMEN FORM HAVE YOU LABELLED THE SPECIMEN CORRECTLY WITH THE PDA LABEL PRESS FIRMLY ON EACH END TO ENSURE A LEAKPROOF SPECIMEN CARRIER FORMS MUST BE FULLY COMPLETED Sample Types & Size: EDTA - Pink Cap Adult 6ml <input type="checkbox"/> : Cord 6ml <input type="checkbox"/> : Paediatric 0.5ml <input type="checkbox"/> JB1:10000		PORTIUNCULA UNIVERSITY HOSPITAL BALLINASLOE LAB-QR-FORM-0138 Version 1.0 CORD BLOOD & POST NATAL REQUEST FORM	
BABY'S DETAILS Complete All Details or Affix Addressograph Label MRN _____ Gender M <input type="checkbox"/> F <input type="checkbox"/> Surname _____ Forename _____ D.O.B. _____ Address _____ Ward / Source _____ Consultant _____ <input type="checkbox"/> Cord Blood / Newborn Blood Group <input type="checkbox"/> Other Tests: Please specify: _____		MOTHER'S DETAILS Complete All Details or Affix Addressograph Label MRN _____ Surname _____ Forename _____ D.O.B. _____ Address _____ Ward / Source _____ Consultant _____ Mother's Blood Group _____ Antibodies _____ CFFD Result _____ Has Anti-D been given _____ <input type="checkbox"/> Kleihauer Test (40 mins - 2 hours post delivery) Time of Delivery: _____ ANTI-D PRESCRIPTION Issue of Anti-D if baby is Rh Positive ANTI-D QUANTITY.....IU Signature of Requesting Dr..... Date _____ Bleep _____	
Person taking the Cord Blood sample Please affix PDA label here.		Person taking the Mother's sample Please affix PDA label here.	

6.4 Transfusion Out-Of-Hours

Routine Requests for **Group & Screen** are treated as follows:

- ABO and Rhesus D grouped.
- Antibody screen performed.

Blood is not crossmatched for patients in this instance. Additional examinations may be requested on stored samples, if sample age is appropriate.

For safety reasons and where possible, blood transfusions should only be given during normal working hours and non-urgent requests for blood or products should be limited to the laboratory routine working hours. Crossmatched blood will be held in the Blood Transfusion laboratory fridge for **72 hours, or shorter, depending on blood stock levels**. It will then be automatically returned to stock unless notification to 'hold' the blood is received from a Medical Officer. It is important for the efficient use of blood that the laboratory be informed of the cancellation of a blood order as early as possible. Under normal circumstances and where no problems are

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 35 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

encountered, a group and crossmatch may take up to 4 hours from receipt of the specimen.

6.5 Test Profiles and Turnaround times

Test/Product	Sample Required	<u>Maximum</u> Turn Around Time URGENT*	<u>Maximum</u> Turn Around Time ROUTINE
Group & Antibody Screen	6mL EDTA KE	Inpatient – 4 hours** Outpatient – 24 hours	
Neonatal Group	Cord Sample: 6mL EDTA KE Venous Sample: 2.5mL EDTA KE	30 minutes	4 hours
Direct Coombs Test	Performed on Group & Antibody Screen or Neonatal Group sample	30 minutes	4 hours
Red Cell Units	Performed on Group & Antibody Screen sample (sample valid for cross-match for 7 days if stored @ 4.C and patient has not been transfused or pregnant within preceding 3 months)	Uncrossmatched - 10 mins** Crossmatched – 1 hour** See section 6.7	4 hours**
Paedipack	Neonatal Group sample required if patient has not previously been grouped twice	3 Hours if new Paedipack required** 20 minutes for subsequent splits	

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 36 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Test/Product	Sample Required	Maximum Turn Around Time URGENT*	Maximum Turn Around Time ROUTINE
Platelets	Group & Antibody Screen or Group (if Neonate) sample is required if patient has not previously been grouped	10 minutes* if Group suitable (Emergency O Rh Positive/ A positive Platelets are stored on-site and can be made available within 10 minutes) <u>3 Hours if required from IBTS</u>	
Plasma (Octaplas)	Group & Antibody Screen or Group (if Neonate) sample is required if patient has not previously been grouped	40 minutes#	1 hour#
Fibrinogen	No sample required	20 minutes	
Anti-D Issue	Group & Antibody Screen sample is required unless a sample has been processed within the previous 7 days	1 hour#	4 hours
		<i>NB: Anti-D only issued during routine hours and on Sat & Sun mornings</i>	
Coagulation Factor Products	No sample required	20 minutes	2 hours
Antibody Identification	6mL EDTA KE	Depending on antibody status	Inpatient 4 hours (longer if sample has to be referred to IBTS) Outpatient 24 hours

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 37 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Test/Product	Sample Required	Maximum Turn Around Time URGENT*	Maximum Turn Around Time ROUTINE
Red Cell Phenotyping	Performed on Group & Antibody Screen or Neonatal Group sample	1 hour	4 hours
Antibody Titration	Performed on Group & Antibody Screen sample	5 – 7 days Referred to: IBTS, National Blood Centre	
Post Natal FMH Estimation	6mL EDTA KE 40mins - 2 hours after delivery	72 hours Processed Monday, Wednesday & Friday. Reported in afternoon	
Transfusion Reaction Investigation	6mL EDTA KE Contact Laboratory on 8370 for full list of requirements or refer to HVO documents	Depending on type of reaction	
HLA typing	Contact Laboratory on 8370	3 weeks Referred to: IBTS, National Blood Centre	
Platelet Antibodies			
Foetal Genotyping			
Anti-D Quantitation Anti-c Quantitation	6mL EDTA KE	5 – 7 days Referred to: IBTS, National Blood Centre	

*Urgent requests must be phoned to the laboratory

** Depending on antibody status: 5 – 7 days if Referred to IBTS, National Blood Centre.

#Turn Around Time may be up to 1 hour longer if patient has not previously been grouped or (for Anti-D issue) antibody screen has not been performed in previous 72 hours

Please note that grossly haemolysed samples are unsuitable for Transfusion testing

NB. The TAT quoted above are the target maximum TAT. However, please be aware that the

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 38 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

quoted TAT may not always be met if a large amount of multiple products are ordered simultaneously, particularly during the on-call period. Please contact the Blood Bank Laboratory on extension 8370 or through on-call switch to determine the estimated time of availability of blood products for a particular patient.

6.6 Critical Limits

The clinician or the ward will be contacted if there is a delay in the turnaround time of the test. If there is difficulty in crossmatching blood for a patient due to red cell antibodies, or if there is to be an unexpected delay in the supply of blood for whatever reason, the clinician will also be contacted. It is imperative that contact details are recorded on the request form.

6.7 Specimen and Request Form Labelling Requirements

The following sample labelling criteria are based on guidelines that were released by The British Committee for Standards in Haematology (BCSH) and are universally applied in most laboratories.

Please note: The use of Blood Track PDA's for labelling Blood Transfusion sample bottles is mandatory in PUH. The BloodTrack system PDA is used to generate labels which are used to label the sample and for placing on the bottom left hand side of the request form, in the 'person taking the patient's sample' section, where they serve as the collectors electronic signature.

In exceptional cases where it is not possible to use the Blood Track PDA device, patient details may **be hand-written on the sample.** legibly and preferably in block capitals using a black ballpoint pen and completed immediately after sampling while still at the patient's side. The following information should be recorded on the sample tube:

- Surname and forename - (in full)
- Patient's Identification number (PID)
- Ward
- Gender
- Date of birth
- Date and time the sample was drawn
- Signature of person drawing the sample (the signature confirms positive verification of the patient's identity)

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 39 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

6.7.1 Completing The Request Form And Sample Labelling

A current Blood Transfusion and Ante Natal Request Form should be completed. An addressograph label is acceptable on the request form. **If Essential information denoted by* is not provided the sample will not be processed.**

- Patient's ***identification Number** (PID)
- Patient's ***Full Name** (Surname, Forename)
- Patient's ***Date of Birth**
- Patient's ***Gender**
- Patient's ***Location** (Hospital Ward / Outpatient / Private Consulting room).
- **Electronic Signature* of the person who draws the sample** - a Blood Track **PDA label*** printed at the bedside at the time of venepuncture and placed on the left hand side of the form is deemed to be the **Signature** of the person who drew the sample (**See Figure 1 below**). **During an emergency situation a handwritten *signature of the person who draws the sample is acceptable on the left hand side of request form.**
- Date and time of sample collection is provided on the Blood Track PDA label. During an emergency situation a handwritten. Date and Time of sample collection are acceptable on the right hand side of the request form.
- Examination(s) required
- Relevant **clinical information** appropriate to the test(s) requested must be supplied e.g. antenatal history, blood transfusion history etc

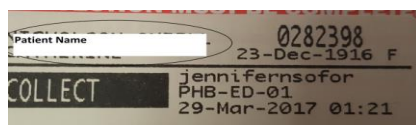


Figure 1

Telephone requests are accepted in emergency situations only, and must be followed up by a written request.

6.7.2 Labelling at Patient's bedside:

The pre-transfusion sample must be taken by a Registered Nurse/ Doctor/ Phlebotomist who has

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 40 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

received training in pre-transfusion sampling and venepuncture.

Minimum transfusion standards demand the patient must have an identity band in place at all times recording the patient's unique identifier, surname, forename and date of birth. In the event of removal of the identity band e.g. to access a blood vessel, it is the responsibility of the person who removes the identity band to ensure that a new identity band is applied.

Patient Preparation, venepuncture technique and consent shall be as outlined in the Portiuncula University Hospital Venepuncture policy, available on the hospital Q-Pulse. An educational Venepuncture module is available on www.hseland.ie and is also provided by the on- site education of staff in Venepuncture and Cannulation courses for Portiuncula University Hospital.

Prior to sampling, the patient must be positively identified by asking him/her to state their full name and date of birth and crosschecking this against the full name, date of birth and patient's Board Number on their identity band. Do not ask patient to confirm their details e.g. 'Are you Mr. X?' The patient's wristband details should be cross-checked against the Blood Transfusion Request form demographics. If the patient is confused or unconscious confirm details with staff treating the patient.

The blood sampling procedure should then be carried out according to the Hospital Venepuncture Policy.

6.7.3 Using Bloodtrack PDA Devices:

The BloodTrack® System is used in PUH to track blood and blood products from receipt in the Laboratory through issue to the clinical area and transfusion to the patient. It enhances patient safety, aids in efficient workflow (single nurse checking) and creates a centralised electronic transfusion record. Verification of transfusion is performed on the ward by either using the BloodTrack PDAs (where the information is automatically transferred to the LIS for blood and platelets) or by the manual completion of the Transfusion Verification Record section of the compatibility label which is then detached and returned to the Blood Transfusion Laboratory for completion of the fating process. The BloodTrack PDAs are the preferred mode of electronically managing the recording of transfusions in MUH

All transactions on the PDA should be performed by tapping on the appropriate option using the stylus attached to the PDA.

Tap **collect samples** on the main menu of the PDA.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 41 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Scan the barcode on your staff ID badge by pointing the scanner at the barcode and pressing one of the yellow buttons on the PDA. An audible beep will sound when the barcode is successfully scanned.

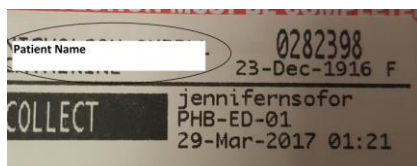
Scan the 2D barcode on the patient's wristband - the patient demographics will display on the PDA screen. Once confirmed, tap *next*.

The reminders list will then display. Once all reminders have been completed tick each one to select and tap *next*.

Print the sample collection label. The number of labels to print defaults to 2, however you may print up to 5 labels. Select the desired number of labels and tap *print*.

Place one label on the sample bottle aligning it with the current sample label (so not to obscure the window or expiry date). See Figure 1 (Copy) Below.

Figure 1 (Copy)



Place second label on left hand side of the request form as outlined on Pages 24/25 above – write contact number.

The labels will contain the patient demographics, the identity of the sampler and date/time of sampling – hence you will not be required to write on the sample bottle.

Sample collection labels are only valid at the time of venepuncture – if you generate extra labels discard them.

6.7.4 Add-On Requests

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 42 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

If on sending a specimen for testing and **further additional testing** is required, please contact the Blood Transfusion laboratory (ext. 8370) to investigate the feasibility of using the initial sample for analysis as age of sample may impact on the validity of test results. Ideally, a request form should accompany such a request but the lack of the request form should not impede the processing of an urgent request.

6.8 Requesting Blood and Blood Components

When blood components/products are required in an **EMERGENCY** please inform Blood Bank Laboratory (Ext 8370, go through Switch for on-call) and advise staff on the emergency situation and the degree of urgency. Please ensure you are familiar with the Acute massive Blood loss protocol

A correctly completed request form must follow telephone requests. Emergency blood is available for adults and neonates (Contact lab to ascertain availability) in Specimen Reception fridge in the laboratory for immediate use.

The blood bank must be informed immediately if the emergency flying squad units are taken.

A written signed request form (signed on the right hand side) must be received for all blood components/products. It is the requestor's responsibility to ensure that all appropriate information e.g. special transfusion requirements are detailed on the request form.

6.8.1 Second sample policy for Transfusion

To comply with the BCSH guidelines, the Blood Transfusion department will require 2 samples for ABO/D grouping prior to the issue of red cells or other components. The confirmatory sample **must** be taken as a separate venepuncture from the initial sample, ideally by a different sample taker. Therefore, if there is no historical blood group a 2nd sample will be required in order to provide group specific red cells. In this scenario, the Blood Transfusion department aims to issue a report to all clinicians with the following report:

"Please note that this is the 1st Blood Group sample received for this patient. Should she/he require the issue of red cells or other components please send an additional request form and

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 43 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

sample from a new phlebotomy episode > 30minutes after the 1st sample for confirmation testing.

EMERGENCY SITUATIONS contact Blood Bank, Ext 8370

6.8.2 Red Cell Concentrates (RCCs)

Blood is crossmatched for adults on receipt of a sample and written signed request form. A sample is valid for cross-match for 7 days if stored @ 4°C and patient has not been transfused or pregnant within preceding 3 months. Patient must have been grouped previously, otherwise another group and screen sample is required (at least 30 mins after first phlebotomy) to confirm the patients group. If additional blood is required a repeat sample is required if patient is > 72 hours post transfusion.

Two units of O Rh D Negative, C, E and Kell Negative, CMV negative red cells are available in the Issue Fridge in the laboratory Specimen Reception at all times. These units should only be used in an emergency scenario where the clinician cannot wait for the issue of group specific red cells (Uncrossmatched – approx. 10 mins/ Crossmatched – 1 hour).

The laboratory must be notified when the O Negative red cells are required.

Note: O Rh negative uncrossmatched blood may cause a transfusion reaction if the patient has existing antibodies.

Depending on availability, there may also be one O Rh D Negative red cell NeoNatal Unit (NNU) available in the Issue Fridge.

A Medical Doctor must make requests for uncrossmatched blood.

Crossmatches for patients with circulating **antibodies** to red cell antigens can take a considerable amount of time. The Blood Transfusion Laboratory will inform the appropriate medical staff if this situation should arise.

6.8.3 Paedipacks

Paedipacks (5 X 50mL splits) can be requested for babies on receipt of a written signed request form if baby is already grouped twice. Maternal samples for antibody screening will be requested if one has not already been received. The first split of the paedipack must be transfused on day of request. The remaining splits are stored in the blood bank laboratory and are immediately available on request until expiry date except where irradiated blood is required.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 44 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

6.8.4 Platelets:

Platelets can be requested for all patients who have already been grouped twice on the receipt of a written signed request form. Emergency O Rh/A Rh Positive Platelets are stored on-site and can be made available within 10 minutes from receipt of request. Please note, these platelets cannot be used for all patients (depending on group) and so platelets may have to be requested from IBTS. For first time request of > 1 pool of platelets, it is advised that clinicians seek haematology advice from GUH before proceeding. Please allow 3 Hours in this scenario.

6.8.5 Frozen Plasma:

When Frozen Plasma (SD Plasma i.e. Octaplas®) is required, the Laboratory should be notified at least 30 minutes in advance, as it must be thawed at 37°C for this time. The patient's blood group must also be known. The Blood Transfusion request form should be completed and sent to the Blood Transfusion Laboratory.

6.8.6 Anti-D immunoglobulin (Ig):

To comply with the BCSH guidelines, the Blood Transfusion department will require a current sample (sample < 7 days old) in order to issue Anti-D to Rh Negative women. Issue of Anti-D Ig can be requested on receipt of a signed request form. In addition, please ensure to request a kleihauer test (FMH) in the case of an antenatal patient who has suffered a sensitising event > 20weeks gestation. Refer to Section 6.9 and the guidelines for further information.

Postnatal: Anti-D IgG is issued routinely to all RhD-negative mothers who have RhD-positive babies.

Please note when Anti-D is issued for patients it will be returned to stock if it is not used within this time frame and a fresh Group & Screen sample will be required.

Anti-D only issued during routine hours and on Sat & Sun mornings

6.8.7 Blood Derivatives (Albumin, Elocta, Alprolix, Novoseven® , Prothrombin Complex (Praxbind), Riastap, , Wilate® ,)

Blood derivatives are issued on a named patient basis only. Patient details on the general Blood Transfusion form should include the Name, DOB, Board Number and Consultant. It must be signed by the requesting Medical Officer. It is preferable that a historical blood group is on file and if not, a fresh sample for group and screen is advised to accompany the request. Requests for Elocta,

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 45 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Alprolix®, Wilate® and Praxbind require Consultant Haematologist oversight.

6.8.8 Transport of Blood with a Patient to an External Location

If blood is required for transport with a patient contact the laboratory with details of the departure time. The laboratory staff will place the blood in the transport box and will ensure that all of the appropriate paperwork is available for the transport. This should be checked by the clinical staff member who is travelling with the patient prior to the box being closed.

If the blood is transfused on route to the external location the verification slip must be completed as if the transfusion occurs within PUH.

Any blood transported should be sent to the receiving location's Blood Transfusion laboratory as soon as possible after arrival. If this is not possible then the blood should be returned to PUH. Please notify blood bank laboratory when returning blood.

6.8.9 Haemovigilance Procedures and Guidelines

Prescription of Blood Components/Products

See Blood Component / Product Prescription & Transfusion Record **PHB-HV-FORM-052**, available in clinical areas and on Q-Pulse.

Maximum Blood Ordering Schedule

The hospital's Maximum Surgical Blood Order Schedule should be utilized when ordering Red Cells for elective surgical procedures.

See **LAB-QR-0147** Maximum Surgical Blood Order Schedule (MSBOS), available in clinical areas and on Q-Pulse.

Guideline for Anti-D administration to Rh-D Negative Women and Estimation of Fetomaternal Haemorrhage

See **PHB-HV-FORM-063** Portiuncula University Hospital Anti-D Prescription & Administration Checklist

LAB-EXT-TG-0123: Institute of Obs & Gyn RCPI: The Use Of Anti-D Immunoglobulin For The Prevention Of Rhd Haemolytic Disease Of The Newborn

LAB-EXT-TG-0124: BCSH guideline for the use of anti-D immunoglobulin for the prevention of

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 46 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

haemolytic disease of the fetus and newborn, both available in clinical areas and on Q-Pulse.

Management of Acute Massive Haemorrhage

See **PHB-HV-CP-050**: Management of Acute Massive Blood Loss, available in all clinical areas and on Q-Pulse.

Management of Acute Transfusion Reaction

See **PHB-HV-FORM-053** Record & Report Form for Suspected Transfusion Reaction/Event

See **PHB-HV-CP-006** Management of Suspected Serious Adverse Transfusion Reactions in the Clinical Area

6.9 Fetal Maternal Haemorrhage Investigations by Kleihauer-Betke Test (KBT)

FMH estimation should be carried out:

1. If an Rh (D) negative woman gives birth to a Rh (D) positive infant
2. Following a sensitising event if the pregnancy is > 20 weeks gestation. Sensitising events include:

- ☐ Termination of pregnancy
- ☐ Abdominal trauma
- ☐ Amniocentesis
- ☐ Antepartum haemorrhage
- ☐ Chorionic villous sampling
- ☐ Cordocentesis (fetal blood sampling)
- ☐ Delivery
- ☐ Ectopic pregnancy
- ☐ Fetal manipulation
- ☐ Intrauterine fetal death
- ☐ Miscarriage
- ☐ Stillbirth.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 47 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Refer to the Protocol for Therapeutic Use of Anti-D Immunoglobulin (Ig) to prevent Rhesus (D) immunisation of Rhesus (D) Negative women who experience Sensitising Events, HV/CP/017.

6.10 Management Of Transfusion Reactions

Refer to the Haemovigilance Document **PHB-HV-CP-006**: Management Of Serious Adverse Transfusion Reactions in the clinical area for the list of criteria defining a suspected transfusion reaction. Contact the medical scientist in blood transfusion as soon as any reaction is suspected.

Send the blood pack, giving set and all appropriate samples (incl. biochemistry & microbiology samples) and request forms to the Blood Transfusion laboratory. Suspected transfusion reactions cannot be investigated if all the required samples are not received.

Ensure the following are sent from the clinical area:

- A fully completed PHB-HV-FORM-053 form
- Post-transfusion EDTA sample of recipient's blood.
- Residue of the donor blood together with the blood transfusion giving set.
- Any urine passed before, during or after transfusion.
- Other blood samples may also be sent e.g. FBC, U&E, IgG
- Blood cultures.

Please advise the Blood Transfusion laboratory as to the type of reaction which is suspected. If any of the following reactions are suspected the Blood Transfusion Laboratory needs to inform the IBTS immediately:

- Immunological Haemolysis
- Bacterial Reaction
- Transfusion Associated Acute Lung Injury

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 48 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

7.0 Haematology Department

7.1 Profile

The department provides Clinical haematology tests, and a comprehensive analytical and interpretative service including assessment of anaemia, haemostasis and coagulation, infection and inflammation, preliminary leukaemia analysis, HbA1c and blood borne parasitology investigation. The Haematology Department supports the RAID clinic in conjunction with the Nursing department in providing warfarin therapy.

The Haematology Department provides a routine service to the hospital and to general practitioners. In addition a referral service for more specialised tests is provided.

7.2 Clinical Advice and Service

A consultant haematologist is on site in PUH on Wednesdays where s/he can be contactable via the haematology laboratory. Outside of this time or where it is deemed to be urgent in nature, clinical advisory service is provided by the Haematologist on call service through GUH switchboard.

Out of hours, the first point of contact will be between the Registrar in PUH and the Registrar on-call in GUH (contacted through the switchboard in GUH). Where direct consultant input is required, this may be requested directly by the consultant in PUH via GUH switchboard. Consultant Advisory service will be requested by the requesting consultant.

Urgent abnormal Paediatric Blood Films are referred to the Haematology service at Our Lady's Hospital for Sick Children (OLHSC).

Urgent abnormal Adult Blood Films are referred to the Haematology service at Galway University Hospital (GUH) Hospital.

Urgent blood films may be referred by PUH laboratory direct to the Haematology Registrar on-call and/or Consultant in GUH or OLHSC after case discussion with a registrar or consultant. For first presentation of these urgent cases, an FBC report should accompany the blood film. A sample for Flow Cytometry (EDTA –FBC) may also be required. PUH will provide relevant clinical details and ensure prompt delivery to GUH/OLHSC in cases of:



- Suspected new leukaemia
- Severe thrombocytopenia; Platelets <20 x 10⁹/L (non haem/oncology or likely chemo effects)

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 49 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

- Haemolytic episode (e.g presence of red cell fragments, spherocytes, and polychromasia when suspecting TTP/HUS/HELLP.
- Any film a Medical Scientist feels warrants urgent review by a Haematologist.

7.3 Haematology Request Forms

All Haematology test requests should be completed on a LAB-QR-FORM-043

 HAEMATOLOGY REQUEST FORM 	PORTIUNCULA UNIVERSITY HOSPITAL BALLINASLOE 090-9648259 LAB-QR-FORM 043 Version 3.0		HAEMATOLOGY REQUEST FORM		Lab No.	
	Complete All Details Or Affix Addressograph Label					
	MRN	SEX	M <input type="checkbox"/>	F <input type="checkbox"/>	<input type="checkbox"/> FBC <input type="checkbox"/> ESR <input type="checkbox"/> HbA1c <u>OTHER TESTS (PLEASE STATE):</u>	
	SURNAME					
	FORENAME	D.O.B.				
	ADDRESS					
	WARD/SOURCE	CONSULTANT				
	All Thrombophilia Screens must include clinical and anticoagulant details. CLINICAL DETAILS:					
	ANTICOAGULANT DETAILS: WARFARIN <input type="checkbox"/> HEPARIN <input type="checkbox"/> DOACs <input type="checkbox"/> Other please specify.....					
	COAGULATION: SODIUM CITRATE (Blue Top) Samples MUST be filled to mark to avoid rejection <input type="checkbox"/> PT / INR <input type="checkbox"/> APTT <input type="checkbox"/> FIBRINOGEN <input type="checkbox"/> D-DIMER <u>OTHER TESTS (PLEASE STATE):</u>					
SPECIMEN COLLECTED BY:..... DATE: TIME TAKEN:						
Please see overleaf for further details on sample type DATE & TIME RECEIVED:						

7.4 Test Profiles

The following list of tests is performed routinely within the laboratory:

- Full Blood count
- Erythrocyte Sedimentation Rate (ESR)
- Reticulocyte count (Retic)
- Blood Film

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 50 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

- Malaria Screen
- Sickie Cell Screen
- Haemoglobin A1c (HbA1c)
- Prothrombin Time (PT) / INR
- APTT
- Fibrinogen
- D-dimers

7.5 Haematology Out-Of-Hours

The following is a list of tests performed on-call:

- Full Blood count
- Reticulocyte count (Retic)
- Malaria Screen
- Sickie Cell Screen
- Prothrombin Time (PT) / INR
- APTT
- Fibrinogen
- D-dimers

If any of the other tests not listed are required to be performed on-call, the laboratory must first be contacted and the requirements discussed.

Some tests may be performed only after prior arrangement with the laboratory. Where doubt exists the laboratory should be consulted.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 51 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

7.6 Turnaround Times

Test	Turnaround Times (Routine)*	Turnaround Times (Urgent/Out-of-Hours)
FBC/Diff	4 hours	1.5 hour
Reticulocyte count	4 hours	N/A
ESR	18 hours	N/A
Blood Film	3 days	N/A
Sickle cell screen	4 hours	N/A
Malaria screen	4 hours	4 hours
Coagulation Screen (incl. Fibrinogen)	4 hours	1.5 hour
D-dimers	4 hours	1.5 hour
HbA1c	2-4 working days	N/A

*Refers to in-house patients. Test Requests from External locations are processed as soon as practicable and generally within 24 hours of receipt during Routine Hours

Laboratory requests from the following hospital wards/departments are given priority processing:

ICU/CCU	Emergency Department	Oncology
Paediatrics	SCBU	AMAU

Urgent requests from departments other than stated above must be notified directly to the laboratory by phone if required to be processed as a priority.

Urgent films (Clinical Details of suspected Leukaemia/ Haemolytic Anaemia/ ITP/ TTP) will be viewed as soon as possible after discussion with the requesting Medical Officer.

For external users, please provide a contact number for phoning urgent results, especially if required after normal surgery hours.

7.7 Reference Ranges

The Haematology references ranges are age and sex related, as appropriate and will appear as part of the hardcopy or electronically available report.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 52 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

7.8 Critical Alert values

Results falling outside defined critical limits will be telephoned to the requesting source.

Parameter	Result	Comments
Haemoglobin	< 8 g/dL	First time presentation
	>18 g/dL	First time presentation
	<12 g/dL	For neonate (0-4weeks)on first presentation
Platelets	<100 x10 ⁹ /L	First time presentation, with film check
	>800 x10 ⁹ /L	First time presentation
WBC	<2.0 x10 ⁹ /L	First time presentation
	>30.0 x10 ⁹ /L	First time presentation
	>20.0 x10 ⁹ /L	GP only, unless history known
Neutrophils	<1.0 x10 ⁹ /L	First time presentation
Sickle Screen	Positive	When patient is going to or has a likelihood of going theatre
Malaria	Positive	Provide parasitaemia if P. falciparum is detected
Blood Films	Blast cells	First time presentation
	Suspected TTP/HUS/HELLP	The presence of schistocytes >1.0%
Coagulation		
INR	> 5.0	All
PT	>20seconds	No anticoagulant therapy
APTT	>50seconds	No anticoagulant therapy
Fibrinogen	<1.5g/L	All
D-dimer	D-dimer >500µg/L	Thrombotic event
Rejected Samples		GP INR requests and urgent specimens

Unsuitable samples, unexpected results or suspicion of sample mislabelling are all brought to the attention of the ward or medical team

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 53 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

7.9 Add-on Tests

If additional tests are required on samples sent to the laboratory, please contact the laboratory to ensure that the sample is still valid for analysis to prevent delay in the sample processing. It is important to send a new request form with the patient's details for all add-on requests.

7.10 Specimen Retention Policy

Routine full blood count and coagulation samples will be stored for one week at room temperature. If additional tests are required on samples sent to the laboratory, please contact the laboratory to ensure that the sample is still valid for analysis to prevent delay in the sample processing.

7.11 Test Stability and limitations Associated with Test Methodology

Test Method	Associated Limitations
FBC/Diff	<ul style="list-style-type: none"> Clotted samples will not be analysed. After 24 hours, WBC differential and red cell indices are affected by EDTA changes, therefore a differential will not be provided on samples greater than 24 hours old. Sample greater than 72 hours old will only have the Hb reported. Ensure samples are not taken from a drip site as this result in dilution of the sample. In cases of platelet clumping special sample bottles (thrombo exact) are available upon request. For use in platelet counting only. Lipaemic samples will result in falsely reduced Hb levels
Reticulocyte Count	<ul style="list-style-type: none"> FBC sample valid for 24hours only
ESR	<ul style="list-style-type: none"> Clotted samples will not be analysed. The ESR should be performed within 4 hours of phlebotomy or within 24 hrs if kept at 4°C, provided it is prewarmed to room temperature before testing Leaving the sample at room temperature for more

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 54 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

	<p>than 4 hours may cause the red cells to become spherical and inhibit rouleaux formation resulting in false low ESR.</p> <ul style="list-style-type: none"> Sickle Cell anaemia, Hb CC and spherocytosis cause a falsely reduced ESR result. The presence of anaemia invalidates the ESR as a tool for monitoring disease process since anaemia itself increases the ESR.
Sickle cell screen	<ul style="list-style-type: none"> Erythrocytosis, hyperglobulinemia, extreme leukocytosis or hyperlipidemia could result in false positives results. False positives or false negatives may occur in patients with severe anaemia False negatives may occur in infants under six months of age due to elevated levels of Haemoglobin F. Patients with a recent blood transfusion will not be tested as the transfused blood will interfere with the test methodology. Positive results may occur in patients with some rare sickling haemoglobin subtypes such as Haemoglobin C Harlem or Haemoglobin C Georgetown. Confirmatory method is required for all positive results
Malaria screen	<ul style="list-style-type: none"> Blood films should be made within 2 hours because morphological alteration of parasites occurs with storage in EDTA Rapid diagnostic tests (RDTs) for malarial antigen cannot replace microscopy but are indicated as a supplementary test when malaria diagnosis is performed by relatively inexperienced staff. Malaria RDTs are negative in babesiosis
Coagulation Tests (PT/INR, APTT, Fibrinogen and D-dimers)	<ul style="list-style-type: none"> Clotted samples will not be analysed. Sample volume is critical, and underfilled samples will not be processed. PT/INR samples are valid for 18 hours post sample collection, do not refrigerate the sample. APTT samples must be tested within 4 hours of

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 55 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

	<p>sample collection, do not refrigerate the sample.</p> <ul style="list-style-type: none"> Fibrinogen samples must be tested with 8 hours of sample collection, do not refrigerate the sample. Trisodium citrate samples received from patients who have a haematocrit greater than 55% may demonstrate spuriously prolonged PT and APTT results Patients on unfractionated heparin must have the sample tested within 1.5hrs after sample taking. Failure to adhere to this limitation will result in falsely reduced APTT values. Heparin contamination will result in prolonged APTT and fibrinogen results. D-dimer samples must be tested within 8 hours from the time of sample collection. Presence of Rheumatoid arthritis factor may result in falsely elevated D-dimer results.
HbA1c	<ul style="list-style-type: none"> Sample is stable for 3 days @ RT and 7 days at 4°C The presence of a haemoglobin variant can render the use of HbA_{1c} unreliable and misleading. HbA_{1c} may be increased or decreased, due to interference caused by the haemoglobin variant in the analytical procedure. Clinical & analytical interferences can affect the HbA_{1c} values Reduced red cell survival will affect the HbA_{1c} value

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 56 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

8.0 Histopathology Department

8.1 Profile

The aim of the Department is to provide a high quality diagnostic service to meet National and EU objectives of reducing the incidence of cancer through early detection and appropriate service delivery, and also to provide a high quality non-cancer related diagnostic service.

Histopathology provides a diagnostic and consultative service to clinicians and indirectly to their patients. The Department receives processes and reports on tissue specimens that result from Surgical, Medical, Obstetrics and Gynaecology and General Practice. This list is not complete. The service works closely with clinical and radiological services to provide best practice patient care for diagnosis of disease and patient management.

The Department provides Routine Histology, Immunohistochemistry and Non-Gynaecological Cytology services. This service is provided by a Consultant Pathologist, Medical Scientists and Clerical personnel. The department aims to provide a comprehensive, effective and high quality service and to support the on-going education and training of scientific staff.

8.2 Clinical Advice and Service

The Histopathology department has two Consultant Pathologists on site. Advice relating to histopathology sections, autopsies or results may be sought by contacting Ext 8217 or Ext 5189 during routine hours.

Unexpected results are communicated to the requesting Consultant by the Consultant Histopathologist.

8.3 Histopathology/Cytology Request Form

All Histopathology and Cytology requests should be completed on a LAB-QR-FORM-044

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 57 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

PORTIUNCULA HOSPITAL BALLINASLOE LAB-QR-FORM 044		090-9648259	HISTOLOGY	Lab No.
SURNAME:		HOSPITAL NUMBER:		NATURE/SITE OF SPECIMENS
FORENAME:		DATE OF BIRTH:		
ADDRESS:				
SEX:	WARD / GP:	DOCTOR:		
CLASS:- (Tick Box)		ELIGIBLE <input type="checkbox"/>	PRIVATE NON-ELIGIBLE <input type="checkbox"/>	
CLINICAL DETAILS:				
SIGNATURE:				
BLOCK CAPITALS:				
DATE:		TIME TAKEN:		BLEEP:
VER 2.0				

8.4.1 Routine Histopathological Examinations

Specimens: Specimens should be submitted intact and should not be dissected in the theatre as this may prevent proper gross examination in the laboratory and may interfere with the selection of appropriate tissue sections for microscopy.

Containers: Pre-filled 60ml and 250ml containers containing neutral buffered formalin are available from stores for use in theatre, endoscopy, A&E and OPD. Specimen containers for larger specimens ranging from 500ml to 5 litres are available from the Histology Department between 9am and 5pm Monday to Friday. Buffered formalin for use in theatre is available from the Histopathology Laboratory Ext 8368.

Ensure that the container selected is large enough to allow the specimen to be immersed in at least twice its own volume of buffered formalin. The container (not the lid) must be clearly labelled with the patient's full name, date of birth, hospital number specimen and anatomical site. This is particularly important in Histology where specimens may be multipart or left or right etc. All specimens received must be accompanied with a legible request form containing patient's full name, hospital number, specimen type, anatomical location, clinical details and the requesting clinician's signature and bleep number. Failure to submit essential information will result in the non-acceptance of the specimen and will cause unnecessary delays in issuing reports.

8.4.2 Cytology Samples

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 58 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Fluid specimens for cytology e.g. BALs, urines, ascitic fluid, ovarian cyst fluid etc. should be placed in an appropriately sized specimen container and delivered directly to the Histology laboratory as soon as possible, where scientific staff will add an appropriate volume of fixative. In the absence of a Medical Scientist in the Histology laboratory, cytology samples should be placed on the top shelf of the Histology laboratory fridge to preserve the sample. Brushings e.g. bronchial, biliary and gastric should be immersed in CytoLyt fixative (available from stores) for optimal preservation, ensuring that the brush containing the material is fully immersed in the fixative to prevent artefact which could hinder interpretation.

8.4.3 Cytogenetics

Cytogenetics: Products of conception where the criteria have been met for cytogenetic testing must be sent to the Histology laboratory as follows:

- A piece of placenta/POC no greater than 2cm x 1cm x 1cm should be submitted to the Laboratory in specialised Biopsy Transport medium/HAMS fluid (available from top shelf Histology fridge). The inner and outer containers should both be labelled with patient sample labels or addressographs.
- Histology request card must be fully completed along with a labelled and completed Eurofins Biomnis consent form signed by both patient and clinician.

If applicable a separate request card and sample in formalin container can also be submitted for routine Histology

8.5 Autopsy

The Autopsy Service involves the examination of the body after death primarily to establish the cause of death. It may be used in rare cases to examine the extent of disease, disease progression or the response to treatment. All bodies of persons dying in Portiuncula Hospital, Ballinasloe are initially transferred to the mortuary, even if no autopsy is indicated. Funeral arrangements should not be finalised and the bodies cannot be released from the mortuary until the mortuary staff are sure that an autopsy will or will not be required. Please contact the mortuary (ext 8390) as soon as possible after all deaths to clarify whether an autopsy will be requested.

1) Coroner's autopsies include the following:

When a patient dies or is brought in dead, the Coroner must be contacted if:

- Death occurred suddenly or unexpectedly

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 59 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

- Death occurred from an unnatural cause (e.g. accident, burns, drug overdose), irrespective of the duration between injury and death.
- Death occurred from an unknown or uncertain cause
- Death occurred during or soon after a procedure or operation
- Death occurred within 24 hours of admission
- The body will be removed from the State
- There is any question of negligence
- The patient dies during transfer from one institute to another.
- A doctor has not seen the deceased during his last illness or for one month prior to death
- Confirmed, suspected or possible Covid-19 related deaths

If a Coroner's case is suspected, do not ask the next of kin for consent for an autopsy until after you have clarified the situation with the Coroner.

IF IN DOUBT CONTACT THE CORONER.

If the Coroner takes jurisdiction of the case, consent is not required from the next of kin. In addition to contacting the Coroner, the Consultant Pathologist must be notified and provided with any available details on the case. The body must be officially identified with a member of the Garda and next of kin/doctor who knew the deceased.

2) Inpatient Post Mortem Checklist: (Coroner's Case)

The Consultant or Registrar speaks to the relatives of the deceased and informs them about the necessity for a post-mortem examination and why the Coroner needs to be involved. The Consultant or Registrar discusses the autopsy with the next of kin explaining in detail what the examination entails. A copy of the information leaflet re: post-mortem examination and the hospital bereavement booklet are given to the family.

The Coroner is then contacted by the Consultant or Registrar giving him/her details about the death. The Consultant Pathologist is contacted and given details of the death and to perform the post mortem with the consent of the Coroner.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 60 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

The case notes, together with the clinical summary of the case, are sent to the Pathologist prior to the post mortem examination. The Checklist for deceased patients with or suspected of infection with Covid-19 is completed if applicable, and placed in the pouch of the body bag and a copy is inserted in the patient's chart. The Garda are contacted and asked to come to the mortuary for the formal identification with the person who knew the deceased. The Pastoral Care Team is informed. The deceased is prepared in accordance with the hospital policy for transfer to the mortuary. The family/next of kin can contact the mortuary department directly (ext. 8309) to find out the expected time of release of the body so that they may make necessary funeral arrangements.

3) Coroner's Post-Mortems brought in from the Community:

The Garda is to inform the Mortuary Department prior to bringing in bodies for a Coroner's post-mortem. The Garda is to accompany the body to the mortuary. Details to be filled into the mortuary register, post-mortem register and organ retention register. The deceased clothing, jewellery or valuables are recorded in the patient's property book in the presence of the Garda. The Pathologist is contacted for formal identification with the Garda. If late at night the Garda is requested to attend the mortuary the following morning for identification. (Time arranged to suit both Garda & Pathologist) The deceased is prepared in accordance with hospital policy for post-mortem examination. If organs need to be retained for further examination the Coroner is informed and the Bereavement Officer so as to inform the next of kin.

4) House Autopsies:

The autopsy request and consent form should be completed, after consent to a post-mortem examination has been granted by the next of kin. A brief clinical history with a clinical diagnosis and a list of questions to be answered should be included. The deaths should always be discussed with the Consultant Pathologist ahead of time. The patient's chart must accompany the body to the Mortuary.

5) Foetus Post-mortem:

Post - 16 week Foetus.

The protocol is as for a mature baby i.e. fully informed written consent of the parents for post-mortem examination is required.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 61 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Pre - 16 week Foetus.

Where a pre-viable foetus remains, however small, and is recognised following delivery, a special protocol must be followed. For full details of protocol contact the Pastoral Care Team Ext 8275

If post-mortem is not required, a visual examination by a Consultant Pathologist can be organised by prior arrangement with the Histopathology laboratory ext. 8368. Any queries relating to bereavement loss protocols can be directed to the Bereavement Midwife, ext 5147, bleep 174.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 62 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

9.0 Medical Microbiology Department

9.1 Profile

The department provides a comprehensive range of bacteriological and serological/virology tests services to Portiuncula Hospital, and to primary care services within our catchment area.

9.2 Clinical Advice and Service

A consultant Microbiologist is on site in PUH on Tuesdays where they can be contacted via the the main reception switchboard. Outside of this time or where it is deemed to be urgent in nature, clinical advisory service is provided by the Microbiologist on call service through Portiuncula switchboard.

9.3 Microbiology Request Form

All Microbiology test requests should be completed on a LAB-QR-FORM-041

PORTIUNCULA UNIVERSITY HOSPITAL BALLINASLOE 090-9648259 LAB-QR-FORM 041		MICROBIOLOGY		Lab No.
SURNAME:		HOSPITAL NUMBER:		SPECIMEN TYPE (please tick) URINE:- <input type="checkbox"/> MSU <input type="checkbox"/> CSU <input type="checkbox"/> BAG <input type="checkbox"/> CLEAN CATCH <input type="checkbox"/> SPA BLOOD:- <input type="checkbox"/> BLOOD CULTURE <input type="checkbox"/> WHOLE BLOOD (SEROLOGY) <input type="checkbox"/> SPUTUM <input type="checkbox"/> FAECES <input type="checkbox"/> SWAB/PUS:- (STATE SITE)..... <input type="checkbox"/> FLUID:- (STATE SITE)..... <input type="checkbox"/> OTHER:- (STATE SITE).....
FORENAME:		DATE OF BIRTH:		
ADDRESS:				
SEX:	WARD / GP:	DOCTOR:		
CLASS:- (Tick Box)		ELIGIBLE <input type="checkbox"/>	PRIVATE NON-ELIGIBLE <input type="checkbox"/>	GENERAL BACTERIOLOGY: TEST REQUIRED (please tick) C/S <input type="checkbox"/> <input type="checkbox"/> Other (state):
CLINICAL DETAILS:				SEROLOGY: TESTS REQUESTED
ANTIBIOTIC DETAILS:				
SIGNATURE:.....				
BLOCK CAPITALS:..... BLEEP:.....				
DATE:		TIME TAKEN:		VER 2.1

9.4 Test Profiles

The following is a list of **samples** that are tested routinely within the laboratory:

- Blood Cultures

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 63 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

- CSF
- Faeces
- Fluids
- Sputum / Respiratory samples
- Swabs for bacterial examination (c/s)
- Nasopharyngeal swabs for viral examination (Influenza, RSV and SARS-CoV-2 etc)
- Tissues

9.5 Microbiology Out-Of-Hours

- Blood cultures: received in the laboratory out of hours are processed by on-call personnel. Positive cultures may be referred to GUH for subculture and gram stain examination if time appropriate.
- Cerebrospinal fluids: (CSFs) specimens are processed out of hours but the on-call staff must be contacted as soon as the request has been forwarded to the laboratory.
- Covid-19 Swabs: On Saturdays, Sundays and Bank Holidays, a run of all in-house urgent swabs is performed at 10.00 a.m. and again at 19.00 p.m.
- Urine microscopy & culture: is available on a restricted basis and the laboratory on-call personnel must be contacted if testing is required.

9.6 Guidelines for Requesting Microbiology Tests

The Department of Medical Microbiology should also be contacted before any exceptionally urgent or specialised investigation is requested.

In all cases where a test result is considered urgent the medical practitioner making the request or other responsible medical practitioner should contact the laboratory in advance of specimen submission if possible or after a reasonable interval to ensure that the specimen has been received and that he/she receives the result.

9.6.1 Specimen Retention

Additional examinations may be requested during specimen storage time by telephoning the Department. Rejected specimens are also retained as per the following retention times.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 64 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Specimen	Retention Time
Blood Cultures	1 week @ 33 – 38°C
CSF's	>3 months @ -30°C
Faeces	1 week @ 2 – 8°C
Fluids	4 weeks @ 2 – 8°C
Respiratory specimens for culture	1 week @ 2 – 8°C
SARS-CoV-2 specimens	1 week @ 2 – 8°C
Swabs	1 week @ 2 – 8°C
Tissue	4 week @ 2 – 8°C
Urines	1 week @ 2 – 8°C
Normally Sterile site	>1 month @ -20 °C

9.6.2 Unsuitable Specimens and Additional Examinations

In the event of a specimen being unsuitable for processing or where there is an analytical failure, the clinician will be informed by phone or in writing or electronically through the LIS. If additional laboratory testing is required by the clinician on a sample previously received, please contact the laboratory to investigate the feasibility of using the initial specimen for analysis.

9.6.3 General Collection and Transport Guidelines

Where possible, collect specimen prior to the administration of antimicrobial therapy.

Collect specimen with as little contamination from indigenous microbial flora as possible to ensure that the specimen will be representative of the infective site.

Collect specimen using sterile equipment and aseptic technique to prevent introduction of foreign microorganisms.

Collect an adequate amount of specimen. Inadequate amounts may yield false-negative results.

Most specimens collected with a swab and transported dry are unacceptable.

Identify the specimen source and / or specific site correctly so that proper culture media will be selected during processing in the laboratory. Special requests such as *Diphtheria*, *Actinomyces*, *Nocardia* etc should be noted on the request form.

If members of the public are asked to collect their own or another person's sample and to take sample to the laboratory instructions should be given regarding how and when to collect the sample and deliver the samples to the laboratory in timely manner. In particular they should be reminded to put the correct collection dates on both the specimen and the request form.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 65 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Specimens should be transported as soon as possible. If processing is delayed, refrigeration is preferable to storage at ambient temperature, with the following exceptions:

Bloods Cultures - hold at room temperature to await transport by chute/porter

CSF - deliver immediately by hand to a Medical Scientist in the department


Specimens, which are difficult to replace (e.g. spinal fluid) should be given directly to one of the medical or scientific staff of the Department to minimise risk of delay or loss.

Do not submit CSF, or respiratory specimens to the laboratory via the "chute" transport system.

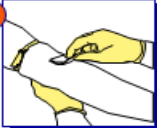
Where there is a suspicion of Brucellosis or other Hazard Group 3 pathogen, it is essential that this be indicated clearly on the request form.

9.6.4 Blood Cultures


BD BACTEC Blood Culture System QUICK REFERENCE GUIDE

1 

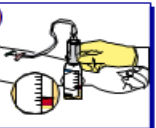
For each test use **at least one culture set**. The BACTEC blood culture set normally* consists of **two culture bottles** - one for aerobes and one for anaerobes.

2 


1. Locate vein
2. Disinfect skin properly
3. Allow disinfectant to work for 60 seconds!

3 


1. Remove bottle caps
2. Disinfect rubber stoppers

4 

Collect blood.
If collecting blood from indwelling catheters, where possible, collect blood from peripheral vein also.

5 

Inoculate each blood culture bottle with 3-10 ml blood (optimum 8-10 ml). **Start with aerobic bottle** to avoid an exchange of air from the syringe into the anaerobic bottle. Proceed with the anaerobic bottle. Label bottles with patient details.

6 

For optimal performance the bottles should be placed into the BACTEC instrument ASAP. If delay is expected hold at room temperature.

LAB

Important Do not write or stick labels over the BACTEC bottle bar code or the base of the bottle as the labels are for lab use only and the base contains a sensor to detect growth!

*For advice on the use of special media for Mycobacteria/Fungi please contact Microbiology

Only take Blood Cultures when there is a clinical need to do so.

Always make a fresh stab

Do not collect blood from existing lines/cannulae or take blood from above a peripheral IV line.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 66 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

If a central line is in-situ, cultures may be collected from this and also from a separate peripheral site.

Avoid femoral vein puncture where possible in view of difficulty in cleaning/disinfecting the skin adequately at this site.

Thoroughly disinfect the skin before inserting the needle

Identify a suitable venepuncture site before skin disinfection.

Thoroughly clean the patient's skin before venepuncture.

Use soap and water to clean the visibly soiled skin and then clean your own hands.

Use 2% chlorhexidine in 70% isopropyl alcohol impregnated swab to disinfect the patient's skin and allow to dry.

Once disinfected, don't touch the skin again

To avoid contamination from the collector's fingers (even if gloved), do not palpate the site after it has been disinfected.

Disinfect the culture bottle cap before transferring the sample

Remove the plastic cover just before collection the sample – the top will be clean but not sterile. Disinfect the tops of the culture bottles with a 2% chlorhexidine in 70% isopropyl alcohol impregnated swab. Allow the alcohol to fully evaporate before inoculating the bottle.

If collection blood for other tests, always inoculate the blood culture first.

NB. The use of blood collection adapter caps without winged blood collection sets is not recommended. It is not possible to accurately judge sample volume and there is potential for possible backflow of blood culture medium into the patient's vein.

Ensure adequate volume of blood

Generally the higher the volume of blood cultured the higher the yield of blood cultures.

Kit Preparation

Label bottles with appropriate patient information. Ensure the barcodes on the bottles are not covered by additional labels, and that any tear-off barcode labels are not removed.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 67 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

9.6.5 CSF Specimens

Collect the CSF into three 25ml sterile universal containers labelled 1, 2 and 3. A 4th separate sample in a darkened sterile container i.e. covered with tin foil (minimum volume of 1ml) is required for xanthochromia testing. Notify the Haematology Department that a CSF is on the way.

PCR for meningococcal investigation can be processed on CSF samples or an EDTA sample, send to Microbiology laboratory for referral with referral form to the Irish Meningitis & Sepsis Reference Laboratory (IMSRL).

Normal Leucocyte CSF values

Neonates (less 28 days)	0 - 30 cells x 10 ⁶ /L
Infants (1-12 months)	0 - 15 cells x 10 ⁶ /L
Children / Adults (1 year +)	0 - 5 cells x 10 ⁶ /L

These values represent the upper and lower limits of normality. Bacterial or viral infection may still need to be considered where leucocyte counts are near the upper normal limits in neonates and young children.

9.6.6 Enteric Samples (Faeces)

All samples must be submitted to the laboratory in a clean sterile laboratory-approved specimen container with an appropriately completed laboratory request form. The optimal time of collection of specimens should be as soon as possible after onset of illness. Molecular assays for enteric pathogens are intended for use with liquid/loose stool samples submitted from symptomatic patients. Formed stool samples are not suitable for testing and are rejected.

In-patient (excluding ED, Paeds, and Maternity, patients <3 days in hospital but including nursing homes and district hospitals) stools are examined for *C. difficile* toxin DNA only. *C. difficile* assay testing is also performed on request from out-patient clinicians and **on all liquid stool samples received from the community**. Children < 2 years are **not** processed for *Clostridium difficile*.

If specific testing for additional pathogens is required please telephone the Department of Medical Microbiology as soon as possible indicating the specific additional testing you wish to request. All other faeces specimens are examined for *Salmonella*, *Shigella*,

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 68 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Campylobacter, Verotoxin / Shiga toxin producing *E. coli*, *Cryptosporidium Spp.* and *Giardia* DNA. Culture of *Yersinia spp.* and *Vibrio spp.* are performed on Consultant Microbiologist request only when relevant clinical details are provided.

Screening in relation to test of clearance or contacts of outbreaks for VTEC, *Salmonella*, *Shigella* and *Campylobacter* is done using routine culture methods rather than molecular methods. *Rotavirus* and *Adenovirus* are tested for in specimens from children aged less than 5 years of age. Samples for culture are referred to Microbiology Laboratory GUH to be processed.

If a patient has a sample processed for *C. difficile* toxin B gene or VTEC, *Campylobacter*, *Salmonella*, *Shigella*, *Cryptosporidium* or *Giardia* in the previous six days this sample is rejected.

Ova & Parasite testing other than *Giardia* and *Cryptosporidium*: **This test is restricted to patients with relevant clinical details.** Sample is referred out to School Of Tropical Medicine, Liverpool.

H. pylori antigen testing is available for patients, Stool samples should be submitted within 24 hours of collection for best results.

9.6.7 Fluids for Culture and Sensitivity

Please state sample type on request form, collect fluid into sterile plain (white cap) universal.

Send separate samples and request forms for C&S, TB and Cytology.

Send fluid in EDTA (FBC) bottle for Cell count on Haematology form to Haematology Laboratory.

9.6.8 Sputum and TB Specimens

Sputa specimens that are older than 48 hours are unsuitable for routine culture and may be rejected. The Department of Medical Microbiology does not routinely accept more than three sputum specimens for *Mycobacterium* culture in a single episode of illness (taken on 3 consecutive days). Please contact the laboratory if additional specimens are required in a specific case. Early morning urines are not validated to be processed by *Mycobacterium* culture and may only be processed in consultation with a Consultant Microbiologist. Requests for TB are referred to Medical Microbiology Laboratory in GUH for processing.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 69 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

9.6.9 Swabs for Culture and Sensitivity

Use a transport swab containing suitable transport media for the investigation requested.
Dry swabs are unsuitable.

9.6.10 Swabs for Viral Investigation

SARS CoV-2, Influenza A/B and RSV are processed on site at 8am, 2pm and 7pm on weekdays, 10am & 7pm on weekends and Bank holiday (Note exact times are subject to change). Swab of nasopharyngeal in 3ml COPAN UTM [swabs available from Microbiology Dept.]. If delay of >8hours in reaching Microbiology lab then must refrigerate @ 2-8°C.

All other Viral requests are referred to National Virus Reference Laboratory, please refer to Test directory for correct sample type for specific viral test to be processed. Contact the Microbiology department for more information if required.

"Viral screen" is unsuitable test request for processing and will be rejected.

9.6.11 Tissues

Please state sample type on request form, collect tissue into sterile plain (white cap) universal (without addition of any fluid).

Send separate samples and request forms for C&S, TB and Cytology

9.6.12 Urine Samples

Urine microscopy and culture are performed routinely on all urine samples.

Urine specimens that are received in plain universal containers that are older than 48 hours or urine specimens that are received in boric acid containers and are more than 96 hours old are unsuitable for culture and will be rejected.

Urine requests on underfilled Boric acid containers will be rejected.

9.6.13 Dermatophyte Culture – Collection and Transport

Only use Dermatological transportation packs, 'Dermapak' available from the Microbiology Laboratory.

Nails: Disinfect area with 70% alcohol. Scrape. Clip infected areas. Collect debris under nail. Do not send whole nail.

Skin: Disinfect area with 70% alcohol. Scrape surface of skin at margin of lesion.

Hair: With forceps collect 10 to 12 hairs with shaft intact, as well as much loose skin

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 70 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

9.7 Referrals

The Microbiology Laboratory in PUH prepare samples for referral to External laboratories for processing:

- National Virus Reference Laboratory (NVRL)
- Irish Meningitis & Sepsis Reference Laboratory (IMSRL)
- Genetic testing:
 - Department of Clinical Genetic's, Children's Health Ireland, Crumlin
 - Eurofins Biomnis
 - Guy's Hospital, London
- Galway Immunology Laboratory
- Galway Microbiology Laboratory
- Galway Virology Laboratory
- Eurofins Biomnis

The Department of Medical Microbiology may consult with Consultant Microbiologist on duty before any exceptionally urgent or specialised investigation is referred.

9.8 Turnaround Times

Turnaround time is defined as the time from receipt of specimen in the laboratory until the result is reported either by LIS (Laboratory Information System) or by phone. Turnaround times are quoted in the alphabetical test directory and are intended as a guide which we will endeavour to meet. If further work is required, the turnaround times may be extended by one or more days.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 71 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024













Portiuncula University Hospital (PUH)

Test Directory and Order of Draw




TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 72 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

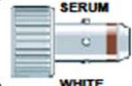
Appendix 1: Test Directory and Order of Draw (Adult Tubes)

Order Of Draw	Blood Culture	Volume	Instructions
1.		8 -10ml	** BLOOD CULTURES MUST BE COLLECTED FIRST ** BLOOD CULTURE BOTTLE MUST BE UPRIGHT DURING COLLECTION
Hemogard™ Closure & Tube Content		All BD Vacutainer® tubes require immediate mixing following collection Do not over or underfill any tube. Do not shake tubes.	
2.	 Sodium Citrate	2.7ml	Do NOT UNDERFILL. Mix sample GENTLY 4-5 times to prevent clotting.
3.	 Plain	6ml	Mix sample GENTLY 8-10 times to allow uniform clotting.
4.	 SST	8.5ml 3.5ml	Mix sample GENTLY 8-10 times to allow uniform clotting.
5.	 Lithium Heparin	4.5ml	Mix sample GENTLY 8-10 times to prevent clotting.
6.	 PSTII	6ml	Mix sample GENTLY 8-10 times to prevent clotting.
7.	 EDTA	3ml 10ml	Mix sample GENTLY 8-10 times to prevent clotting.
8.	 EDTA	6ml	Mix sample GENTLY 8-10 times to prevent clotting. Blood Bank Request Forms require Witness and Collector signatures. Tube/s must be signed by the Collector and full patient information written on. Any mismatch or omission will require recollection. No exceptions.
9.	 Fluoride Oxalate	4ml 2ml	Mix sample GENTLY 8-10 times to prevent clotting.
10.	 Seditainer	1.6ml	Mix sample GENTLY 8-10 times to prevent clotting. Fill to marked line.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 73 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Appendix 2: Test Directory and Order of Draw (Paediatric Tubes)


1.	 PAEDIATRIC: 1-3mL	** BLOOD CULTURES MUST BE COLLECTED FIRST ** BLOOD CULTURE BOTTLE MUST BE UPRIGHT DURING COLLECTION
2.	Citrate Blue Top	Mix sample by GENTLY INVERTING 5X to prevent clotting



SERUM
WHITE

B12, FOLATE, VITAMIN A/D/E/K, FERRITIN, ALL ANTIBODIES LEVEL, IMMUNOGLOBULINS, IgE, RASTS, ANTIGLYCIDAN, EDOMYCELLE ANTIBODIES, ALCOHOL AUTOANTIBODY SCREEN, BETA2 GLYCOPROTEIN, A50, A50T, CARDIOLIPIN, COMPLEMENT C3, C4, C50, CH100, FSH, LH, DHEAS

3RD



LITHIUM HEPARIN
ORANGE

U-E, LEFT'S, TFT'S, AMINO ACIDS, ACYL CARNITINE, OESTRIDOL, ALBUMIN, ALK PHOSPHATASE, AMIODASONE, CYTOGENETICS, BILE ACID PROFILE, BILIRUBIN, RENIN, C-PEPTIDE, DI-HYDROTESTOSTERONE, HOMOCYSTEINE, GLUCAGON

4TH



EDTA
Lavender Top 365974

Mix sample by **GENTLY INVERTING 10X** to prevent clotting
Fill to 500µL



SODIUM FLUORIDE
YELLOW

GLUCOSE

6TH

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 74 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Appendix 3: Test Directory and Order of Draw

Test: 17 Hydroxy(OH)-Progesterone <1 year old	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	Paed Serum bottle
Comment:	Send to Laboratory immediately. Child must be >2days old before test sample is taken.
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: 17 Hydroxy(OH)-Progesterone >1 year old	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Send to Laboratory immediately
Turnaround:	1 Week
Ref. Range:	on report form
Test: 24 hr Bence Jones Proteins	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	24 Hour Urine Container
Turnaround:	2 Weeks
Ref. Range:	on report form
Test: 5-HIAA	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	24 hour acidified urine collection
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Abdominal fluid	
Comment:	see Body Fluids - Cytology and Microbiology
Test: ACR (Albumin / Creatinine Ratio)	
Laboratory:	Clinical Biochemistry
Specimen:	Plain random urine specimen
Turnaround:	1 Day
Ref. Range:	on report form
Test: ACTH	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	Special sample bottle available from Bio.
Comment:	Send immediately to laboratory
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Activated Partial Thromboplastin Time (APTT)	
Laboratory:	Haematology

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 75 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Specimen:	2.7mL 9NC (Light Blue) bottle.
Ref. Range:	on report form
Test: Activated Protein C Resistance (APC-R)	
Comment:	see Thrombophilia screen
Test: Adenovirus/Rotavirus Antigen	
Laboratory:	Medical Microbiology: Referred to Medical Microbiology, GUH
Specimen:	Faeces in a sterile leak proof container. Delay >2 hours refrigerate @ 2 - 8°C
Comment:	Test routinely performed on children < 5 years old
Turnaround:	3 working day
Report:	Adenovirus / Rotavirus detected / not detected
Test: Adrenaline/ Noradrenaline/plasma metanephrine	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	3.0mL K3 EDTA (Purple) bottle
Comment:	Send immediately to the laboratory on ice patient fasting cannulated and supine for 30 minse
Turnaround:	2 -3 Weeks
Ref. Range:	on report form
Test: Alanine Amino Transferase (ALT)	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle
Turnaround:	1 Day
Ref. Range:	on report form
Test: Albumin (Serum)	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold)/Barricor bottle
Turnaround:	1 Day
Ref. Range:	on report form
Test: Albumin (Urine)/ Microalbumin	
Laboratory:	Clinical Biochemistry
Specimen:	Urine in a Plain Universal Container, no Preservative
Turnaround:	1 Day
Ref. Range:	on report form
Test: Albumin/Creatinine ratio	
Comment:	See ACR
Test: Alcohol (Ethanol) – Urine	
Laboratory:	Clinical Biochemistry
Specimen:	Urine in a Plain Universal Container, no Preservative
Turnaround:	1 Day
Ref. Range:	On report form
Test: Alcohol (Ethanol) –Serum	

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 76 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle
Turnaround:	1 Day
Ref. Range:	not normally detected.
Test: Aldosterone	
Laboratory:	Clinical Biochemistry referred test
Specimen	
Comment	Please provide clinical/antihypertensive medication details.
Turnaround:	2 Weeks
Test: Alkaline Phosphatase (Alk Phos)	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle
Turnaround:	Urgent 1 hour, Priority 2 hours, Routine 1 day
Ref. Range:	on report form
Test: Alpha Fetoprotein (AFP)	
Laboratory:	Clinical Biochemistry: Referred to: Clinical Biochemistry GUH
Specimen:	5mL Serum Gel (Brown/Gold) bottle.
Comment:	If requested with general biochemistry tests, please send a second sample for AFP.
Turnaround:	1 week
Ref. Range:	on report form
Test: Alpha-1-Antitrypsin	
Laboratory:	Clinical Biochemistry: Referred to Immunology, GUH
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Week
Ref. Range:	on report form
Test: Alpha-l-iduronidase (
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	2 x 3.0mL K3 EDTA (Purple) bottle and 5 ml fresh urine (Monday –Thursday am only)
Comment:	Please give clinical details
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Alpha-Gliadin Antibodies	
Laboratory:	Medical Microbiology: Referred to Immunology GUH.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Amikacin	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Specify time specimen collected indicating Peak or Trough
Turnaround:	1 - 2 Weeks

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 77 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Ref. Range:	on report form
Test: Amino Acids	
Laboratory:	Clinical Biochemistry: Referred to Metabolic Laboratory, Children's University Hospital, Temple St., Dublin 1
Comment:	Please state full clinical details and reason for request, Temple St request form required also
Specimen:	6ml LH (Lithium Heparin – Green) bottle / 5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Ammonia	
Laboratory:	Clinical Biochemistry
Specimen:	3.0mL K3 EDTA (Purple) bottle
Comment:	Place specimen on ice and transport immediately. Contact Biochemistry Ext 8219
Turnaround:	1 Hours
Ref. Range:	on report form
Test: Amylase	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle
Turnaround:	Urgent 1 hour, Priority 2 hours, Routine 1 day 1 Day
Ref. Range:	on report form
Test: Amylase - Urine 24hr	
Laboratory:	Clinical Biochemistry
Specimen:	24hr urine collection, no additive.
Turnaround:	1 Day
Ref. Range:	on report form
Test: Androstendione	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Week
Ref. Range:	on report form
Test: Angiotensin Converting Enzyme (ACE)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	2 - 3 Weeks
Ref. Range:	on report form
Test: Anti- Liver, Kidney, Microsomal Antibodies	
Laboratory:	Medical Microbiology: Referred to: Immunology, GUH.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	2 - 3 Weeks
Ref. Range:	on report form

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 78 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Test: Anti-Acetylcholine (ACh) Receptor Antibodies	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	2 - 3 Weeks
Ref. Range:	on report form
Test: Antibody Screen	
Laboratory:	Blood Transfusion
Specimen:	6mL K2 EDTA (Pink) bottle
Turnaround:	4 Hours during routine times (may be longer in cases of complex antibodies)
Ref. Range:	Negative/Positive for irregular antibodies.
Test: Antibody Titration	
Laboratory:	Blood Transfusion: Referred to: IBTS, Dublin.
Specimen:	6mL K2 EDTA (Pink) bottle
Turnaround:	5-7 days
Ref. Range:	N/A.
Test: Anti-Cardiolipin Antibodies	
Laboratory:	Haematology: Referred to: Immunology, GUH
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	2 Weeks
Ref. Range:	on report form
Test: Anti-CCP	
Laboratory:	Medical Microbiology: Referred to: Immunology, GUH.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	2 - 3 Weeks
Ref. Range:	on report form
Test: Anti-Centromere Antibodies	
Laboratory:	Medical Microbiology: Referred to: Immunology, GUH.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Anti-D Quantification	
Laboratory:	Blood Transfusion: Referred to: IBTS, Dublin.
Specimen:	6mL K2 EDTA (Pink) bottle
Turnaround:	1 - 2 Weeks
Ref. Range:	N/A.
Test: Anti-dsDNA Antibody	
Laboratory:	Medical Microbiology: Referred to: Immunology, GUH.
Specimen:	5mL Serum Gel (Brown/Gold) bottle

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 79 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Anti-ENA Screen (Extractable Nuclear Antigens: Sm / RNP/ Ro / La / Scl-70 / Jo-1)	
Laboratory:	Medical Microbiology: Referred to: Immunology, GUH.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Anti-Endomysial Antibodies	
Laboratory:	Medical Microbiology: Referred to: Immunology, GUH.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Anti-Factor Xa (Low M.W. Heparin Assay)	
Laboratory:	Haematology: Referred to Haematology GUH
Specimen:	2.7mL 9NC (Light Blue) bottle.
Comment:	Requests should be received in the laboratory within 1 hour of phlebotomy and should be taken 2 - 4 hrs post-dose. State time and type of last heparin dose on request form.
Turnaround:	1 Week
Ref. Range:	on report form
Test: Anti-Gastric Parietal Cell Antibodies	
Laboratory:	Medical Microbiology: Referred to: Immunology, GUH.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Ref. Range:	N/A
Test: Anti-Glomerular Basement Membrane (GBM) Antibodies	
Laboratory:	Medical Microbiology: Referred to: Immunology, GUH.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Anti-Glutamic Acid Decarboxylase (GAD) Antibodies	
Laboratory:	Clinical Biochemistry: Referred Test immunology GUH
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Send to Biochemistry Lab
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Anti-Insulin Antibodies	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Send to Biochemistry Lab
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 80 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Test: Anti-Islet Cell Antibodies	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Send to Biochemistry Lab
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Anti-Neutrophil Cytoplasmic Antibodies (ANCA)	
Laboratory:	Medical Microbiology: Referred to: Immunology, GUH.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Anti-Nuclear Antibody (ANA)	
Laboratory:	Medical Microbiology: Referred to: Immunology, GUH.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Anti-Phospholipid Antibody	
Comment:	see Anticardiolipin Antibodies
Test: Anti-Platelet Antibodies	
Laboratory:	Blood Transfusion: Referred to; HLA Laboratory, IBTS, Dublin
Specimen:	6mL K2 EDTA (Pink) bottle
Comment:	A range of samples is required and a special request form has to be completed. Transfusion Dept. (ext. 8370) must be contacted in advance.
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Anti-Reticulin Antibodies	
Laboratory:	Medical Microbiology: Referred to: Immunology, GUH.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Anti-Thrombin	
Comment:	see Thrombophillic Screen
Test: Anti-Thyroid Peroxidase (TPO) Antibodies	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Week
Ref. Range:	on report form
Test: APCR	
Comment:	see Thrombophillic Screen

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 81 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Test: Ascitic fluid	
Comment:	see Body Fluids Cytology and Microbiology
Test: Ascorbic acid (Vitamin C)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	6ml LH (Lithium Heparin – Green) bottle
Comment:	Send to Biochemistry Lab. Immediately Protect from light
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Aspartate Amino Transferase (AST)	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle
Turnaround:	Urgent 1 hour, Priority 2 hours, Routine 1 day 1 Day
Ref. Range:	Male: 0 - 40 U/L Female: 0 - 32 U/L
Test: Aspergillus Antibodies	
Laboratory:	Medical Microbiology: Referred to: Immunology, GUH.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Available only in specific circumstances - contact Microbiology ext. 369
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Auto Antibodies	
Laboratory:	Medical Microbiology: Referred to: Immunology, GUH.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Select specific antibody test/s pending clinical picture. Relevant clinical details are required
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Avian Precipitants (Bird Fanciers Disease)	
Laboratory:	Medical Microbiology: Referred to: Biomnis Ireland, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: B12	
Comment:	see Vitamin B12
Test: Bence-Jones Proteins (Urine Free Light Chains Screen)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	Early morning sample preferred. 24h urine for quantification and disease monitoring or minimum 20ml for screening. Plain container no preservatives
Turnaround:	1 - 2 Weeks

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 82 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Ref. Range:	on report form
Test: Benzodiazepine	
Laboratory:	Clinical Biochemistry
Comment:	See Toxicology Screen (Urine)
Test: Beta-2-Microglobulin	
Laboratory:	Clinical Biochemistry: Referred to: Immunology GUH.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Beta-HCG (Serum) Quantitative	
Comment:	see HCG Total
Test: Beta-Hydroxy-Butyric Acid	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	Flouride Oxalate for (Paeds) Adult 5ml plasma or serum
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Bicarbonate	
Laboratory:	Clinical Biochemistry or Blood Gas analyser
Specimen:	5mL Serum Gel (Brown/Gold) bottle not available as add on test
Turnaround:	1 Day
Ref. Range:	on report form
Test: Bile Acids	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Week
Ref. Range:	on report form
Test: Bilirubin-Conjugated	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/
Turnaround:	1 Day
Ref. Range:	on report form
Test: Bilirubin-Total	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor Bottle
Turnaround:	1 Day
Ref. Range:	on report form
Test: Biotinidase	
Laboratory:	Clinical Biochemistry: Referred Test

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 83 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Specimen:	6ml LH (Lithium Heparin – Green) bottle
Comment:	Send to Biochemistry Lab immediately
Turnaround:	2 - 3 Weeks
Ref. Range:	on report form
Test: Blood Culture	
Laboratory:	Medical Microbiology
Specimen:	8.0 - 10.0 mL in BacT/ALERT SA Aerobic and SN anaerobic bottles. Up to 4.0mL in the Paediatric BacT/ALERT PF Plus bottle for paediatric samples.
Comment:	Deliver directly to Laboratory.
Turnaround:	5days (interim report after 48hrs.)
Ref. Range:	any growth
Test: Blood Film	
Laboratory:	Haematology
Specimen:	3.0mL K3 EDTA bottle (Purple). Blood Film will be made, examined and reported on patients FBC reports which satisfy the criteria for indications for blood film examination.
Turnaround:	1 Day
Ref. Range:	N/A
Test: Blood Gases	
Specimen:	Blood in a heparinised syringe / capillary tube
Comment:	Blood Gas instruments are located in ICU / ED / Labour ward/St Johns Ward
Turnaround:	N/A
Test: Blood Group	
Laboratory:	Blood Transfusion
Specimen:	6mL K2 EDTA (Pink) bottle/ Paediatric EDTA 1.0mg BD Microtainer
Turnaround:	4 hours during routine times
Report:	Blood Group
Test: Blood Group/Crossmatch	
Laboratory:	Blood Transfusion
Specimen:	6mL K2 EDTA (Pink) bottle
Turnaround:	4 hours (Refer to Urgent times in Blood Transfusion section with respect to Crossmatch)
Report:	Blood Group & Crossmatched units
Test: Body Fluids - Microbiology (Pleural, Peritoneal, Pericardial, Abdominal, Ascites, Aspirates, Effusions)	
Laboratory:	Medical Microbiology
Specimen:	Collect 10 - 20ml specimens in sterile container (no additional fluid)
Comment:	Indicate type of primary specimen and site of origin
Turnaround:	2-4 working days
Report:	Culture with sensitivities, if appropriate
Test: Body Fluids - Haematology	
Laboratory:	Haematology
Specimen:	Collect fluid in 3.0mL K3 EDTA (Purple) bottle

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 84 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Comment: for morphology comment refer to Body Fluids - cytology Turnaround 2 hours	
Test: Bone Marrow Culture	
Laboratory:	Medical Microbiology
Specimen:	1-3ml Paediatric blood culture bottle.
Turnaround:	1 week
Report:	any significant isolate and sensitivities if indicated
Test: Bone Profile (Calcium, Albumin, Alk phos, Magnesium)	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor
Comment:	see individual test profiles for further information.
Turnaround:	Urgent 1 hour, Priority 2 hours, Routine 1 day 1 Day
Ref. Range:	see individual test profiles
Test: Bordetella Pertussis (Whooping cough)- culture	
Laboratory:	Medical Microbiology: Referred to: Medical Microbiology, GUH.
Specimen:	Pernasal swab (available from Medical Microbiology)
Comment:	Contact laboratory (ext 369) prior to swabbing to arrange testing at GUH.
Turnaround:	2 weeks
Ref. Range:	Culture positive or negative
Test: Bordetella Pertussis Antibodies	
Laboratory:	Medical Microbiology: referred to Atypical Pneumonia Unit, London
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Available in only very specific cases and following prior arrangement with a Consultant Microbiologist
Report:	Refer to report
Test: Borrelia burgdorferi antibodies (Lyme Disease)	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	2 Weeks
Report:	Positive / Negative
Test: Brain Natriuretic Peptide (BNP)	
Laboratory:	Clinical Biochemistry:
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle
Turnaround:	1 day
Ref. Range:	on report form
Test: Broncho Alveolar Lavage (BAL) Fluid- culture	
Laboratory:	Medical Microbiology
Specimen:	Specimen in sterile leak proof container. Delay >2 hours refrigerate @ 2 - 8°C
Turnaround:	3 working days for routine culture, 6-7 weeks for Mycobacteria culture
Report:	Culture with sensitivities, if appropriate, as well as Microscopy and culture for Mycobacterium

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 85 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Test: Brucella Abortus Antibodies	
Laboratory:	Medical Microbiology: Referred to Biomnis Ireland, Dublin
Specimen:	6mL K2 EDTA (Pink) bottle
Comment:	Restricted testing. Appropriate clinical details and advance contact with the laboratory is necessary
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: C1 Esterase Inhibitor	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Week
Ref. Range:	on report form
Test: CA 125	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	2 x 5mL Serum Gel (Brown/Gold) bottle
Comment:	If requested with general biochemistry tests, please send a second sample for CA 125
Turnaround:	1 Week
Ref. Range:	on report form
Test: CA 15-3	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	2 x 5mL Serum Gel (Brown/Gold) bottle
Comment:	If requested with general biochemistry tests, please send a second sample for CA 15-3
Turnaround:	1 Week
Ref. Range:	on report form
Test: CA19-9	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	2 x 5mL Serum Gel (Brown/Gold) bottle
Comment:	If requested with general biochemistry tests, please send a second sample for CA 19-9
Turnaround:	2 - 3 Days
Ref. Range:	on report form
Test: Calcitonin	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Send to Biochemistry Lab immediately to be frozen
Turnaround:	1 – 3 Weeks
Ref. Range:	on report form
Test: Calcium	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle
Turnaround:	Urgent 1 hour, Priority 2 hours, Routine 1 day 1 Day
Ref. Range:	on report form

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 86 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Test: Calcium (Urinary 24hr)	
Laboratory:	Clinical Biochemistry
Specimen:	24 hour urine collection, acidified container
Turnaround:	1 Day
Ref. Range:	on report form
Test: Cannabis	
Comment:	see Toxicology screen (Urine)
Test: Carbamazepine (Tegretol)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Week
Ref. Range:	on report form
Test: Carbon Monoxide	
Comment:	see Carboxyhaemoglobin
Test: Carboxyhaemoglobin	
Laboratory:	Blood Gas analyser
Specimen:	Blood in a heparinised syringe
Comment:	Test available on Blood Gas analysers
Ref. Range:	on instrument printout
Test: Carcinoembryonic Antigen (CEA)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	If requested with general biochemistry tests, please send a second sample for CEA
Turnaround:	1 Week
Ref. Range:	on report form
Test: Carbapenemase Producing Enterbacteriaceae Screen	
Laboratory:	Medical Microbiology
Specimen:	Rectal Swab in transport medium. Delay >2 hours refrigerate @ 2 - 8°C
Turnaround:	2 – 3 Working days
Report:	CPE isolated/Not isolated
Test: Carnitine, Acetyl	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	4 Blood spots on metabolic investigation card
Comment:	State clearly investigation required and reason, please complete Temple St. Request form
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Carnitine, Total and Free	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	3.0mL K3 EDTA (Purple) bottle.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 87 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Comment:	Send to Biochemistry immediately
Turnaround:	2 - 3 Weeks
Ref. Range:	on report form
Test: Catecholamines (Spot/Paediatric)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	Random urine sample
Comment:	Minimum volume 10mls
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Catecholamines (Urine-VMA) -Adrenaline/Noradrenaline/Metanephrines/ Normetanephrines /Dopamine	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	24 hour acidified urine collection
Comment:	Contact Specimen Reception (Ext 8123) for appropriate container with additive. Please specify catecholamines required.
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Central Intravascular Cannula /Catheter Tips	
Laboratory:	Medical Microbiology
Specimen:	Lines from Tips from arterial/venous lines cut to 4cm in sterile container.
Comment:	Only send where there is evidence of infection. Urinary catheters or peripheral venous cannulas are not tested
Turnaround:	3 working days
Report:	Any clinically significant isolate with the appropriate sensitivities
Test: Catheter Urine-CSU	
Comment:	see urine culture
Test: CEA	
Comment:	see carcinoembryonic antigen If requested with general biochemistry tests, please send a second sample for CEA
Test: Cell-free fetal DNA (cffDNA) for fetal RHD Screen	
Laboratory:	Blood Transfusion
Specimen:	6mL K2 EDTA (Pink) bottle from maternal blood
Comment:	Gestation must be at least 11 weeks. EDD must be recorded on the IBTS request form.
Turnaround:	14 Days
Report:	Fetal RHD Screen
Test: Cerebrospinal Fluid-Bacterial PCR	
Laboratory:	Medical Microbiology: Referred To: IMSRL, Temple Street, Dublin.
Specimen:	CSF / EDTA - State bacteria required for screening
Comment:	Relevant clinical details required before testing is undertaken.
Turnaround:	1 - 2 Weeks

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 88 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Report:	DNA Detected / Not Detected
Test: Cerebrospinal Fluid - Culture / Microscopy	
Laboratory:	Medical Microbiology & Haematology
Specimen:	3 specimens in sterile containers. Must be brought immediately to the laboratory.
Comment:	Deliver directly to Laboratory. Inform lab. Do not use chute delivery system.
Turnaround:	Microscopy 1 Hour. Culture: 3 working days
Report:	Microscopy & culture.
Test: Cerebrospinal Fluid-Cytology	
Laboratory:	Histology-Cytology
Specimen:	0.5 – 2ml CSF in glass bijou bottle or 20ml universal container.
Comment:	Deliver directly to Laboratory. Do not use chute delivery system. Clinical details are required
Turnaround:	1 - 2 Weeks
Report:	Detection of neoplastic and non neoplastic cells.
Test: Cerebrospinal Fluid-Glucose	
Laboratory:	Clinical Biochemistry
Specimen:	CSF in 4.0mL FX 10mg/8mg (Fluoride Oxalate)) bottle
Comment:	send simultaneous plasma glucose specimen
Turnaround:	1 - 3 hrs
Ref. Range:	2/3 Plasma Glucose value.
Test: Cerebrospinal Fluid-Oligoclonal bands and CSF IgG index	
Laboratory:	Medical Microbiology: Referred to: Immunology, GUH
Specimen:	CSF specimen and blood in 5mL Serum Gel (Brown/Gold) bottle
Comment:	CSF and accompanying blood sample must be sent
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Cerebrospinal Fluid-Protein	
Laboratory:	Clinical Biochemistry
Specimen:	1.5ml CSF plain container
Comment:	Do not use the Pneumatic tube system for transporting CSF
Turnaround:	1 - 3 Hrs
Ref. Range:	on report form
Test: Cerebrospinal Fluid-Virology	
Laboratory:	Medical Microbiology: Referred To: NVRL, Dublin.
Specimen:	CSF - State Viruses required for screening
Comment:	Relevant clinical details required before testing is undertaken.
Turnaround:	1 - 2 Weeks
Ref. Range:	N/A
Test: CSF xanthochromia	
Laboratory:	Clinical Biochemistry: Referred to Beaumont Hospital
Specimen:	Min of 1ml CSF required (cannot be processed if <1ml)
Comment:	CSF sample <u>must be protected from light as soon as it is taken</u> (e.g. cover tube in tin foil). Send sample directly to the laboratory as it requires separation on < 1 hr Blood sample required for Bilirubin and TProtein

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 89 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Turnaround:	1-2 days
Ref Range:	on report form
Test: Ceruloplasmin	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Week
Ref. Range:	on report form
Test: Cervical Swab – Culture	
Laboratory:	Medical Microbiology
Specimen:	Swab in transport medium.
Turnaround:	3 working days
Report:	Any clinically significant isolate with the appropriate sensitivities
Test: Chlamydia trachomatis and Neisseria gonorrhoea PCR Test	
Laboratory:	Medical Microbiology: Referred Test Medical Microbiology GUH
Specimen:	Abbott Multi-Collect Specimen Collection Kits supplied by Microbiology Department.
Comment:	Deliver to the laboratory within 24 h of collection
Turnaround:	2-3 weeks
Report:	DNA Detected / Not Detected
Test: Chloride	
Laboratory:	Clinical Biochemistry/Blood Gas analyser
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle
Turnaround:	Urgent 1 hour, Priority 2 hours, Routine 1 day 1 Day
Ref. Range:	on report form
Test: Chloride (Urine)	
Laboratory:	Clinical Biochemistry
Specimen:	24hr urine collection. No additive
Turnaround:	1 Day
Ref. Range:	on report form
Test: Cholesterol	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle
Turnaround:	1 Day
Ref. Range:	on report form
Test: Cholinesterase	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	2 Weeks
Ref. Range:	on report form
Test: Chromogranin	
Laboratory:	Clinical Biochemistry: Referred Test

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 90 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Specimen:	3.0mL K3 EDTA (Purple) bottle.
Comment:	Send to laboratory immediately
Turnaround:	1 week
Ref. Range:	on report form
Test: Chromosome analysis – Tissue	
Laboratory:	Histology-Tissue: Referred to: Biomnis Ireland, Dublin
Specimen:	Fresh tissue
Comment:	Special fixative (Ham's fluid) available in the histology laboratory (ext 8368). Biomnis consent form required. Out of hours cytogenetics tissue samples in HAMS fluid must be placed on top shelf of Histology laboratory fridge
Turnaround:	2 - 6 Weeks
Ref. Range:	N/A
Test: Chromosome analysis (Karyotyping) - Adult samples	
Laboratory:	Medical Microbiology: Referred to: Biomnis Ireland, Dublin.
Specimen:	6ml LH (Lithium Heparin – Green) bottle supplied by Microbiology Dept
Comment:	Consent form required for Claymon biomnis. Sample must arrive in the laboratory by 12 noon on Wednesday to facilitate transport.
Turnaround:	1 month
Report:	Refer to report
Test: Chromosome analysis (Karyotyping) - Paediatric <5 years old	
Laboratory:	Medical Microbiology: Referred to: The National Centre for Medical Genetics, Crumlin, Dublin (by prior arrangement only).
Specimen:	6ml LH (Lithium Heparin – Green) bottle
Comment:	Consent form required for Medical Genetics, Crumlin. Sample must arrive in the laboratory by 12 noon on Wednesday to facilitate transport.
Turnaround:	2 - 3 Months
Report:	Refer to report
Test: Clostridium difficile PCR Test	
Laboratory:	Medical Microbiology: Referred to Medical Microbiology, GUH
Specimen:	Faeces in a sterile leak proof container. Delay >2 hours refrigerate @ 2 - 8°C
Comment:	Performed on Diarrhoeal specimens only
Turnaround:	3 working days
Test: Clozapine (Clozaril)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	EDTA whole blood
Comment:	Send immediately to the lab
Turnaround:	1 Week
Test: Coagulation Factor Assay	
Laboratory:	Haematology: Referred to: Haematology, GUH.
Specimen:	3 x2.7mL 9NC (Light Blue) bottle.
Comment:	Must be arranged in advance (ext. 8366)
Turnaround:	1 Week
Ref. Range:	on report form

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 91 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Test: Coagulation Screen	
Laboratory:	Haematology
Specimen:	2.7mL 9NC (Light Blue) bottle.
Comment:	Profile includes PT (INR) and APTT and Fibrinogen. Details of anticoagulant therapy required. Must fill bottle to mark. Other assays, phone 8366.
Turnaround:	4 hours
Ref. Range:	see individual assay
Test: Cocaine	
Comment:	see Toxicology screen (urine)
Test: Complement Assays	
Laboratory:	Serology: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Week
Ref. Range:	on report form
Test: Coombs test – Adult	
Comment:	see Direct Antiglobulin Test
Test: Copper (Blood)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	Trace element bottle available from Biochemistry
Turnaround:	2 Weeks
Ref. Range:	on report form
Test: Copper (Urine)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	24 Hour Urine Collection
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Cortisol	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	NB State sample time and state if Synacthn test or Dexamethasone suppression test
Turnaround:	1 Week
Ref. Range:	on report form
Test: COVID-19	
Laboratory:	Medical Microbiology
Specimen:	Swab of nasopharyngeal in 3ml COPAN UTM [swabs available from Microbiology Dept.]. If delay of >8hours in reaching Microbiology lab then must refrigerate @ 2-8°C.
Turnaround:	1 day
Report:	Detected/Not Detected
Test: Coxiella burnetti IgM antibodies (Q fever)	

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 92 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Laboratory:	Medical Microbiology: Referred to: Public Health Laboratory Service, Bristol
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Report:	Refer to report
Test: C-Peptide	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Send to Biochemistry lab immediately
Turnaround:	1 Week
Ref. Range:	on report form
Test: C-Reactive Protein (CRP)	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle
Turnaround:	Urgent 1 hour, Priority 2 hours, Routine 1 day 1 Day
Ref. Range:	on report form
Test: Creatine Kinase (CK)	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle
Turnaround:	Urgent 1 hour, Priority 2 hours, Routine 1 day 1 Day
Ref. Range:	on report form
Test: Creatinine	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle
Turnaround:	Urgent 1 hour, Priority 2 hours, Routine 1 day 1 Day
Ref. Range:	on report form
Test: Creatinine (Urine)	
Laboratory:	Clinical Biochemistry
Specimen:	24 Hour Urine Collection
Turnaround:	1 Day
Ref. Range:	on report form
Test: Cross Matching (where Group & Screen has been completed)	
Laboratory:	Blood Transfusion
Specimen:	Nil
Comment:	Fully complete the Blood Transfusion request card
Turnaround:	4 hours if not urgent; if urgent, refer to Blood Transfusion section on urgent TAT's
Report:	Group, Antibody screen & crossmatched units
Test: Cryoglobulins	
Laboratory:	Blood Transfusion: Referred to: Immunology, GUH.
Specimen:	Contact Immunology, GUH
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 93 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Test: Cryptosporidium parvum (cold ZN microscopy)	
Laboratory:	Medical Microbiology
Specimen:	Faeces in a sterile leak proof container. Delay >2 hours refrigerate @ 2 - 8°C
Comment:	Performed on faecal specimens from patients < 15 years old
Turnaround:	2 working days
Report:	Oocysts of Cryptosporidium seen or not seen
Test: Cyclosporin A	
Laboratory:	Haematology: Referred to: Clinical Chemistry, GUH / Biochemistry, OHSC, Crumlin.
Specimen:	3.0mL K3 EDTA (Purple) bottle, before 12MD.
Turnaround:	1 Week
Ref. Range:	on report form
Test: Cyst aspirates	
Comment:	see Body Fluids
Test: Cystic Fibrosis- Genetic test	
Laboratory:	Medical Microbiology: Referred to: National Centre for Medical Genetics, OHLSC, Crumlin, Dublin 12.
Specimen:	6mL K2 EDTA (Pink) bottle
Comment:	Signed consent form must accompany requests. Forms available from the laboratory ext. 369
Turnaround:	6 - 8 weeks
Test: Cytomegalovirus (CMV) IgG / IgM Antibodies	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Week
Report:	Positive/Negative
Test: Cytomegalovirus (CMV-DEAFF)	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	Urine, T/S, Throat Wash, BAL
Turnaround:	1 - 2 Weeks
Ref. Range:	On report form
Test: D-Dimers	
Laboratory:	Haematology
Specimen:	2.7mL 9NC (Light Blue) bottle.
Turnaround:	4 hours
Ref. Range:	< 250ug/L
Test: Dehydroepiandrosterone Sulphate (DHEAS)	
Laboratory:	Clinical Biochemistry: Referred test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 94 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Test: Digoxin	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 day
Ref. Range:	on report form
Test: Diphtheria (Culture of Throat swab)	
Laboratory:	Medical Microbiology: Referred to: Medical Microbiology, GUH, Galway.
Specimen:	Swab in transport medium
Comment:	Contact the laboratory (ext. 369) in advance of sending the swab as arrangements for testing must be in place.
Turnaround:	1 - 2 Weeks
Report:	Any clinically significant isolate with appropriate sensitivities.
Test: Direct Antiglobulin Test (Coombs)	
Laboratory	Blood Transfusion
Specimen:	6mL K2 EDTA (Pink) bottle/ Paediatric EDTA 0.5ml BD Microtainer
Turnaround:	4 Hours. No longer routinely requested as part of Paediatric group.
Report:	Positive/Negative
Test: Dopamine	
Comment:	see Catecholamines - urine
Test: Duodenal Aspirate – Culture	
Laboratory:	Medical Microbiology
Specimen:	Specimen in sterile leak proof container. Delay >2 hours refrigerate @ 2 - 8°C
Turnaround:	3 working days
Report:	Any clinically significant isolate with appropriate sensitivities
Test: Ear swab – Culture	
Laboratory:	Medical Microbiology
Specimen:	Swab of pus or exudate in transport media
Turnaround:	2-3 working days
Report:	Any clinically significant isolate with appropriate sensitivities
Test: E. coli PCR	
Laboratory:	Medical Microbiology: Referred to: IMSRL, Temple Street, Dublin
Specimen:	CSF
Comment:	IMSRL request form to be completed, only tested if patient has E.coli bacteraemia or UTI and <90 days old
Turnaround:	10 working days
Report:	DNA Detected / Not Detected
Test: ECHO Virus	
Comment:	see Enterovirus IgM

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 95 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Test: Ecstasy	
Comment:	see Toxicology screen (urine)
Test: Effusions – Microbiology	
Comment:	see Body Fluids
Test: eGFR	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	Urgent 1 hour, Priority 2 hours, Routine 1 day 1 Day
Ref. Range:	on report form
Test: EMA Screen	
Comment:	see Hereditary Spherocytosis
Test: Endocervical Swab – Culture	
Comment:	see Vaginal swab
Test: Enterobius vermicularis (sellotape slide for Pin worms)	
Laboratory:	Medical Microbiology
Specimen:	Sellotape slide
Turnaround:	3 working days
Report:	Presence or absence of Enterobius vermicularis
Test: Enterovirus screen	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin
Specimen:	Specimen of stool in stool container
Turnaround:	2 - 3 Weeks
Report:	Positive/Negative
Test: Epstein-Barr Virus (EBV) Antibodies	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1- 2 Weeks
Report:	Positive/Negative
Test: Erythrocyte Sedimentation Rate (ESR)	
Laboratory:	Haematology
Specimen:	3.0mL K3 EDTA (Purple) bottle .
Comment:	Sample must be received on the same day as Phlebotomy. Separate sample must be taken
Turnaround:	4 hours
Ref. Range:	Male: 0 - 22 Female: 0 - 30
Test: Erythropoietin (EPO)	
Laboratory:	Haematology: Referred To: Haematology Dept., St James's Hospital, Dublin
Specimen:	5mL Serum Gel (Brown/Gold) bottle

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 96 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Extended Spectrum Beta-Lactamase (ESBL) Screen	
Laboratory:	Medical Microbiology
Specimen:	Rectal Swab in transport medium. Delay >2 hours refrigerate @ 2 - 8°C
Turnaround:	2 – 3 Working days
Report:	ESBL isolated/Not isolated
Test: Eye Swab – Culture	
Laboratory:	Medical Microbiology
Specimen:	Swab in transport medium.
Comment:	Delay >2 hours refrigerate @ 2 - 8°C (where ocular Gonorrhea is suspected from neonates swabs should be brought to lab for immediate culture).
Turnaround:	3 working days
Report:	Any clinically significant isolate with appropriate sensitivities
Test: Factor Inhibitor Studies	
Laboratory:	Haematology: Referred to: Haematology, GUH.
Specimen:	3 x2.7mL 9NC (Light Blue) bottle.
Comment:	Prior arrangement with the Haematology Laboratory (ext 8366)
Turnaround:	1 Week
Ref. Range:	N/A
Test: Factor V Leiden Mutation	
Laboratory:	Haematology: Referred to: Immunology, GUH.
Specimen:	3.0mL K3 EDTA bottle (Purple) bottle
Comment:	Must specify genetic test. Factor V Leiden only performed if APCR is abnormal.
Turnaround:	6 Weeks
Ref. Range:	N/A
Test: Faeces- Molecular analysis, microscopy, culture and antigen detection	
Laboratory:	Medical Microbiology: Referred to Medical Microbiology, GUH
Specimen:	Faeces in a sterile leak proof container. Delay >2 hours refrigerate @ 2 - 8°C
Comment:	Rota and Adenovirus performed on children < 5 years old
Turnaround:	3 working days
Report:	Molecular: Bacterial DNA Detected/Not Detected, Culture: Any clinically significant, Cryptosporium / Giardia DNA Detected / Not Detected
Test: Faeces Ova & Parasites	
Laboratory:	Medical Microbiology: referred to Liverpool School of Tropical Medicine
Specimen:	Faeces in a sterile leak proof container. Delay >2 hours refrigerate @ 2 - 8°C
Ova and parasites other than giardia and cryptosporidium are rarely detected.	
Examination for other ova & parasites is only performed when specific clinical details e.g. foreign travel are stated on the form.	
Turnaround:	2-3 Weeks
Report:	Ova, cysts or parasites seen/not seen
Test: Faecal Reducing Substance	
Laboratory:	Clinical Biochemistry: Referred Test

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 97 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Specimen:	Plain Random Faeces		
Comment:	Send to Biochemistry lab immediately(<1 hr)		
Turnaround:	1- 2 Weeks		
Ref. Range:	on report form		
Test: Farmers Lung Antibodies (Micropolyspora Faenii)			
Laboratory:	Medical Microbiology: Referred to: Biomnis Ireland, Dublin.		
Specimen:	5mL Serum Gel (Brown/Gold) bottle		
Turnaround:	2 - 3 Weeks		
Ref. Range:	Positive/Negative		
Test: FBC			
Comment:	see Full Blood Count		
Test: Ferritin			
Laboratory:	Clinical Biochemistry		Turnaround: 1 Day
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle		
Ref. Range:	on report form		
Test: Fetal Fibronectin			
Laboratory:	Clinical Biochemistry		
Specimen:	Specimen collection kit available in Labour ward		
Turnaround:	1 Hr		
Test: Fetomaternal Haemorrhage (FMH) Estimation by Flow Cytometry referral Test			
Laboratory:	Blood Transfusion.		
Comment:	Contact Blood Transfusion EXT 8370 for further information		
Test: Fibrinogen			
Laboratory:	Haematology		
Specimen:	2.7mL 9NC (Light Blue) bottle.		
Comment:	Must be specifically requested		
Turnaround:	4hours		
Ref. Range:	2.0 - 4.0 g/l		
Test: Fibrinogen Degradation Products (FDPs)			
Comment:	see D-Dimer		
Test: Fine Needle Aspirates (FNAS)			
Laboratory:	Histology - Tissue		
Specimen:	Specimen is acquired and slides are prepared by Trained Radiologists.		
Comment:	Medical Scientist available if required by prior arrangement (ext.368)		
Turnaround:	2 - 3 Days		
Ref. Range:	Correlated with clinical presentation.		
Test: Flecanide			

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 98 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Fluid Cytology	
Comment:	see Body Fluids - Cytology
Test: Fluids/Aspirates for crystals	
Laboratory:	Medical Microbiology: Referred to: Histopathology, GUH
Specimen:	Specimen in sterile leak proof container. Delay >2 hours refrigerate @ 2 - 8°C
Turnaround:	2 - 3 Weeks
Report:	Present/Absent and comment
Test: Folate - Red Cell	
Laboratory:	Clinical Biochemistry: Referred to: Haematology, GUH.
Specimen:	3.0mL K3 EDTA bottle (Purple) bottle
Comment:	Must be received in the GUH laboratory within 8 hours of phlebotomy
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Folate-Serum	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 day
Ref. Range:	on report form
Test: Follicle Stimulating Hormone (FSH)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	2 - 3 Days
Ref. Range:	on report form
Test: Fragile X Chromosome	
Laboratory:	Medical Microbiology: Referred to: The National Centre for Medical Genetics, OLHSC, Crumlin.
Specimen:	1.2ml K3 EDTA (Purple) bottle
Turnaround:	3 - 6 Weeks
Ref. Range:	On report form
Test: Free Light Chains	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Free T3	

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 99 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround	1 day
Ref. Range:	on report form
Test: Free T4	
Comment:	see Thyroxine
Test: Fructosamine	
Laboratory:	Clinical Biochemistry: Referred test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 3 Weeks
Test: Full Blood Count (FBC)	
Laboratory:	Haematology
Specimen:	3.0mL K3 EDTA (Purple) bottle/ Paediatric EDTA 0.5ml BD Microtainer
Comment:	After 24 hrs, WBC differential and red cell indices are affected by EDTA changes
Turnaround:	4 hours
Ref. Range:	on report form
Test: Fungal Microscopy & Culture	
Comment:	see Mycology- Dermatophyte testing
Test: Fungal Precipitants (Farmers Lung)	
Laboratory:	Medical Microbiology: Referred to: Biomnis Ireland, Dublin.
Turnaround:	2 - 3 Weeks
Report:	Present/Absent
Test: G6PD Screening/Quantitation	
Laboratory:	Haematology: Referred to: Haematology, GUH.
Specimen:	3.0mL K3 EDTA (Purple) bottle.
Turnaround:	1 Week
Ref. Range:	N/A
Test: Galactose	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	1.2ml LH (Lithium Heparin – Green) bottle
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Galactose-1-Phosphate	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	3.0 ml EDTA
Comment:	Send to Biochemistry Lab immediately. Contact Bio (Ext.8219)
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Gamma-Glutamyl-Transferase (GGT)	

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 100 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle
Turnaround:	Urgent 1 hour, Priority 2 hours, Routine 1 day 1 Day
Ref. Range:	on report form
Test: Gastrin	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	>10 hrs fasting. Sample on ice must be sent immediately to the laboratory
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Genital Swab – Culture	
Laboratory:	Medical Microbiology
Specimen:	Swab in transport medium. Delay >2 hours refrigerate @ 2 - 8°C. Where Gonorrhoea is suspected please deliver directly to laboratory for immediate plating.
Turnaround:	3 working days
Report:	Any clinically significant isolate
Test: Gentamicin	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Specify time specimen collected indicating Peak or Trough
Turnaround:	1 Day
Ref. Range:	on report form
Test: Glucose	
Laboratory:	Clinical Biochemistry
Specimen:	4.0mL FX 10mg/8mg (Fluoride Oxalate -) bottle
Comment:	Please Mix the Specimen by repeated gentle inversion State time and if patient is fasting/1 hour/2 hour
Turnaround:	Urgent: 1hour. Priority: 2hours. Routine: 2 working days
Ref. Range:	on report form
Test: Group and Coombs	
Laboratory:	Blood Transfusion
Specimen:	6mL K2 EDTA (Pink) bottle/ Paediatric EDTA 0.5ml BD Microtainer
Turnaround:	Non-urgent: 4 hours. Urgent: 1 hour
Report:	Blood Group and Coombs (Positive/Negative)
Test: Group and Hold	
Laboratory:	Blood Transfusion
Specimen:	6mL K2 EDTA (Pink) bottle
Comment:	The sample is grouped & screened, stored at 4C and available for x-match for up to 7 days (with the exception of sensitising event i.e. pregnancy, previous transfusions or any historical antibodies detected)

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 101 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Turnaround:	4 hours
Report:	Group and antibody screen
Test: Group, Screen & Freeze	
Laboratory:	Blood Transfusion
Specimen:	6mL K2 EDTA (Pink) bottle
Comment:	Plasma can be frozen for up to 8 weeks for a procedure when required. Samples are only suitable for freezing when there are no antibodies detected or historical antibodies noted, no transfusions in the preceding 3 months and excluding ante-natal patients.
Turnaround:	1 Day
Report:	Group and antibody screen and relevant comment on sample storage
Test: Growth Hormone (GH)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Send to Biochemistry Lab immediately
Turnaround:	3 Weeks
Ref. Range:	on report form
Test: Haemachromatosis- C282Y and H63D Gene Mutations	
Laboratory:	Haematology: Referred to: Immunology, GUH
Specimen:	3.0mL K3 EDTA (Purple) bottle.
Comment:	Must specify genetic test
Turnaround:	8 Weeks
Ref. Range:	on report form
Test: Haemoglobin A1c	
Laboratory:	Haematology
Specimen:	3.0mL K3 EDTA (Purple) bottle, 1 bottle for FBC & A1c
Turnaround:	2-4 working days
Ref. Range:	IFCC: 20-42 mmol/mol.
Test: Haemoglobin Electrophoresis	
Laboratory:	Haematology: Referred to Haematology, St James's Hospital, Dublin
Specimen:	3.0mL K3 EDTA (Purple) bottle and 5mL Serum Gel (Brown/Gold) bottle
Comment:	Clinical details and ethnic origin of patient required,
Turnaround:	1- 2 Weeks
Ref. Range:	on report form
Test: Haemoglobin S	
Laboratory:	Haematology: Referred to Haematology, St James's Hospital, Dublin
Specimen:	3.0mL K3 EDTA (Purple) bottle.
Comment:	Request form must give clinical details, transfusion history and ethnic origin of patient.
Turnaround:	2 - 3Weeks
Ref. Range:	on report form
Test: Haemoglobinopathy Screen	

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 102 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Laboratory:	Haematology: Referred to: Crumlin / SJH
Specimen:	3.0mL K3 EDTA (Purple) bottle and 5mL Serum Gel (Brown/Gold) bottle
Comment:	Request form must give clinical details, transfusion history and ethnic origin of patient, Please contact Ext. 8366.
Turnaround:	2 - 3Weeks
Ref. Range:	on report form
Test: Haemophilus influenzae B antibodies (IgG)	
Laboratory:	Medical Microbiology: Referred to: Immunology GUH
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	
Turnaround:	5 Weeks
Report:	Refer to report
Test: Haemophilus influenzae B PCR	
Laboratory:	Medical Microbiology: Referred to: IMSRL, Temple Street, Dublin
Specimen:	CSF / EDTA
Comment:	IMSRL request form to be completed
Turnaround:	10 Days
Report:	DNA Detected / Not Detected
Test: Ham test (PNH)	
Laboratory:	Haematology: Referred to: Haematology Dept., GUH Galway
Specimen:	3.0mL K3 EDTA (Purple) bottle.
Comment:	Contact Ext.8366 prior to taking the sample.
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Haptoglobin	
Laboratory:	Haematology: Referred to Immunology, GUH
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	2 Days
Ref. Range:	on report form
Test: HCGBeta,	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barrier bottle
Turnaround:	Urgent/Priority < 2hrs Routine 1 day
Ref. Range:	on report form
Test: Helicobacter Pylori Antigen Test	
Laboratory:	Microbiology
Specimen:	Faeces
Turnaround:	1-3 working days
Report:	Detected / Not detected
Test: Heparin Induced Thrombocytopaenia Screen (HIT)	
Laboratory:	Haematology: Referred to Haematology , GUH

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 103 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Specimen:	5mL Serum Gel (Brown/Gold) bottle, HIT Request form must be completed, contact 8366
Comment:	Must contact the Haematology Lab beforehand.
Report:	Positive/Negative
Test: Hepatitis A IgM Antibody	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	3 working days
Report:	Positive/Negative
Test: Hepatitis B Antibody	
Laboratory:	Medical Microbiology: Referred to NVRL, Dublin
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	3 working days Positive/Negative. Provisional report issued on positive findings.
Report:	Reactive samples sent to NVRL, Dublin. NVRL, Dublin.
Report:	Positive/Negative
Test: Hepatitis B Core Antibody (Anti-HBc)	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Report:	Positive/Negative
Test: Hepatitis B DNA / Viral Load	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin..
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Send immediately to the Microbiology Laboratory. Contact laboratory beforehand
Turnaround:	2 - 3 Weeks
Report:	Refer to report
Test: Hepatitis C Antibody	
Laboratory:	Medical Microbiology
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Week Positive/Negative. Provisional report issued on positive findings.
	Reactive samples sent to NVRL, Dublin.
	NVRL, Dublin.
Report:	Positive/Negative
Test: Hepatitis C PCR / Viral Load / Genotype	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle or EDTA
Comment:	Send immediately to the Microbiology Laboratory. Contact Lab beforehand (Ext.8369).
Turnaround:	1 - 2 Weeks
Report:	Positive/Negative
Test: Hepatitis D Antibody	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Please note: that Hepatitis B surface Antigen negative samples will not be tested for HDV.
Turnaround:	1 - 3 Weeks

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 104 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Report:	Positive/Negative
Test: Hepatitis E Antibody	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Report:	Positive/Negative
Test: Hereditary Spherocytosis	
Laboratory:	Haematology: Referred to: Haematology Department, OLHSC, Dublin
Specimen:	2 x 3.0mL K3 EDTA (Purple) bottle.
Comment:	By prior arrangement only. Contact Ext.8366.
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Herpes Simplex Virus (HSV) Antibody	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Report:	Positive/Negative
Test: Herpes Simplex Virus Culture	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	Swab In Viral transport Media or Pink lidded Viral Swab
Comment:	Available following prior arrangement with a Consultant Microbiologist
Turnaround:	2 - 3 Weeks
Report:	Refer to report
Test: Herpes Simplex Virus PCR	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	CSF (min volume 150ul)
Turnaround:	2 - 3 Weeks
Ref Range:	On report form
Test: High Density Lipoprotein (HDL)	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle
Turnaround:	1 Day
Ref. Range:	on report form
Test: High Vaginal Swab (HVS) – Culture	
Comment:	see Vaginal swab
Test: Histoplasmosis	
Laboratory:	Medical Microbiology: Referred to: Mycology Reference laboratory, Bristol
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Please contact Consultant Microbiologist before taking sample, clinical details must include relevant travel information
Turnaround:	2 - 4 Weeks

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 105 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Report:	Refer to report
Test: HIT Screen – Heparin Induced Thrombocytopaenia Screen (HIT)	
Comment:	See: Heparin Induced Thrombocytopaenia Screen (HIT)
Test: HLA Typing	
Laboratory:	Haematology: Referred to: Tissue Typing Reference Laboratory, National Blood Centre, Dublin.
Specimen:	6mL K2 EDTA (Pink) bottle
Comment:	Must be received in the laboratory by 11am.
Turnaround:	1 - 2 Weeks
Report:	on report form
Test: Homocysteine – (Total) plasma	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	2 ml Li Heparin bottle/ 3
Comment:	Send immediately to the laboratory <1hr
Turnaround:	2-14 days
Ref. Range:	on report form
Test: Human Immunodeficiency Virus (HIV) Antibody/ Antigen	
Laboratory:	Medical Microbiology
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	5 working days Positive/Negative. Provisional report issued on positive findings. Referred to NVRL, Dublin for confirmation.
Report:	Positive/Negative
Test: Human Immunodeficiency Virus (HIV) Viral Load PCR	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	6mL K2 EDTA (Pink) bottle x 3
Comment:	Specimen must be delivered to the laboratory within 3 hours of phlebotomy. Contact Lab beforehand.
Turnaround:	1 - 2 Weeks
Report:	Detected/Not Detected
Test: Hurlers Syndrome	
Comment:	see Mucopolysaccharidoses
Test: Hydatid Antibodies - Echinococcosis	
Laboratory:	Medical Microbiology: Referred to: Biomnis Ireland, Dublin
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	2 - 3 Weeks
Report:	Positive/Negative
Test: IgE (Total)	
Laboratory:	Medical Microbiology: Referred to: Immunology, GUH.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 106 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: IgG Subclasses	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Immunofixation Serum	
Comment:	see Serum Protein Electrophoresis
Test: Immunofixation Urine	
Comment:	see Serum Protein Electrophoresis
Test: Immunoglobulins; IgA / IgG / IgM	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Week
Ref. Range:	on report form
Test: Influenza	
Laboratory:	Medical Microbiology
Specimen:	Swab of nasopharyngeal in 3ml COPAN UTM [swabs available from Microbiology Dept.]. If delay of >8hours in reaching Microbiology lab then must refrigerate @ 2-8°C.
Turnaround:	1 day
Report:	Detected/Not Detected
Test: INR (International Normalised Ratio)	
Laboratory:	Haematology
Specimen:	2.7mL 9NC (Light Blue) bottle.
Comment:	Fill bottle to mark. Details of anticoagulant therapy required. Do not refrigerate specimens for INR
Ref. Range:	on report form
Test: Insulin	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Send to Biochemistry Lab immediately
Turnaround:	1 Week
Test: Insulin-like Growth Factor 1 or 2 (IGF1, IGF2)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Send to Biochemistry Lab immediately
Turnaround:	1 - 3 Weeks

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 107 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Ref Range	on report form
Test: Intra-Uterine Infection Screen / TORCH Screen	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Report:	Positive/Negative
Test: Ionised Calcium	
Laboratory:	Blood Gas instrument
Specimen:	Blood in a heparinised syringe.
Turnaround:	N/A
Ref Range	on printout
Test: Iron	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle. Send to laboratory as soon as possible.
Comment:	Fasting sample
Turnaround:	1 Day
Ref. Range:	on report form
Test: Jak 2 Mutation	
Laboratory:	Haematology: Referred to: CMD SJH
Specimen:	3.0mL K3 EDTA (Purple) bottle.
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Joint Fluid – Crystals	
Laboratory:	Medical Microbiology: Referred to: Histopathology, GUH.
Specimen:	10- 20mLs of fresh specimen in a universal container. If cell count is required please send fluid in EDTA bottle.
Turnaround:	1 Week
Report:	Detected/Not Detected
Test: Joint Fluid – Culture	
Laboratory:	Medical Microbiology
Specimen:	Specimen in sterile leak proof container. Delay >2 hours refrigerate @ 2 - 8°C
Turnaround:	3 working days
Ref. Range:	Clinically significant isolate with appropriate sensitivities
Test: Kleihauer Test	
Laboratory:	Blood Transfusion
Specimen:	6mL K2 EDTA (Pink- Blood Transfusion) bottle
Turnaround:	72 hours
Ref. Range	As stated on blood transfusion report
Test: Lactate	

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 108 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Laboratory:	Blood Gas analyser or Clinical Biochemistry
Specimen:	Blood Gas Analyser /Fluoride Oxalate
Comment:	Send the Fluoride oxalate sample to laboratory immediately < 15 min Contact Biochemistry Ext 8219 prior to sending sample
Turnaround:	1 Hours
Ref. Range:	on report form
Test: Lactate Dehydrogenase (LDH)	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor
Turnaround:	Urgent 1 hour, Priority 2 hours, Routine 1 day 1 Day
Ref Range	on report form
Test: Lamictal / Lamotrigine	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Send to Biochemistry Lab immediately
Turnaround:	1 - 3 Weeks
Ref Range	on report form
Test: Lead	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	Trace element bottle available from Biochemistry
Turnaround:	1 Week
Ref Range	on report form
Test: Legionella pneumophila - Urinary antigen	
Laboratory:	Medical Microbiology
Specimen:	Plain random urine specimen in a sterile urine container.
Turnaround:	1 working day
Report:	Positive/Negative
Test: Legionella pneumophila Antibodies	
Laboratory:	Medical Microbiology: Referred to: Biomnis, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Available in only very specific cases and following prior arrangement with a Consultant Microbiologist
Turnaround:	2 - 3 Weeks
Report:	Positive/Negative
Test: Leptospira Antibodies	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Report:	Positive/Negative
Test: Leutinising Hormone (LH)	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 109 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Turnaround:	3 Days
Ref Range:	on report form
Test: Lipase	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor
Comment:	Clinical details required as this test is not routinely available
Turnaround:	1 Day
Ref Range:	on report form
Test: Lipid Profile (Cholesterol, Triglyceride, LDL, HDL)	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor
Comment:	See individual tests for further details
Turnaround:	1 Day
Ref Range:	on report form
Test: Listeria PCR	
Laboratory:	Medical Microbiology: Referred to: IMSRL, Temple Street, Dublin
Specimen:	CSF
Comment:	IMSRL request form to be completed, must include clinical indication
Turnaround:	10 days
Report:	DNA Detected / Not Detected
Test: Lithium	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Day
Ref Range:	on report form
Test: Liver Function Tests (Albumin, Bilirubin - total, Gamma-GT, Alk Phos, ALT, AST)	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	See individual tests for further information
Turnaround:	Urgent 1 hour, Priority 2 hours, Routine 1 day 1 Day
Ref Range:	on report form
Test: Low Density Lipoprotein (LDL)	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor
Turnaround:	1 Day
Ref Range:	< 3.0 mmol/L
Test: Lupus Anticoagulant Screen	
Laboratory:	Haematology: Referred to: Haematology, GUH.
Specimen:	3 x 2.7mL 9NC (Light Blue) bottle, and 1 x 5mL Serum Gel (Brown/Gold) bottle.
Comment:	Details of anticoagulant therapy required. Must fill bottle to mark. Anti cardiolipin should also be requested

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 110 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Turnaround:	3 Weeks
Ref. Range:	N/A
Test: Lyme Disease	
Comment:	see Borrelia burgdorferi antibodies
Test: Lymphocyte Subsets (CD4/CD8)	
Laboratory:	Haematology: Referred to: Immunology, GUH.
Specimen:	2 x 3.0mL K3 EDTA (Purple) bottle.
Comment:	Do not refrigerate. Please contact the laboratory before taking sample (Ext. 8366)
Turnaround:	1 Week
Ref. Range:	on report form
Test: Magnesium	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor
Turnaround:	Urgent 1 hour, Priority 2 hours, Routine 1 day 1 Day
Ref Range:	on report form
Test: Magnesium (Urine)	
Laboratory:	Clinical Biochemistry: Referred test
Specimen:	24 Hour Urine Collection
Turnaround:	1 Week
Ref Range:	on report form
Test: Malarial screen	
Laboratory:	Haematology
Specimen:	3.0mL K3 EDTA (Purple) bottle.
Comment:	Blood film is examined microscopically. The blood is tested for the presence of parasite associated enzyme. Travel history and clinical details essential.
Turnaround:	1 Day
Report:	Positive/Negative
Test: Maturity Onset Diabetes of the Young (MODY) - HNF	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	6mL K2 EDTA (Pink) bottle
Turnaround:	12 weeks
Report:	Detected/Not Detected
Test: Measles IgM / IgG Antibody	
Laboratory:	Serology/Virology - Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Report:	Positive/Negative
Test: Measles PCR	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 111 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Specimen:	Oral Fluid, CSF, Urine, Swabs (Buccal, available in Microbiology Dept)
Turnaround:	1 - 2 Weeks
Report:	Positive/Negative
Test: Meningococcal Antibodies	
Laboratory:	Medical Microbiology: Referred to: The Meningococcal and Meningitis Laboratory, Children's University Hospital, Temple St, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	2 - 3 Weeks
Report:	Positive/Negative
Test: Meningococcal PCR	
Comment:	see Neisseria meningitidis PCR
Test: Metabolic Screen - Plasma (Amino Acid Chromatography)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	Lithium Heparin – Green bottle
Comment:	Send immediately to the laboratory. Please supply clinical detail and Temple St Request form
Turnaround:	1 - 3 Weeks
Ref Range:	on report form
Test: Metabolic Screen - Urine (Organic Acids)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	Plain urine sample
Comment:	Send immediately to the laboratory. Please supply clinical details and Temple St Request form
Turnaround:	1 - 3 Weeks
Ref Range:	on report form
Test: Metanephrines (Plasma)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	Protocol available from Biochemistry Dep't (Ext. 8219)
Comment:	Send immediately to the laboratory
Turnaround:	1 - 3 Weeks
Test: Metanephrines (Urine)	
Comment:	see Catecholamines
Test: Methadone	
Comment:	see Toxicology screen (urine)
Test: Methaemoglobin	
Laboratory:	Haematology: Referred to: Haematology, GUH?? Available on the Blood Gas analyser
Specimen:	3.0mL K3 EDTA (Purple) bottle.
Comment:	Fresh sample required
Turnaround:	1 Week
Ref. Range:	on report form
Test: Methicillin-Resistant Staph Aureus (MRSA) Screen	

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 112 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Laboratory:	Medical Microbiology
Specimen:	Swab in transport medium. Delay >2 hours refrigerate @ 2 - 8°C
Turnaround:	2 - 3 Working days
Report:	MRSA isolated/Not isolated
Test: Methionine (Plasma)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	Lithium Heparin – Green bottle
Comment:	Send immediately to the laboratory
Turnaround:	1 - 3 Weeks
Ref Range:	on report form
Test: Methotrexate	
Laboratory:	Haematology?? Referred to: Biochemistry GUH
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	State time of infusion
Turnaround:	1 - 3 Weeks
Test: Microalbumin	
Comment:	see Albumin (Urine)
Test: Microarray	
Laboratory:	Medical Microbiology: Referred to: Guys Hospital, London
Specimen:	3-5 mls EDTA
Turnaround:	6 months
Report:	Refer to report
Test: Midstream Urine (MSU)	
Laboratory:	Medical Microbiology
Comment:	see Urine Culture
Test: Monospot/ Infectious Mononucleosis Heterophile Antibodies (Glandular Fever)	
Comment:	No longer available, see “Epstein-Barr Virus (EBV) Antibodies”
Test: Morphine (Opiates)	
Comment:	see Toxicology screen (Urine)
Test: Morphology (Red Cell) / Blood Film	
Laboratory:	Haematology
Specimen:	3.0mL K3 EDTA (Purple) bottle, fresh sample required.
Comment:	Blood films are made, examined and reported on patient FBC results which satisfy the criteria for blood film examination.
Turnaround:	1 Day
Ref. Range:	on report form
Test: Mouth swab – Culture	
Laboratory:	Medical Microbiology
Specimen:	Swab in transport medium. Delay >2 hours refrigerate @ 2 - 8°C

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 113 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Turnaround:	2-3 working days
Report:	Any significant pathogens & sensitivities if required.
Test: Mucopolysaccharides Screen	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5-10 mls Urine
Comment:	Send to Lab immediately. Please include clinical details. Turnaround: 1 - 3 Weeks
Ref Range:	on report form
Test: Mumps IgM / IgG Antibody	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Mumps PCR	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	Oral Fluid, CSF, Throat Swabs (Buccal swab, available in Microbiology Dept)
Turnaround:	1 - 2 Weeks
Report:	Positive/Negative
Test: Muscle Biopsies	
Laboratory:	Histology-Tissue Referred: Histopathology, GUH
Specimen:	Fresh tissue
Comment:	Must be arranged with the histology department in advance (ext.368) . Send immediately to the laboratory.
Turnaround:	1 Week
Report:	Histopathology Report
Test: Mycobacteria Testing - (Including TB investigations)	
Laboratory:	Medical Microbiology: Referred to: Medical Microbiology, GUH
Specimen:	Sputa. BAL in 60mL container. Early morning urine (at least 40mL) in 100mL sterile container – by prior arrangement GUH Department of Medical Micro and Portiuncula Micro. Fluids/tissues in sterile container.
Comment:	Urine testing by prior arrangement only. Check with the microbiology laboratory (Ext. 369) for further details
Turnaround:	Microscopy: 1 Week. Culture: 6 Weeks
Report:	Presence or absence of Mycobacteria and culture report.
Test: Mycology - dermatophyte testing	
Laboratory:	Medical Microbiology: Referred to: Medical Microbiology, GUH
Specimen:	Hair, Nail clippings, Skin scrapings, in Dermapak.
Turnaround:	Microscopy: 1 week; Culture: 5-6 weeks
Report:	Fungi isolated/not isolated
Test: Mycoplasma pneumonia Antibodies IgM	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Patients < 20 years of age. Available in only very specific cases and following prior

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 114 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

arrangement with a Consultant Microbiologist	
Turnaround:	1 - 2 Weeks
Report:	Positive/Negative
Test: Myeloma Screen	
Laboratory:	Clinical Biochemistry: Referred to: Immunology, GUH.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Myoglobin	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	Random Urine
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Neisseria Gonorrhoea PCR Test	
Comment:	See: Chlamydia Trachomatis PCR Test
Test: Neutrophil Function Test - Dihydrorhodamine Flow Cytometry Assay of Respiratory Burst Activity	
Laboratory:	Haematology: Referred to: Immunology, GUH.
Specimen:	3.0mL K3 EDTA (Purple) bottle, control EDTA sample taken at the same time not a relative.
Comment:	Testing must be discussed with medical / scientific staff
Turnaround:	2 Days
Report:	Normal/Abnormal
Test: Noradrenaline (Adrenaline/Dopamine)	
Laboratory:	Clinical Biochemistry
Comment:	see: Adrenaline
Test: Normetanephrine	
Comment:	see: Metanephrine
Test: Norovirus - PCR	
Laboratory:	Medical Microbiology
Specimen:	Faeces in a sterile leak proof container. Delay >2 hours refrigerate @ 2 - 8°C
Comment:	Performed only as part of an outbreak investigation
Turnaround:	1 working day
Report:	Positive/Negative
Test: Occult Blood / Faeces	
Comment:	Point of Care Test: Perform on ward.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 115 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Test: Oestradiol	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	2 - 3 Days
Ref Range:	on report form
Test: Oligolonal banding	
Comment:	see Cerebrospinal fluid - Oligoclonal bands
Test: Opiates	
Comment:	see Toxicology screen (urine)
Test: Organic Acids	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5 mls Plain random urine specimen
Comment:	Send immediately to the laboratory with Temple St Request form and clinical details
Turnaround:	1 - 3 Weeks
Ref Range:	on report form
Test: Osmolality (serum)	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Day
Ref Range:	on report form
Test: Osmolality (Urine)	
Laboratory:	Clinical Biochemistry
Specimen:	Plain random urine specimen
Turnaround:	1 Day
Ref Range:	on report form
Test: Osmotic fragility	
Laboratory:	Haematology: test no longer available.
Test: Ova / Cysts / Parasites	
Comment:	see Faeces Ova & Parasites
Test: Para Thyroid Hormone (PTH)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Send to laboratory immediately
Turnaround:	1 Week
Ref. Range:	on report form
Test: Paracetamol	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor Bottle
Turnaround:	

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 116 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Ref. Range:	on report form
Test: Paraquat - Urine screen	
Laboratory:	Clinical Biochemistry referred test
Specimen:	Plain random urine specimen
Turnaround:	1 - 3 Days
Ref Range:	Not normally detected
Test: Penile Swab – Culture	
Laboratory:	Medical Microbiology
Specimen:	Swab in transport medium. Delay >2 hours refrigerate @ 2 - 8°C
Comment:	For investigation of <i>N. gonorrhoea</i> a urethral swab must be sent. All samples for gonorrhoea investigation must be sent directly to the laboratory for immediate plating. Consider also sending appropriate Chlamydia trachomatis and Neisseria gonorrhoeae PCR test if clinical concern- see section above for specimen requirements
Turnaround:	3 working days
Report:	Any significant pathogen
Test: Peritoneal fluids	
Comment:	see Body Fluids – Cytology
Test: Pertussis (Whooping Cough)	
Comment:	see Bordetella pertussis culture
Test: Phenobarbitone / Phenobarbital	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Week
Ref. Range:	on report form
Test: Phenytoin	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Week
Ref. Range:	on report form
Test: Philadelphia Chromosome	
Laboratory:	Haematology: Referred to: CMD, St James's Hospital, Dublin.
Specimen:	3 x 3.0mL K3 EDTA (Purple) bottle or 2ml Bone marrow in RPMI
Comment:	Must be arranged in advance with Haematology (Ext. 8366)
Turnaround:	4 Weeks
Ref. Range:	N/A
Test: Phosphate –	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 117 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Turnaround:	Urgent 1 hour, Priority 2 hours, Routine 1 day 1 Day
Ref. Range:	on report form
Test: Phosphate - Urinary (24hr)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	24 Hour Urine Collection - acidified container
Turnaround:	3 Days
Ref. Range:	on report form
Test: Plasma Viscosity	
Laboratory:	Haematology: Referred to: Haematology, GUH.
Specimen:	3 x 3.0mL K3 EDTA (Purple) bottle
Comment:	Must be received within 2 hours of phlebotomy. Contact the laboratory in advance (Ext. 8366)
Turnaround:	3 Days
Ref. Range:	on report form
Test: Platelet Aggregation Studies	
Laboratory:	Haematology: Referred to: NCHCD, St James's Hospital, Dublin.
Specimen:	2 x 2.7mL 9NC (Light Blue) bottle
Comment:	By prior arrangement only. Phone Ext.8366.
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Pleural Fluid: Total Protein / Albumin / LDH	
Laboratory:	Clinical Biochemistry
Specimen:	Universal Container
Turnaround:	1 Day
Ref. Range:	on report form
Test: Pleural Fluid: Glucose	
Laboratory:	Clinical Biochemistry
Specimen:	Fluoride Oxalate – Grey Bottle
Turnaround:	1 Day
Ref. Range:	on report form
Test: Pleural Fluid: pH	
Laboratory:	available on Blood Gas Instrument
Specimen:	air-free heparinised blood gas syringe
Test: Pleural Fluid Culture	
Laboratory:	Medical Microbiology
Specimen:	Specimen in sterile leak proof container. Delay >2 hours refrigerate @ 2 - 8°C. If cell count required please send EDTA spec.
Turnaround:	3 working days (if no growth)
Report:	No growth / Growth with relevant sensitivities

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 118 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Test: Pleural fluid/Effusion – cytology	
Comment:	see Body Fluids - Cytology
Test: Pneumococcal (S. pneumoniae) Antibodies	
Laboratory:	Medical Microbiology: Referred to: Biomnis Ireland, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	This test is reserved for post-vaccination testing and post-vaccine immuno deficiency
Turnaround:	2 - 3 Weeks
Report:	Positive/Negative
Test: Pneumococcal PCR	
Laboratory:	Medical Microbiology: Referred to: IMSRL, Temple Street, Dublin
Specimen:	CSF / EDTA
Comment:	IMSRL request form to be completed
Turnaround:	10 days
Report:	DNA Detected / Not Detected
Test: Pneumococcal Vaccine Response (Paediatric's)	
Laboratory:	Medical Microbiology: Referred to: Vaccine Evaluation Unit.,Manchester
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	2 - 4 Weeks
Report:	Refer to report
Test: Porphyrin Screen	
Laboratory:	Clinical Biochemistry: Referred to: Biochemistry Laboratory, St James 's Hospital, Dublin.
Specimen:	10mls EDTA blood, 5g of fresh faeces and a 24 hour urine collection
Comment:	All specimens must be protected from light
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Potassium	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle
Turnaround:	Urgent 1 hour, Priority 2 hours, Routine 1 day 1 Day
Ref. Range:	on report form
Test: Potassium – Urine	
Laboratory:	Clinical Biochemistry
Specimen:	Plain random urine specimen
Turnaround:	1 Day
Ref Range:	on report form
Test: Pregnancy Test - Serum HCG	
Comment:	see HCG - Total serum
Test: Pregnancy test urine	
Comment:	see beta - HCG Urine

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 119 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Test: Primidone	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Send to Biochemistry Lab immediately
Turnaround:	1 - 3 Weeks
Ref Range	on report form
Test: ProBNP	
Laboratory:	Clinical Biochemistry:
Specimen:	5mL Serum Gel (Brown/Gold) bottle/barricor bottle
Turnaround:	Urgent 1 hour, Priority 2 hours, Routine 1 day 1 day
Ref Range	on report form
Test: Procollagen Peptide Type 3	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Send to Biochemistry Lab immediately
Turnaround:	1 - 3 Weeks
Ref Range	on report form
Test: Progesterone	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	2 - 3 Days
Ref Range	on report form
Test: Proinsulin	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	3.0mL K3 EDTA (Purple) bottle
Comment:	Send to Biochemistry Lab immediately
Turnaround:	1 - 3 Weeks
Ref Range	on report form
Test: Prolactin	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	2 - 3 Days
Ref Range	on report form
Test: Prostate Specific Antigen (PSA) - Total	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle
Comment:	If requested with general biochemistry tests,
Turnaround:	1 Day
Ref Range	Age related. See report form.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 120 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Test: Protein (Total - Serum)	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Day
Ref Range	on report form
Test: Protein (Urine)	
Laboratory:	Clinical Biochemistry
Specimen:	24 Hour Urine Collection
Turnaround:	1 Day
Ref Range	on report form
Test: Protein C	
Comment:	see Thrombophilia screen
Test: Protein Electrophoresis (Serum)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Week
Ref. Range:	on report form
Test: Protein S	
Comment:	see Thrombophilia screen
Test: Prothrombin gene	
Comment:	test no longer available
Test: Prothrombin Time (PT)	
Laboratory:	Haematology
Specimen:	2.7mL 9NC (Light Blue) bottle.
Comment:	Details of anticoagulant therapy required. Must fill bottle to the mark
Turnaround:	1 Day
Ref. Range:	on report form
Test: Pyruvate Kinase Screening (PK)	
Laboratory:	Haematology: Referred to: Haematology, GUH.
Specimen:	3.0mL K3 EDTA (Purple) bottle
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Q Fever Antibodies	
Comment:	see "Rickettsia burnetti antibodies"
Test: Quantiferon Test	
Laboratory:	Medical Microbiology: Referred to: TB laboratory, Mater hospital, Dublin

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 121 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Specimen:	Quantiferon test Kit (available in Microbiology)
Comment:	Quantiferon request form must be included, testing Monday – Thursday ONLY
Turnaround:	3 weeks
Report:	Refer to report
Test: RAST test	
Laboratory:	Medical Microbiology: Referred to: Immunology, GUH.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Please state specific allergens to be tested or complete GUH RAST questionnaire.
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Reducing substances	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	Plain random faeces sample
Comment:	Send to laboratory to freeze <1hr
Turnaround:	1 Week
Ref Range	on report form
Test: Renin	
Laboratory:	Clinical Biochemistry Referred test
Comment:	
Turnaround:	1 - 3 Weeks
Ref Range	on report form
Test: Respiratory Syncytial Virus (RSV) - PCR	
Laboratory:	Medical Microbiology:
Specimen:	Naso-pharyngeal aspirate in viral transport medium
Comment:	Specimen must be forwarded immediately to the laboratory.
Turnaround:	1 Day
Report:	Positive/Negative
Test: Reticulocyte Count	
Laboratory:	Haematology
Specimen:	3.0mL K3 EDTA (Purple) bottle (same FBC bottle)
Comment:	Must be performed same day sample taken
Turnaround:	1 Day
Ref Range	see report form
Test: Retinol	
Comment:	see Vitamin A
Test: Retinol Binding Protein	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Send to Biochemistry Lab immediately
Turnaround:	1 - 3 Weeks
Ref Range	on report form
Test: Rheumatoid Factor (RF)	

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 122 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Laboratory:	Serology: Referred to: Immunology, GUH.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	2 Weeks
Ref Range	on report form
Test: Rickettsia burnetti antibodies (Q fever)	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Week
Report:	Positive/Negative
Test: Rotavirus / Adenovirus Antigen	
Laboratory:	Medical Microbiology: Referred to medical Microbiology GUH
Specimen:	Faeces in a sterile leak proof container. Delay >2 hours refrigerate @ 2 - 8°C
Comment:	Test routinely performed on children < 5 years old
Turnaround:	3 working days
Report:	Rotavirus /Adenovirus Detected / Not detected
Test: Rubella IgG Antibody	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	3 working days
Report:	Positive/Negative with comment.
Test: Rubella IgM Antibody	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Week
Ref Range	Reported in IU/ml with relevant comment
Test: Salicylate	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/barricor bottle
Turnaround:	Urgent 1 hour, Priority 2 hours, Routine 1 day 1 Day
Ref Range	on report form
Test: Schistosoma	
Comment:	Contact the laboratory at ext. 8369 for further information
Test: Serum Amyloid A (SAA)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Te SHBG	
Laboratory:	Clinical Biochemistry: Referred Test

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 123 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Female – only analysed where testosterone >1.2nmol/L.
Turnaround:	2 - 3 Days
Ref. Range:	on report form
Test: Sickle Cell Screen	
Laboratory:	Haematology
Specimen:	3.0mL K3 EDTA (Purple) bottle
Comment:	Must give clinical details, transfusion history and ethnic origin of patient. Test not valid in children under 6 months of age. All screens are confirmed by HPLC.
Turnaround:	1 day for screen. 1 Week for HPLC
Report:	Positive/Negative
Test: Sirolimus	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	6mL K2 EDTA (Pink) bottle
Turnaround:	1 - 3 Weeks
Ref Range:	on report form
Test: Skin swab – Culture	
Laboratory:	Medical Microbiology
Specimen:	Swab in transport medium. Delay >2 hours refrigerate @ 2 - 8°C
Turnaround:	3 working days
Report:	Any significant pathogen & sensitivities if required
Test: Sodium	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle
Turnaround:	Urgent 1 hour, Priority 2 hours, Routine 1 day 1 Day
Ref. Range:	on report form
Test: Sodium (Urine)	
Laboratory:	Clinical Biochemistry
Specimen:	24 Hour Urine Collection
Turnaround:	1 Day
Ref. Range:	on report form
Test: Somatomedin (IGF1)	
Comment:	see Insulin-like Growth Factor I
Test: Specific Gravity (urine)	
Laboratory:	Clinical Biochemistry
Specimen:	Urine in a plain Universal Container, no Preservative
Turnaround:	1 Day
Comment:	Available on urine dipstick
Ref. Range:	on report form
Test: Sputum - Cytology (malignant cells)	

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 124 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Laboratory:	Histology-Cytology
Specimen:	0.5 - 20ml spontaneous or induced fresh specimen collected into a 60ml universal container. Indicate clinical history on test requisition & reason for test. Sputum must be deeply coughed from lungs. Avoid oral contamination & saliva. Early morning on rising is the preferred collection time
Turnaround:	1 Week
Report:	Detection of neoplastic & non neoplastic cells. Detection of infectious organisms.
Test: Sputum Culture	
Laboratory:	Medical Microbiology
Specimen:	Purulent specimen in 60ml sterile container.
Comment:	Salivary specimens will be discarded.
Turnaround:	2-3 working days
Report:	Any significant pathogen & sensitivities if required
Test: Sputum TB culture	
Comment:	see Mycobacteria Testing
Test: Surgical Specimens for Histological Examination	
Laboratory:	Histology-Tissue
Specimen:	Formalin fixed tissue
Turnaround:	90% within 2 Weeks
Report:	A histological diagnosis
Test: Synovial Fluid - Culture	
Laboratory:	Medical Microbiology
Specimen:	Specimen in a sterile leak proof container. Delay >2 hours refrigerate @ 2 - 8°C. If cell count required please also send in EDTA.
Turnaround:	2-3 working days
Report:	No growth / Growth with relevant sensitivities
Test: Syphilis (Treponema pallidum) Antibodies	
Laboratory:	Medical Microbiology
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Week
Report:	Positive/Negative
Test: T3 (Free)	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Analysed depending on the FT4/TSH result
Turnaround:	2 - 3 Days
Ref. Range:	on report form
Test: Tacrolimus (FK506 / Prograf)	
Laboratory:	Clinical Biochemistry: Referred Test

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 125 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Specimen:	3.0mL K3 EDTA (Purple) bottle
Comment:	Trough sample required
Turnaround:	2 - 3 Weeks
Ref Range	on report form
Test: Testosterone	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle. Early morning sample within 2 hrs of waking.
Turnaround:	2 - 3 Days
Ref. Range:	on report form
Test: Theophylline	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Week
Ref. Range:	on report form
Test: Thiopurine Methyl Transferase (TPMT)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	6mL K2 EDTA (Pink) bottle
Turnaround:	1 - 3 Weeks
Ref Range:	on report form
Test: Throat swab – Culture	
Laboratory:	Medical Microbiology
Specimen:	Swab in transport medium. Delay >2 hours refrigerate @ 2 - 8°C
Turnaround:	2 working days
Report:	Any significant pathogen
Test: Thrombophilia Screen (TSS) (incl> PT, APTT, Fibrinogen, Anti-Thrombin, Protein C, Protein S, Free Protein S, APCR, Lupus anticoagulant, Anti-cardiolipin antibodies,)	
Laboratory:	Haematology: Referred to: Haematology & Immunology, GUH.
Specimen:	4 x 2.7mL 9NC (Light Blue) bottle and 1 x 5mL Serum Gel (Brown/Gold) bottle
Comment:	Samples must be received by 11am Monday - Friday. Clinical details and relevant family history required. Anticoagulation history required. Must fill bottle to mark.
Turnaround:	5 - 6 Weeks
Ref. Range:	on report form
Test: Thyroglobulin	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Thyroid Profile/TFTs (Free T4 & TSH)	
Comment:	see individual tests Thyroxine (Free T4) & Thyroid stimulating hormone
Test: Thyroid Stimulating Hormone (TSH)	

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 126 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle
Turnaround:	1 Day
Ref. Range:	on report form
Test: Thyroxine (Free T4)	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle
Turnaround:	1 Day
Ref. Range:	on report form
Test: Tobramycin	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Specify time specimen collected indicating Peak or Trough.
Turnaround:	3 Days
Ref Range	on report form
Test: TORCH Screen Antibodies	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Ref. Range:	On report form
Test: Toxocara antibodies	
Laboratory:	Medical Microbiology: Referred to: Biomnis Ireland, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	2 - 3 Weeks
Comment:	Available in only very specific cases and following prior arrangement with a Consultant Microbiologist
Report :	Positive/Negative
Test: Toxicology/Drug screen Urine (Benzodiazepines, barbiturates, opiates, cocaine, methadone, amphetamine, TCA, ecstasy, marijuana, cannabis, metamphetamines)	
Laboratory:	Clinical Biochemistry
Specimen:	10.0 ml plain urine specimen
Turnaround:	1 Day
Report:	Positive/Negative
Test: Toxoplasma gondii IgM / IgG Antibodies	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 2 Weeks
Report:	Positive/Negative
Test: Transferrin	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Week

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 127 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Ref Range	on report form
Test: Transferrin Saturation (%)	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Day
Ref Range	on report form
Test: Transferrin Soluble Receptor	
Laboratory:	Haematology: Referred to: Haematology, Central Pathology Laboratory, St James's Hospital, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: Transfusion Reaction Investigation	
Laboratory:	Blood Transfusion
Specimen:	Range of samples required
Comment:	Refer to Hospital Haemovigilance Transfusion Handbook
Turnaround:	1 - 2 Weeks
Test: Trichomonas vaginalis	
Laboratory:	Medical Microbiology
Specimen:	Vaginal, Urethral or Endo-cervical swab in trichomonas broth transport medium.
Turnaround:	3working days
Report:	Trichomonas vaginalis detected /not detected
Test: Triglycerides	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle
Turnaround:	1 Day
Ref Range	on report form
Test: Troponin T (HS)	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle /Barricor bottle
Turnaround:	Urgent 1 hour, Priority 2 hours, Routine 1 day 1 Day
Ref Range	on report form
Test: TSH Receptor Antibodies / TRAB	
Laboratory:	Clinical Biochemistry: Referred test,
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 - 3 Weeks
Ref. Range:	on report form
Test: TTG - Coeliac screen	
Laboratory:	Medical Microbiology: Referred to: Immunology, GUH.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 128 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	2 - 3 Weeks
Ref. Range:	on report form
Test: Tuberculosis Testing	
Comment:	see Mycobacterial testing
Test: Ulcer Swab – Culture	
Laboratory:	Medical Microbiology
Specimen:	Swab in transport medium. Delay >2 hours refrigerate @ 2 - 8°C
Turnaround:	3 working days
Report:	Any significant isolates
Test: Unsaturated Iron Binding Capacity (UIBC)	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Day
Ref. Range:	on report form
Test: Urea	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle
Turnaround:	Urgent 1 hour, Priority 2 hours, Routine 1 day 1 Day
Ref Range:	on report form
Test: Urea (Urine 24hr)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	24 Hour Urine Collection
Turnaround:	3 Days
Ref Range:	on report form
Test: Urea and Electrolytes (Urea, Sodium, Potassium, Creatinine)	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle/Barricor bottle
Comment:	See individual tests for further details
Turnaround:	1 Day
Ref. Range:	on report form
Test: Urethral Swab – Culture	
Laboratory:	Medical Microbiology
Specimen:	Swab in transport medium. Delay >2 hours refrigerate @ 2 - 8°C. . If Neisseria gonorrhoea suspected please deliver directly to lab for immediate plating and consider sending samples for Neisseria gonorrhoeae PCR- see section above for specimen requirements.
Turnaround:	3 working days
Report:	Any significant isolates and sensitivities if required.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 129 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Test: Uric Acid (Urate)	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle /Barricor bottle
Turnaround:	1 Day
Ref Range	on report form
Test: Uric Acid (Urine)	
Laboratory:	Clinical Biochemistry
Specimen:	24 Hour Urine Collection (+10ml sodium hydroxide)
Comment:	Contact Specimen Reception (Ext.8123) for container.
Turnaround:	1 Week
Ref Range	on report form
Test: Urine Culture (MSU, CSU, Clean-catch, Bag)	
Laboratory:	Medical Microbiology
Specimen:	Specimen in a 60ml sterile leak proof container. Must be brought immediately to Laboratory. If delay > 2 hours use boric acid universal container (red top).
Comment:	State collection method - MSU, CSU etc. Boric acid containers should be filled to dotted line.
Turnaround:	Microscopy 4 hours for urines. Paediatric microscopy urine only available on –call Culture: 3 working days
Report:	Presence of significant pathogens and sensitivities.
Test: Urine – Cytology	
Laboratory:	Histology-Tissue
Specimen:	Fresh (equal volume fixative added in the laboratory after gross description of specimen
Comment:	Fixative available in histology; in the event that the sample is taken out of hours, the specimen must be placed on top shelf of Histology laboratory fridge along with corresponding request card.
Turnaround:	1 Week
Report:	Detection of neoplastic & non-neoplastic cells
Test: Urine Protein Electrophoresis	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	24hr urine sample preferred. Random urine sample (20ml, plain container, no preservative accept able if 24hr sample not possible)
Turnaround:	1 - 2 Weeks
Ref. Range:	on report form
Test: Vaccine Response (HiB, Pneumococcal, Tetanus)	
Laboratory:	Medical Microbiology: Referred to: Immunology GUH
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	2 - 4 Weeks
Report:	Refer to report
Test: Vaccine Response (Diphtheria, HiB, Pneumococcal, Tetanus)	
Laboratory:	Medical Microbiology: Referred to: Biomnis
Turnaround:	2 - 4 Weeks

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 130 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Report:	Refer to report
Test: Vaginal Swab (including HVS & Endocervical) – Culture	
Laboratory:	Medical Microbiology
Specimen:	Swab in transport medium. Delay >2 hours refrigerate @ 2 - 8°C. If Neisseria gonorrhoea suspected please deliver directly to lab for immediate plating.
Turnaround:	3 working days
Report:	Any significant isolates and sensitivities if required.
Test: Valproate	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	1 Week
Ref Range	on report form
Test: Vancomycin	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Specify time specimen collected indicating Peak or Trough
Turnaround:	1 Day
Ref. Range:	on report form
Test: Vancomycin Resistant Enterococci (VRE) – Culture	
Laboratory:	Medical Microbiology
Specimen:	Swab in transport medium. Delay >2 hours refrigerate @ 2 - 8°C.
Turnaround:	2 – 3 Working days
Report:	VRE isolated/Not isolated
Test: Varicella-Zoster virus IgM / IgG Antibodies	
Laboratory:	Medical Microbiology: Referred to: NVRL, Dublin.
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Not part of routine ante-natal screen. Only available where strong index of suspicion or exposure by non-immune individual.
Turnaround:	1 - 2 Weeks
Ref Range:	on report form
Test: Vitamin A (Beta Carotene)	
Laboratory:	Clinical Biochemistry: Referred test
Specimen:	Lithium Heparin (no gel)
Comment:	Protect from light. Send immediately to Biochemistry lab.
Turnaround:	1 - 3 Weeks
Ref Range:	on report form
Test: Vitamin A (Retinol)	
Laboratory:	Clinical Biochemistry: Referred test
Specimen:	Lithium heparin (no gel separator)
Comment:	Protect from light, Send immediately to Lab
Turnaround:	1 - 3 Weeks

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 131 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Ref Range:	on report form
Test: Vitamin B1 (Thiamine)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	3.0mL K3 EDTA (Purple) bottle
Comment:	Send to lab immediately and keep away from light.
Turnaround:	1 - 3 Weeks
Ref Range:	on report form
Test: Vitamin B12	
Laboratory:	Clinical Biochemistry
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Turnaround:	2 - 3 Working days
Ref Range:	on report form
Test: Vitamin B2 (Riboflavin)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	3.0 ml K3 EDTA bottle
Comment:	Send to lab immediately and keep away from light
Turnaround:	1 - 3 Weeks
Ref Range:	on report form
Test: Vitamin B3 (Niacin)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	3.0mL K3 EDTA (Purple) bottle
Comment:	Send to lab immediately and keep away from light
Turnaround:	1 - 3 Weeks
Ref Range:	on report form
Test: Vitamin B6 (Pyridoxine / Pyridoxyl Phosphate)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	3.0mL K3 EDTA (Purple) bottle
Comment:	Send to lab immediately and protect from light
Turnaround:	1 - 3 Weeks
Ref Range:	on report form
Test: Vitamin B8 (Biotin)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	3.0mL K3 EDTA (Purple) bottle
Comment:	Send to lab immediately and keep away from light
Turnaround:	1 - 3 Weeks
Ref Range:	on report form
Test: Vitamin D (1,25 dihydroxy)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Send to lab immediately.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 132 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Turnaround:	1 - 3 Weeks
Ref Range:	on report form
Test: Vitamin D (25 hydroxy)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	5mL Serum Gel (Brown/Gold) bottle
Comment:	Send to lab immediately.
Turnaround:	1 - 3 Weeks
Ref Range:	on report form
Test: Vitamin E (Tocopherol)	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	/Lithium Heparin (Do not use gel separator)
Comment:	Send immediately to Biochemistry lab, Protect from light
Turnaround:	1 - 3 Weeks
Ref Range:	on report form
Test: VMA	
Comment:	see Catecholamines – Urine
Test: Von Willebrands Screen	
Laboratory:	Haematology: Referred to: NCHCD, St James's Hospital, Dublin.
Specimen:	4 x 2.7mL 9NC (Light Blue) bottle (x 6 paediatric coag bottles for Paediatrics)
Comment:	Must fill bottle to mark. Must arrange with haematology (Ext.8366)
Turnaround:	4 Weeks
Ref. Range:	on report form
Water Deprivation Test:	
Laboratory:	Clinical Biochemistry
Comment:	Must be arranged in advance with Biochemistry Dep't (Ext.8219)
Turnaround:	1 Day
Test: White Blood Cell Automated Differential Cell Count	
Laboratory:	Haematology
Specimen:	3.0mL K3 EDTA (Purple) bottle (as per FBC).
Ref. Range:	on report form
Test: Whooping Cough	
Comment:	see "Bordetella pertussis"
Test: Wound Swab – Culture	
Laboratory:	Medical Microbiology
Specimen:	Swab in transport medium. Delay >2 hours refrigerate @ 2 - 8°C.
Turnaround:	3 working days
Report:	Any significant isolates and sensitivities if required.

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 133 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Test: Zinc	
Laboratory:	Clinical Biochemistry: Referred Test
Specimen:	Trace element bottle available from Biochemistry (Ext.8219)
Turnaround:	2 Weeks
Ref Range:	on report form

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 134 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

Appendix 4: Register of Changes to Laboratory User Guide (Version 12 to Version 13)

Corrected issues with renumbering sections throughout document

Section 1.6 Clinical Advisory Services

Minor changes: Corrected typo to now reference Microbiologist. Changed 'he/she' to 'they'

Section 2.1: Addition of information to say pre-filled formalin pots are available from stores dept.

Section 6.10

Removed Section 6.10 Frozen Pre-op samples (Blood Transfusion)

Table 8: addition of information to pre-analytical quality issues concerning histology/cytology specimens.

Section 8.0

- Addition of 'Cytology' to Section 8.3 heading. Corrected phone number in Histology dept.
- Referenced Bereavement Midwife and visual examination on p.62 In Histopathology section

Section 9.1 Profile

- Removed reference to infectious screening for antenatal clinics

Section 9.4 Test Profiles

Added reference to:

- Sputum / Respiratory samples
- Swabs for bacterial examination (c/s)
- Samples Viral examination

Section 9.5

- Updated testing arrangements to section dealing with blood cultures and Covid swabs out of Hours. Removed reference to urgent covid requests.
- Removed reference to urgent testing for infectious mononucleosis on call.

Section 9.6:

Major changes

- Removed section 9.6 (Covid-19 testing) and replaced with changes to Guidelines for requesting microbiology tests.
- Merged some information from Section 9.7 on previous version and expanded each test section to updated requirements. how to take blood culture specimens (included diagram)
- Added new information on tissues (9.6.11) and dermatophyte culture (9.6.13)

TITLE: Laboratory User Guide	
REFERENCE NO: LAB-GDE-001	REVISION NO: 13
OWNER: Pat Kelly/Declan Lyons	Page 135 of 135
EFFECTIVE FROM: 23/01/2023	REVIEW DATE: 23/01/2024

New section (9.7) to provide information on referrals

Removed Section 9.9 Critical alert values

Removed Section 9.10 Specimen retention policy (now covered in Section 9.6.1)

Test Directory:

- Added Microbiology to 'Abdominal fluids, Ascitic Fluids
- Added Covid and Influenza test requirements to test directory
- Updated requirements for a number of microbiological investigations-
- Bordetella
- Body Fluids
- Broncho-Alveolar Lavage
- Added new Carbapenemase Producing Enterbacteriaceae Screen to test directory
- Updated Catheter/Intravascular Cannula requirements
- Cerebrospinal Fluid-Bacterial PCR- new requirements
- Chlamydia trachomatis and Neisseria gonorrhoea PCR Test- new requirements
- Chromosome analysis (Karyotyping) - Adult samples
- Added new details on Chromosome analysis (Karyotyping) - Paediatric samples
- Added new details E Coli PCR
- Updated ESBL screen
- Added new Faeces for c/s, Cryptosporidium and Giardia – Molecular analysis
- Updated Faces Ova & Parasites
- Updated Haemophilus B and added Haemophilus B PCR
- Updated Hepatitis B DNA; Updated Hepatitis C PCR
- Added Herpes Simplex Virus Culture
- Added Histoplasmosis
- Added Listeria PCR; Added Measles PCR
- Added comment "no longer test Monospot- refer for EBV testing"
- Added Microarray requirements
- Added Mumps PCR, Pneumococcal PCR; Pneumococcal vaccine response
- Added Quantiferon Test
- Corrected Volume on p.88 CSF- CSF-cytology: 0.5ml to 2.0ml (not 20ml)
- Minor changes to Urine cytology on pg129