BON SECOURS HEALTH SYSTEM
Advanced Medicine Exceptional Care

# Primary Sample Collection Manual

**Policy ☐ SOP ☐ Guidelines ☒ Programme ☐**

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| **Standards References:** | ISO 15189:2022<br>Ref JCI 8th: AOP.03<br>HIQA National Standards for Safer Better Healthcare (September 2024) |
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## SUMMARY OF CHANGES (from previous version)

| Version/ Revision | Effective Date | Changes (list sections changes) | Change Author |
|---|---|---|---|
| 29 | 15th October 2025 | CR-23946 Updated Section 3.0 to include use of patient samples for verification/validation purposes. | Gene Ferris |
| 29 | 15th October 2025 | CR-24350 Removed reference to Chloroprep wipes and changed to 70% isopropyl alcohol wipes in Section 16.3.1. | Cara Wrenn |

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|---|---|---|---|
| 29 | 15th October 2025 | CR-24836 Updated throughout the document that Haematology is an ISO 15189 accredited laboratory. | Cara Wrenn |
| 29 | 15th October 2025 | CR-24861 Included information for the collection of combined nasal/throat swabs to Section 16.6.4 | Cara Wrenn |

# Primary Sample Collection Manual

## 1 Policy Statement

This policy statement is a reaffirmation of our commitment to a high level of ethical conduct and standards in conjunction with the Mission and Values of the Bon Secours Health System.

## 2 Purpose

The purpose of this policy and procedure is to give an overview of the services available in the Pathology Department. It is intended as a reference guide for all Pathology Service users including patients.

All Pathology services undergo continuous review through quality assurance and audit activities. The laboratory is committed to performing its activities, including Microbiology, Histology, Haematology and Blood Transfusion incorporating Haemovigilance and Traceability, in accordance with the requirements of the International Standard 1SO 15189:2022, Registration number 206MT and Joint Commission International.

This manual is intended for users of the Pathology Services both within the Hospital and those from outside agencies.

Laboratory management are committed to:

- 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 needed 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 accredited examination procedures and methods 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.

## 3 Scope

This policy and procedure is relevant to all Pathology Users (Healthcare Professionals and Patients).

### 3.1 For Healthcare Professionals (Pathology Users)

For internal users, an electronic version of the manual is available on the Hospital Intranet and on Q-Pulse, which allows all computer users to read the document while preventing modification. Please note copies printed from Q-Pulse are uncontrolled. In addition, a copy of the manual is also posted on the internet under the Pathology Department information section.

To enable the user to perform a search for a particular item in the manual, press the keys CTRL+ F which opens a "Find" window. Enter a key word for the text to be located in the "Find what" field and select "Find Next". The first instance of the text containing the selected word is located. Press "Find Next" until the required section is located.

Information on the Laboratory Tests/Profiles provided are located in this manual under Sections 13, 14, 15, 16, 17, 18 and 19. and are traceable to the department where the tests are performed.

#### 3.1.1 Updates to this Manual

Version to version changes are identified on the cover page under the 'Summary of Changes' section and also within the document by highlighting in grey the changed sections. A copy of any significant changes made are emailed to all clinical areas and routine service users.

### 3.2 For Patients

All patient samples received in the Laboratory are treated with due care and respect. All Laboratory process are undertaken in a way which is free from discrimination as per HMT/PPG/24 Patient Centred Care.

This manual contains information on the following:

- Location of the Laboratory, operating hours and contact information: Section 7.
- Instructions for Patient Collected Samples- Sections 16.6.5 & 17.2.1
- Tests provided including turnaround times- See Sections 13, 14, 15, 16, 17, 18 and 19 Please note that turnaround times are defined from the time the sample is received in the Laboratory to the time that results are issued to the Requesting Clinician. The Pathology price list (BST/PATH/I/013) can be found at https://www.bonsecours.ie/services/pathology
- Pathology results are issued to the Requesting Clinician as per Section 20. Under General Data Protection Regulations, Patients may request access to their results. Please visit https://www.bonsecours.ie/data-protection-and-privacy for further information on Data Subject Access Requests.

- Consent process in Section 4
- Providing feedback to the Pathology Department- Section 21.
- Confidentiality, protection of personal information and release of confidential information when required by law or authorised by contractual arrangements- Section 7.8

Additional information for patients is available directly from the Bon Secours Hospital Tralee internet site, Patient Handbook on the Tralee homepage https://www.bonsecours.ie/patients/patient-handbooks . Hardcopies are available from all clinical areas. The risks and benefits of all procedures are explained by the Consultant responsible for the patient.

Patient incidents that result in harm or could have resulted in patient harm are recorded as non-conformances on Q-Pulse as per BST/QA/SOP/014 (Control of Pathology and Haemovigilance Non Conformances). This Q-Pulse record consists of the summary of the incident, clinical significance and corrective actions taken to mitigate against the harm (potential harm). The Requesting Clinician is informed where appropriate. Open disclosure to the patient is the responsibility of the Responsible Clinician as per BSHS-QS-PP-24 (Open Disclosure Policy).

Patient samples may be used in the course of assay verification and validation where necessary, in accordance with ethical principles and data protection obligations. These samples are anonymised, and no additional patient phlebotomy is undertaken solely for verification/validation purposes

## 4 Associated Documents and Legislation

This policy and procedure has been developed with reference to ISO 15189:2022 Requirements for Quality and Competency, Joint Commission International (JCI) Accreditation Standards for Hospitals (8th Edition) and Health Information and Quality Authority (HIQA) National Standards for Safer Better Healthcare (Sept 2024).

### 4.1 Associated Documents

All pathology documents relate back to this procedure and can be found on Q-Pulse.

### 4.2 Health and Safety

#### 4.2.1 Risk Assessment

BST/PHLE/RA/001 Process Risk Assessment-Phlebotomy
BST/PATH/RA/007 Pathology Equipment Risk Assessments
BST/PATH/RA/009 Risk Assessment on Pathology Advisory Services

BST/PATH/RA/008 Impartiality and Independence Risk Assessment (Suppliers, Referral Labs, Related Organisations)
BST/QA/RA/008 Quality Assurance Risk Assessments
BST/MIC/RA/025 Microbiology Equipment Risk Assessments
BST/BB/RA/020 Blood Transfusion Equipment Risk Assessments
BST/HAEM/RA/008 Haematology Equipment Risk Assessments
BST/HAEM/RA/007 Haematology Process Risk Assessments
BST/PATH/RA/005 Pathology Department Assessment
BST/PATH/RA/010 Pathology Process Risk Assessment
BST/MIC/RA/024 Microbiology Process Risk Assessments
BST/HIS/RA/032 Histology Process Risk Assessments
BST/BB/RA/019 Blood Transfusion and Haemovigilance Process Risk Assessments
BST/HIS/RA/033 Histology Equipment Risk Assessments

## 5 Roles and Responsibilities

### 5.1 Clinical Staff (Nursing and Medical)

It is the responsibility of all clinical staff to adhere to this procedure for the collection pathology samples and transport of the samples to the laboratory.

### 5.2 All Pathology Staff

It is the responsibility of all Pathology Staff to adhere to this procedure.

### 5.3 Chief Medical Scientist, Departmental Senior Scientist, Senior Phlebotomist/ Laboratory Aide

It is the responsibility of the Chief Medical Scientist/Senior Medical Scientist/Senior Phlebotomist-Laboratory Aide to review this procedure and ensure it contains accurate information for their department.

### 5.4 QA Manager

It is the responsibility of the Laboratory Quality Assurance Manager to ensure that this manual meets the requirements of ISO 15189:2022, JCI 8th Edition Standards and HIQA standards.

### 5.5 Laboratory Director

The Laboratory Service Manager and the Pathology Clinical Director are responsible for authorising this procedure and future revisions.

## 6 Abbreviations and Key Definitions

D Day(s)

H Hour(s)
HIQA Health Information Quality Authority
IBTS Irish Blood Transfusion Service
INAB Irish National Accreditation Body
JCI Joint Commission International
POCT Point of Care Testing
W Week(s)

## 7 General Information

The Pathology Department is located in the main hospital. Hospital Reception staff can guide patients to the Pathology Department and provide assistance if required.

### 7.1 Pathology Department Opening Times

**Table 1:**

| **Department/activity** | **Opening Hours*** | |
|---|---|---|
| **Pathology Reception** | Monday to Friday 08:00 – 17:00 for hand delivery of specimens.<br>24hrs via Pneumatic chute system. | |
| **Phlebotomy Out-patient Service** | Monday to Friday 09:00 – 13:00 and 14:00 – 16:30. | |
| **Routine Laboratory Diagnostic Service*** | **Biochemistry/Haematology** | Monday to Friday 08:00–18:00 |
| | **Blood Transfusion** | Monday to Friday 09:00–18:00 |
| | **Microbiology** | Monday to Friday 08:00–18:00<br>Limited Saturday morning service |
| | **Histology** | Monday to Friday 07:00–17:00 |
| **POCT** | Available 24 hours per day/ 7 days a week. | |
| **Emergency out of hours service (on call diagnostic service)** | Out of hours emergency on-call service is available outside the above hours in Haematology, Biochemistry, Blood Transfusion and Microbiology.<br>Note out of hours emergency service is not available in Histology. | |

### 7.2 Cut-off Times for Processing of Requests in the Pathology Department

#### 7.2.1 Cut-off Times for Receipt of Biochemistry/Haematology Specimens

Specimens received in Specimen Reception by **17:30h** are processed within the routine working day. Specimens received after 17:30h require Clinical area to contact the Medical Scientist on call via Hospital switch. The Medical Scientists will subsequently contact the Clinical Area to confirm the status of the specimen as urgent or non-urgent.

Urgent Specimen: Must be registered and tested as soon as possible by the on-call Medical Scientist and charged as a call.

Non-urgent: Specimen Reception/Scientific personnel must follow the relevant departmental procedure for labelling and separation of samples.

### 7.2.2 Cut-off Times for Receipt of Blood Transfusion Specimens

Group and Hold specimens for processing during the routine working day must be received by 16:00h in the Laboratory. Specimens requested for crossmatching in advance of elective surgery, must be received by 13:00 on the day prior to theatre to guarantee availability of cross-matched blood. This applies to patients on whom there are previous records held in the Hospital Blood Bank, e.g., patients who have recently attended the Pre-assessment clinic, and patients who do not have irregular antibodies. Refer to Section 14 for guidance on the validity/retention of transfusion specimens. Please note that the provision of blood may be delayed for any patient presenting with an irregular antibody. Blood Transfusion staff may ascertain the urgency of requests received after the cut-off times.

### 7.2.3 Cut-off Times for Receipt of Microbiology Specimens

Specimens received in Microbiology by 17:30h are processed within the routine working day. All specimens received after this time will be placed in the overnight storage facility and processed on the next routine working day unless the form has been identified as being an urgent specimen. Urgent/on call specimens received after this time are analysed during the on-call emergency service if marked urgent/on call and preceded by a phone call to the on-call staff.

A limited Microbiology service is available on Saturday mornings. Samples received before 12:00 on a Saturday morning will be processed. Samples received after 12:00 will only be processed by the on-call emergency service if marked urgent/on call and preceded by a phone call to the on-call staff.

### 7.2.4 Cut-off Times for Receipt of Histopathology Specimens

All adequately fixed specimens received by 15:30h will be processed the same day. Specimens received after 15:30h and before 16:50h will be checked to ensure the specimen/form are adequately documented and that no parts are missing. Physical processing of these samples will not commence until the following working day. All specimens received after this time will be processed on the next routine working day.

## 7.3 Pathology Department Telephone Numbers

### 7.3.1 Routine Enquiries

The Pathology Department welcomes any queries on medical indications and/or available scientific procedures provided/facilitated by the laboratory.

For telephone queries use the listing provided. For enquiries from an external source contact the main hospital switch on 066 7149800 and ask for the relevant extension as listed below.

**Table 2:**

| Section | Phone extension inside the Hospital |
|---|---|
| Histopathology Office | 8578/8605 |
| Specimen Reception/General Enquiries | 8604 |
| Microbiology | 8253 |
| Biochemistry | 8255 |
| Histopathology | 8406 |
| Haematology | 8286 |
| Blood Transfusion | 8323 |
| Point of Care Testing | 8653 |
| Outpatient Phlebotomy | 8228 |
| Laboratory Services Manager<br>Gene Ferris gferris@bonsecours.ie | 8943 |
| Laboratory QA Manager<br>Cara Wrenn cwrenn@bonsecours.ie | 8943 |
| Haemovigilance Officer | 8584 |
| Dr Ken Feeley<br>Consultant Pathologist/Clinical Director | 8589 |
| Dr Nabeel Salmon<br>Consultant Pathologist/ Deputy Clinical Director | 8285 |
| Dr Cleona Duggan<br>Consultant Haematologist | Number available at Hospital Reception Switch or 066 7149800 |
| Dr Joy Baruah<br>Consultant Microbiologist | |

### 7.3.2 List of Contacts for Out of Hours Service

**Table 3:**

| CONTACT | TELEPHONE NUMBER |
|---|---|
| Laboratory Consultant Histopathologist/ Clinical Director | Number available at Hospital Reception Switch<br>066 7149800 |
| Laboratory Consultant Microbiologist<br>Laboratory Consultant Haematologist | |

| | |
|---|---|
| Laboratory Services Manager | |
| Medical Scientist On-Call | |

### 7.3.3 Urgent Request for Testing Out of Hours

Contact main reception and inform them that you require to speak with the On-Call Scientist in the laboratory. You must state that this request is urgent.

The following details must be given to the On-Call Scientist:

- Ward/Location making the request
- The urgency of the request
- Details of the testing required

### 7.3.4 Urgent Request for Blood Components/Products Out of Hours

Contact main reception and inform them that you require to speak with the On-Call Scientist in the laboratory. You must state that this request is urgent.

The following details must be given to the On-Call Scientist:

- Ward/Location making the request
- The urgency of the request
- The patients details i.e. patient's name
- Proposed movement of the patient i.e., if the patient is to be relocated to perhaps Theatre or HDU.
- The blood components/tests requested
- State, if known, whether a blood sample for Group and Screen has already been reserved. If so a Blood Transfusion Request Form (PRF03) must be completed requesting the additional units required.

**Note:** "Emergency Stock" of group O Rh D Negative Blood is always available in the Blood Bank Issue fridge. It is the responsible clinician's decision to use the emergency stock or decide if it is safe to wait for the arrival of the On-Call Scientist and have the samples processed.

## 7.4 Bon Secours Hospital Website and Telephone Number

Website: http://www.bonsecours.ie
Phone No.: 066-7149800 (General Hospital Number)

## 7.5 Laboratory Staffing

The Pathology team consists of:

- Laboratory Services Manager
- Consultant Histopathologist/Clinical Director
- Consultant Microbiologist

- Consultant Haematologist
- Laboratory Quality Assurance Manager
- Departmental Chief Medical Scientists
- Departmental Senior Scientists
- Haemovigilance Officer
- Medical Scientists
- Support Services

- Laboratory Aides
- Phlebotomy
- Clerical
- Household

### 7.6 Laboratory Fees

A list of Pathology charges is available from the Laboratory Services Manager at 066-7149800, Ext. 8943 or on email at gferris@bonsecours.ie
Outpatient charges can be found on the Bon Secours Website at https://www.bonsecours.ie/tralee/departments/laboratoryservices

### 7.7 Laboratory Accreditation

- The Laboratory was awarded accreditation as a medical testing Laboratory to the International Standard ISO 15189 for the Blood Transfusion Department including Haemovigilance and Traceability, in December 2008 and extended to include Histology in June 2012,Microbiology in October 2013 and Haematology in September 2025 by the Irish National Accreditation Board (Registration number 206MT). The current scope of accreditation can be reviewed on the INAB website at https://www.inab.ie/inab-directory/laboratory-accreditation/medical-testing-laboratories/bon-secours-health-system-clg-t-a-bon-secours-hospital-tralee.html
- The Laboratory is accredited by JCI (Joint Commission International) as part of the overall Hospital accreditation process.

### 7.8 Confidentiality (Protection of Personal Information)

All staff in the course of their duties may be in possession of confidential information/materials. Personal information will be collected from patients in the course of collecting samples and will usually include Name, Date of Birth and Address. The information collected is used to positively identify patients and to provide a link between historical samples.

All staff are bound by the following documents:

- BSHS-GDPR-PP-01 Data Protection and Personal Data Security Policy
- BSHS-GDPR-PP-03 Personal Data Subject Rights Policy
- BSHS-GDPR-PP-08 Personal Data Breach Management Policy
- BSHS-GDPR-PP-10 External Communications of Personal Data.

These documents provide a guide to clinical, administrative and IT staff on the implementation and operation of data protection where Bon Secours staff interact with patients. Staff must not disclose such information to unauthorised personnel. A breach of confidentiality is classed as gross misconduct and is subject to the invocation of the hospital disciplinary procedure.

The Bon Secours Healthcare System is registered with the Data Protection Commissioner in Ireland. It is the policy of the Bon Secours Tralee Pathology Department to manage all data and information with integrity and to ensure patient confidentiality is maintained at all times.

### 7.8.1 Release of Confidential Information

In certain circumstances, patient details/results may be disclosed to the following outside agencies or external bodies (as outlined in https://www.bonsecours.ie/data-protection-and-privacy):

1. Other Healthcare Providers when authorised by contractual arrangements (e.g. referral laboratories/hospitals).
2. Public Health requirements as outlined in https://www.hpsc.ie/notifiablediseases/listofnotifiablediseases/
3. National Cancer Registry requirements outlined in https://www.ncri.ie/sites/ncri/files/pubs/Customer%20Charter%20Final.pdf
4. National Haemovigilance Office in the event of a serious adverse event or serious adverse reaction related to blood transfusion as per the requirements outlined in https://healthprofessionals.giveblood.ie/clinical-services/reporting-to-nho/

## 7.9 Patient Consent

When obtaining any samples from patients verbal or written consent should be obtained. The procedure to be carried out must be fully explained to the patient as per BST/ORG/PPG/58 Policy and Procedure for Informed Consent. Written consent is required for invasive procedures, e.g., surgery, and for transfusion of blood components and/or products. The risks and benefits must be explained to the patient

and documented either within the medical notes, the consent form or the Record of Transfusion Support, where appropriate.

Note: Venepuncture is not considered invasive but verbal consent should be obtained. In an emergency and in the best interests of the patient it might be necessary to carry out a procedure without obtaining consent.

# 8 Laboratory Request Forms, Specimen Bottles and Containers

## 8.1 General Information

From the 7th April 2021 MAXIMS Order Comms Software has been introduced for processing Haematology, Biochemistry, Microbiology (with the exception of Respiratory PCR requests/CSF/BAL), External Requests (Referred Tests) and Histopathology requests. Request forms will continue to be used for Blood Transfusion & Cytology. Samples received with request forms will continue to be processed. Request forms will also continue to be available for contingency use in the event of MAXIMS downtime. Instructions for use of MAXIMS are available on each WOW in clinical areas.

This section deals with information that is required to be documented on the laboratory request form and the specimen bottle or container, prior to the analysis of samples. For phlebotomy techniques and the completion of the request form by the person taking the sample refer to BST/PHLE/SOP/001 “Guidelines for Phlebotomy”.

The laboratory has a number of request forms. These are used for different pathology analyses as outlined below. It is important that the correct form is supplied for a particular test.

1) **General Laboratory Request Form (BST/PATH/PRF/001)** is used for Biochemistry, Haematology/Coagulation, TDM, Hormone Assay, and In-House Immunology.
2) **Histopathology Request Form (BST/PATH/PRF/002)** is used for Histopathology/Cytology specimens. The Histopathology department also accepts University Hospital Kerry Histopathology Request Forms and Electronically generated University Hospital Kerry Histopathology Order Communication request forms. BST/PATH/PRF/008 is the request form used for orders placed in Maxims Order Comms.
3) **Microbiology Form (BST/PATH/PRF/005)** is used for all Microbiology samples.
4) **Blood Transfusion Request Form (BST/PATH/PRF/003)** is used for Blood Transfusion Grouping/Crossmatch requests and must be ***hand-written***.
5) **External Request Form** (**PRF004**) is used for tests to be referred from the laboratory to external laboratories for testing.

6) **Respiratory Virus Request Form (BST/PATH/PRF/006)** is used for all Respiratory viruses (including SARS-CoV-2/Flu/RSV)

The use of non-prescribed forms (Consultant/GP letter, email, external request forms from other laboratory's) is acceptable as long as the requirements marked with an Asterix * in Section 8.2 are met.

## 8.2 Completing the Request (Using Request Form/MAXIMS)

The following essential information must be documented in a legible manner on all copies of the request form:

1) Patient's **Hospital Number** (For all in-patients) *
2) Patient's **Full Name** (Surname, Forename) *
3) Patient's Full Home Address *
4) Patient's **Date of Birth** *
5) Patient's **Location** (Hospital Ward, room number or OPD). Where the requesting Physician is at an external location to that of the Bon Secours Hospital, Tralee the postal address of the location should be included *
   **Note:** The Kerry Clinic is not considered an external location.
6) Patient's **Gender**. *
7) The name of the **requesting Clinician.** The requesting Clinician must be registered with an appropriate regulatory body e.g. (Irish Medical Council), where the registration can be verified on-line and in English.
8) **Specimen type** and **anatomical site** where appropriate (specifically Histopathology/Microbiology specimens) *
9) **Examination/Investigation(s)** required. *If the "Investigation required" is not requested for Histology specimens received in 10% Buffered Formalin, it will be assumed that these specimens are to be processed for routine Histology.
10) **Date and time of specimen collection** * (Time of specimen collection is not a requirement for Histopathology or Cytology specimens). Please note that where the time of collection is not provided, the integrity of the sample may be brought into question and the laboratory may issue cautionary comments on the interpretation of results.
11) Relevant **clinical information** appropriate to the test(s) requested should be supplied to aid in result interpretation, e.g. Antibiotic therapy, blood transfusion history, fasting status, special timing relating to drug therapy, etc. **The minimum clinical information** supplied relevant to the patient must include **gender** and **date of birth** for **interpretative purposes**. *
12) Specific requirements of individual laboratories:
    - **Blood Transfusion**
      - Must be ***hand-written***
      - All requests must be signed by the requesting Clinician and MCRN provided
      - Date and Time by which the Blood Components/Products are required

- ❖ If specific blood products are required i.e., CMV negative, irradiated, this should be requested.
- ❖ The specific surgery or reason for a transfusion request must be documented on the transfusion form.
- ❖ Previous Blood group if known
- ❖ Previous Transfusion History (where appropriate)
- ❖ Obstetrical History (Females ≥10yrs)

➢ **Microbiology**

- ❖ Blood Culture Bottle Barcodes are to be placed on the request form and the MRCN of the Dr taking the blood cultures should be recorded also.

13) A clear indication as to whether the tests requested are routine, urgent or on call. On call samples that are marked urgent must be preceded by a phone call to the relevant staff. *
14) Signature of the person collecting the sample *

Maxims requests for Cytology samples are not accepted by the Laboratory. All cytology requests must be on the Histology/Cytology request form.

*** All Mandatory Fields when completing the request in MAXIMS.**

Note: Some of the laboratory request forms have carbon copies. If using Addressograph Labels, these must be placed on every page of the request form.

## 8.3 Specimen Bottles for Blood Collection

Within BSHT we routinely use Sarstedt bottles (compliant with EU Code BS4851).

Please be advised that specimens collected in bottles from manufacturers other than Sarstedt (specified below) will not be accepted for testing and will be rejected. (Other bottles have not been validated for use in our procedures and may lead to inaccurate or unreliable results).

**Table 4:**

| | |
|---|---|
| S-Monovette® Serum CAT | ☐ |
| S-Monovette® Serum Gel CAT | |
| S-Monovette® Citrate 9NC 3,2% | |
| S-Sedivette® ESR (1:5) | |
| S-Monovette® Lithium Heparin LH | |
| S-Monovette® Lithium Heparin Gel LH | |
| S-Monovette® EDTA K3E | |
| S-Monovette® Glucose FE / FH (Fluoride / EDTA) | |

For order of draw and other Phlebotomy requirements refer to BST/PHLE/SOP/001.

### 8.4 Labelling the Specimen Container

#### 8.4.1 Positive Patient Identification

Positive patient identification of patients for all samples must be carried out as outlined in the sections below. Refer also to BST/PHLE/SOP/001 titled "Phlebotomy Guidelines" for the taking and labelling of blood samples.

##### 8.4.1.1 *In-patients:*

All in-patients must be wearing an appropriate Patient Identification Band/Bracelet. Patient Identification Band/Bracelet for elective/acute adult and paediatric admissions are applied by the nursing staff admitting the patient.

Positive patient identification of the:

- **Conscious Patient** is carried out by:
  - Asking the patient to state their Name and DOB.
  - Read the information on the armband and confirm that the details are correct.
  - Confirm that the details on the Request Form correspond also.
- **Unconscious Patient *or* Children *or* Patients whose first language isn't English** is carried out by:
  - Confirming with a nurse in the clinical area the details on the Patient's Identification Band, which contains the patient's name, DOB and Hospital Number/Medical Record Number (MRN).
  - Confirm that the details on the Request Form correspond also.

##### 8.4.1.2 *Out-patients*

Identification of outpatients is achieved by verbal confirmation of Name, Address and Date of Birth. Special care should be taken with patients who are unable to identify themselves including patients who are confused, young children or patients whose first language is not English.

##### 8.4.1.3 *Emergency Situations or Samples Taken in Theatre*

In emergency situations or when samples are taken in theatre, it may not be practicable for the individual taking the sample to gain access to the patient's armband and or label the sample that has just been taken. In such instances attending nursing and/or medical staff are authorised to positively identify and/or label the sample on behalf of the person obtaining the sample.

#### 8.4.2 Specimen/Container Essential Information

MAXIMS labels contain the following details:

1. Patients full name

2. Hospital number
3. Date of Birth
4. IMS Request Number (and barcode)
5. Location of the Patient
6. Sex
7. Specimen type

If hand labelling the specimen container the following essential information should be documented in a legible manner:

1. Patient's **full name**
2. **Hospital number** and/or **Date of birth** (both required for BT specimens)

**Note**: All patient samples must be labelled at the bedside (This is to prevent misidentification and labelling errors).

8.4.2.1 ***Specific Requirements of Individual Laboratories***

Blood Transfusion Specimens in addition to 8.4.2 above must have:

- Initials of person taking the sample

Microbiology/Histology Specimens in addition to 8.4.2 above must have:

- Specimen type clearly stated on the specimen container.
- Qualifier i.e., Left, Right, Upper, etc.
- Anatomical site.

Cytology Specimens in addition to 8.4.2 above must have.
Specimen type clearly stated on the specimen container.

Cytopathology/Bone-Marrow Slides must be:

- Labelled with Patient's Name and MRN using a pencil.

Specimens for TDM or Dynamic Function Tests must have:

- Collection Date ***and*** Time on each sample sent with the request.
- Pre or Post clearly identified where relevant to analysis.

### 8.4.3 Use of Addressograph Labels

- Only permitted on Microbiology Samples in the event of MAXIMS downtime.
- They are NOT **permitted on blood specimens *except***:
  - Arterial Blood Gas syringes which do not have an existing label facility. The addressograph label applied must be signed by the person taking the sample.
- **Are permitted on:**
  - Histology/Cytology specimens.

- GP Outpatient samples

### 8.5 Specimen Quality

Laboratory personnel must inspect prior to testing each blood specimen received for:

- Evidence of Haemolysis.
- Gross Lipaemia.
- Presence of clots in all specimens requesting full blood count and coagulation tests.
- Under or over-filling of specimens where the ratio of liquid anti-coagulant may affect the results obtained, e.g., ESR, samples for Coagulation testing.
- Age/Storage conditions of specimen prior to receipt in the laboratory, where the results may be compromised.

For other specimens, the integrity of the specimen is inspected, e.g., leaking urine containers etc.

In such instances, the primary sample may be rejected, and a **second specimen** may be requested or where the sample is processed the **issued report** will have a comment noting the concern raised re the quality of the specimen received, as appropriate.

### 8.6 Non-Conforming Specimen Bottles, Forms or Specimen Quality Issues

Where the requirements with respect to labelling the request form and specimen container or specimen quality issues are not met the following will apply.

See BST/PATH/I/001 Acceptance/Rejection of Non-Conforming Specimens/ Forms/Maxims Orders

### 8.7 Oral Requests

Oral requests for primary examinations cannot be facilitated. Further additional testing can be facilitated as outlined below.

### 8.8 Further Additional Testing

If on sending a specimen for testing, further additional testing is required, please contact the Laboratory to investigate the feasibility of using the initial specimen for analysis, as sample age/volume required may impact on the validity of test results. Where sufficient sample is available, **a *new request form*** must be sent detailing the extra additional testing required.

In the case of a medical emergency the lack of a request form should not impede the processing of an urgent request (verbal requests will be processed), however results will NOT be authorised, and reports issued, until the request form has been received.

Requests for add on tests in Microbiology will only be facilitated within a 24hr period after primary sample receipt and processing.

Add on requests cannot be processed on Maxims Order Comms. A request form must be sent.

### 8.9 Non-Conforming Issues and Credit

It is the policy of the Pathology department to credit the patient's account where non-conforming issues lead to the non-testing of specimens.

## 9 Delivery, Packaging, Transport and Postal Requirements for Diagnostic and Infectious (or Suspected Infectious) Specimens

### 9.1 General Information

It is the policy of the Pathology Department to treat all specimens and samples as potentially infectious or high risk. Therefore, we advise universal precautions are taken in the collection, packaging and the delivery of specimens sent to the Pathology Department for analysis. All samples should be delivered to the laboratory as soon as possible after being collected to minimise sample deterioration. Refer to Section 9.2.1 below for specific storage requirements for samples collected outside routine hours.

**Note:** Routine specimens collected and delivered to the Laboratory during the out of hours period will result in an increase in the turnaround time for the test, as testing will not be performed until the next routine working day.

If specimen integrity is compromised during transport the requesting clinician/clinical area will be notified and a non-conformance will be raised.

### 9.2 Specimen Delivery from Within the Hospital

- During the routine Pathology opening times, samples will be delivered to the laboratory by either the Phlebotomist(s), through the Pneumatic Chute System or hand-delivered by staff from the clinical area.
- Outside routine Pathology opening times blood specimens will be delivered to the laboratory by either the medical doctors/ward staff or through the Pneumatic Chute System.

- All specimens being sent to the laboratory should be placed in a plastic sample bag. The sample bag may or may not be attached to the form. This depends on the form type.
- Blood culture bottles are to be hand-delivered to the laboratory promptly after being taken (and must be within 4hrs of collection). Blood Culture bottles are to be loaded directly onto the analyser and the BacT/Alert Blood Culture Loading Register completed at the time of loading blood cultures bottle(s). The form is placed in the basket beside the BacT/Alert labelled "Blood Culture Request Forms". The analyser is located in Microbiology. This is the procedure to be carried out regardless of whether it is during routine or non-routine hours.
- CSFs and urgent sterile fluids are to be hand-delivered ***ASAP*** and within 30 minutes of being taken, to the laboratory. The person delivering the sample must ensure that a laboratory staff member is present to take responsibility for the sample.
- Arterial Blood Gases must be delivered to the laboratory (either by pneumatic chute system or hand delivered) within 5 minutes of collection. Delivery to the laboratory must be preceded by a telephone call to the laboratory.
- SARS-CoV-2/Flu/RSV swabs collected in Wards/Clinical Areas must be **hand delivered** to the Laboratory. Please note that non-urgent samples can be placed in the fridge for batch testing. Urgent samples must be delivered to the Microbiology Lab.

### 9.2.1 Procedure for the Out of Hours Delivery and Storage of Specimens to Pathology

**Urgent** out of hours specimens delivered by designated Hospital staff are to be sent to the laboratory via the Pneumatic Chute System (depending on the nature of the specimen) or hand-delivered to the Specimen Reception area. Contact ***must be*** made with the On-Call Scientist.

**Non-urgent specimens (excluding blood specimens)** are to be stored as follows:

- **24-hour urines** are stored in the fridge labelled "Non-Urgent Specimens Over Night Storage", located in Microbiology.
- **Microbiology Specimens for refrigeration** are stored in the fridge labelled Microbiology Specimens Out of Hours", located in Microbiology. These specimens include:
  - Urines (universal specimen)
  - Faeces specimens
  - Occult blood specimens
  - Swab specimens
  - Sputum specimens
  - CSF samples for neurological investigations which do not require a cell count.
  - Pus specimens

- ❖ Non urgent fluids
- ❖ Non urgent SARS-CoV-2/Flu/RSV swabs
- ❖ Miscellaneous

➢ Histopathology specimens are stored at room temperature in appropriate containers with fixative, for subsequent delivery to the laboratory.

Routine Blood Samples for Haematology/Biochemistry/Immunology Testing are to be sent to the laboratory via the Pneumatic Chute System or hand-delivered to the Specimen Reception area, unless specified storage conditions/treatment is required on receipt by the laboratory. In such cases the scientist on-call should be contacted.

### 9.2.2 Histology Specimen Transport

- All histology specimens must be logged in the Histopathology Specimen Transport Logbook at the location where they are initially collected, before delivery to the Laboratory. In addition to this, specimens must be logged in the relevant Patient Care Plans.
- Histology specimens are collected by portering staff from Theatre and Endoscopy at approximately 1pm and 5:30pm and delivered to the laboratory.
- On delivery to the laboratory, the logbook is signed by the person receiving the samples once they have cross-referenced the logbook with the specimens and the request form.
- All discrepancies will be logged and investigated by the Laboratory.
- All completed logbooks are retained by the Histology Laboratory in compliance with BST/QA/SOP/004 Completion and Retention of Quality Records.

## 9.3 Specimen Delivery from Outside of the Hospital

Statutory legislation exists that requires diagnostic specimens to be carried in packages that meet a United Nations test criteria called Packaging Instruction 650 (P650). This standard is to safeguard the drivers of vehicles carrying diagnostic specimens on the road between sites and provides protection to passenger's and/ or the emergency services in the event the vehicle is involved in a road traffic accident.

To meet the requirements of P650, there are 3 levels of packaging for diagnostic liquid and solid samples: a primary receptacle, a secondary packaging and outer packaging. The primary receptacle is the specimen container which shall be packed in secondary packaging in such a way that, under normal conditions of carriage, they cannot break, be punctured or leak their contents into the secondary packaging. Secondary packaging shall be secured in outer packaging with suitable cushioning material. Any leakage of the contents shall not compromise the integrity of the cushioning material or the outer packaging. Outer packaging must be labelled with a hazard warning label, "Diagnostic Specimen, Category B, UN 3373".

### 9.4 Disposal of Waste Material Used in Specimen Collection

All materials used in specimen collection should be treated as potentially hazardous and discarded in sharps containers and other appropriate colour coded bags. Please refer to the current hospital guidelines for Waste Management (BST-INF/PPG/32 available on Q-Pulse) prepared by the Infection Control Committee.

### 9.5 Storage of Examined Specimens for Archive and Look Back Purposes

**Table 5:**

| ID | Specimen Description | Storage Requirement | Storage Location | Minimum Retention Period | Responsibility |
|---|---|---|---|---|---|
| 1. | EDTA sample: group/ antibody screen and crossmatch | 2-8°C | Haematology fridge Lan 312 | 7 days | DSS Blood Transfusion |
| 2. | Serum/ plasma (all other tests) | 4°C | Fridges in scientific departments | 48 hours after release of reports | Departmental CMS/ DSS |
| 3. | All Microbiology Specimens (except CSFs, Tissues, Fluids) | 2-8°C for 1st 24hr. 18°C – 25°C thereafter. | Microbiology Fridge 1 & Storage unit 1 | 48 hours after release of reports | CMS/ DSS Microbiology |
| 4. | CSFs, Tissues, Fluids for Microbiology | 2-8°C for 1 month | Microbiology Fridge 1 | 48 hours after release of reports | CMS/DSS Microbiology |
| 5. | Urine Specimens for Biochemistry | 4°C | Biochemistry | 48 hours after release of reports | CMS/ DSS Biochemistry |
| 6. | Whole Blood | 4°C | Fridges in scientific departments | 24 hours after release of reports | CMS/DSS |
| 7. | Histopathology Samples | 18°C – 25°C | Ventilated cabinet in Histopathology | 4 weeks after final report. | CMS/DSS Histopathology |
| 8. | Cytology Specimens | 4°C | Haematology Fridge | 2 weeks after reporting | CMS/DSS Histopathology |
| 9. | Paraffin blocks | 18°C – 25°C | Pathology | At least 30 years | CMS/DSS Histopathology |
| 10. | Stained Slides<br>- Microbiological<br>- Blood films (routine)<br>- Cytology<br>- Histopathology | 18°C – 25°C for all stained slides | Microbiology<br>Haematology<br>Pathology<br>Pathology | 10 days post report<br>1 month post report<br>10 years<br>10 years | Departmental CMS/DSS |

## 10 External Third-Party Assessment Programme

The Pathology Department **participates** in relevant available **external third-party assessment schemes**. These include schemes operated by:

- NEQAS (UK, National External Quality Assurance Scheme) for Blood Transfusion, Haematology, Microbiology (for General Bacteriology, Antimicrobial Susceptibility Testing, MRSA Screening, C. difficile Toxin Screening and Carbapenemase Producing Organisms) Histology (Cellular Pathology Techniques (CPT), Non Gynae Cytology, Diagnostic Cytology Cell block Scheme and Immunohistochemistry) and Point of Care (Cardiac Markers Troponin for POCT, Calprotectin, iSTAT Alinity ACTk).
- IEQAS (Irish External Quality Assurance Scheme) Labquality for DCT (Direct Coombs test) in Blood Transfusion; Occult Blood, and Urine Particle count and Urine Culture, quantitative in Microbiology, SARS-CoV-2, Flu/RSV, /VRE), Gram Stain (blood culture), Norovirus, Point of Care (SARS-CoV-2, Influenza A&B, Acid Base Status and Electrolytes).
- Wessex and SW England General Histopathology External Quality Assurance Scheme.
- Bio-Rad External Quality Assurance Scheme for Clinical Chemistry and Immunoassay (Biochemistry).
- WEQAS (Wales External Quality Assurance Scheme) for Point of Care (Glucose, Ketone, Haemoglobin); Urine Pregnancy Testing in Microbiology.
- Irish Histopathologists General External Quality Assurance Scheme
- National Slide Based Uropathology Scheme (UK)
- RCPAQAP (Royal College of Pathologists of Australasia Quality Assurance Programs) Non-Gynaecological General Cytopathology Scheme for Consultant Histopathologists.

The Pathology Department also participates in the National Quality Improvement Programme in Histopathology run by the Royal College of Physicians in Ireland (RCPI). As stated by the RCPI "*The fundamental aim of this QA Programme is to assure enhancement of patient care with timely, accurate and complete pathology diagnoses and reports.*"

The Pathology Department is **committed** to participating in other schemes as they become available and are required to ensure comprehensive assessment of the test repertoire.

## 11 Provision of Services

**Table 6:**

| SERVICE | DESCRIPTION |
|---|---|
| **Diagnostic Service**<br>There is a wide range of pathology tests available. These will be outlined, in this handbook under the different laboratory disciplines detailing the sample requirements and advice pertaining to individual tests. | |
| **Biochemistry** | The **automated chemistry** section provides analysis of samples for renal, liver, cardiac, lipid, iron studies and specific protein assays. The **Immunoassay** section performs endocrine, tumour marker, troponin and therapeutic drug monitoring (TDM) assays. |
| **Haematology** | A diagnostic haematology service is provided which includes **Full Blood Counts** and blood film examination, reticulocyte counts, ESR and Infectious Mononucleosis (IM) testing. Routine **Coagulation** Screening includes PT-INR and APTT. D-dimers & Fibrinogen are also available. |
| **Blood Transfusion** | The Hospital Blood Bank provides routine and emergency **compatibility testing** for both surgical and medical patients. The Blood Bank laboratory along with red cells provides a stock of **manufactured blood products** including Solvent Detergent Plasma (SDP), Fibrinogen Concentrate, Prothrombin Complex Concentrate (PCC) and Albumin. |
| **Histopathology** | The Histopathology department provides a varied range of services including **Tissue Pathology Non-Gynaecological Cytology** and **Immunohistochemistry**. |
| **Microbiology** | The Microbiology Laboratory examines a diverse range of specimens for bacterial, fungal, and viral and determines the sensitivity of bacteria to antibiotics. The department provides a **clinical service** which ensures that patients are treated in a timely and effective manner. The department works closely with the Hospital Infection Prevention and Control Department. |
| **External Referred Tests** | There are a large number of tests sent to referral laboratories from the Pathology Department. For list of tests and requirements see Section 19 below. |
| **POCT** | Point of Care Testing (POCT) for ABG, Troponin-I, Glucose, Ketones, ACTk, SARS-CoV-2, Influenza A&B, Haemoglobin, Calprotectin, Clo Testing. |
| **Phlebotomy Service** | Outpatient Phlebotomy is provided by the Pathology Department Phlebotomists from **09:00h to13:00h** and **14:00h to 16:30h**. |
| **Consultant Service** | Interpretative Consultant Pathology Services are available in the following specialities, Histopathology, Cytopathology, Clinical Microbiology, Haematology and Blood Transfusion incorporating Haemovigilance and Traceability activities. In disciplines in which there is not a lead Consultant Pathologist the Clinical Director will endeavour to |

| SERVICE | DESCRIPTION |
|---|---|
| | provide advice or liaise with external organizations where appropriate in the provision of advice. |
| **Haemovigilance Service** | All Haemovigilance events are documented and reported to the National Haemovigilance Office as per the requirements of BST/HV/SOP/006 titled "Procedure for the Management of Serious Adverse Reactions/Events by Haemovigilance Staff". The Bon Secours Pathology Department is committed in conjunction with the Haemovigilance Officer to providing a reporting mechanism that assists the Quality Management Review Process. A Hospital Transfusion Committee exists that includes Medical, Scientific and Nursing staff, Consultant Haematologist and also includes the Director of the Irish Blood Transfusion Service or nominee. The committee meets approximately 4 times a year and discusses and advises on transfusion policies, inventory management, quality issues, haemovigilance and traceability. |

## 12 Laboratory Tests/Profiles Available

The sections below outline the tests that are available in the different Pathology laboratories. These tests will be described under the following disciplines/sections:

- Biochemistry
- Blood Transfusion
- Haematology
- Histopathology/Cytopathology
- Microbiology
- Point of Care
- External Referred Tests

Refer to BST/PHLE/I/001 Phlebotomy Order of Draw for a colour coded guide to the sample collection bottles used for blood testing.

A **Key** to samples/sample collection bottles required is also provided at the beginning of each laboratory section.

### 12.1 Laboratory Test/Profile Description

**Each laboratory test** will be described under the following headings:

- Apex code (Code used for requesting test on the LIS).
- Description.
- Turnaround Time (TAT) for Urgent (U) and Routine (R) specimens.

Turnaround time is defined as, the time from specimen receipt in the Pathology department to the time results are available.

- H – Hours
- D – Days

Where testing is initiated *outside routine hours* the turnaround time may be affected:

- For urgent samples as the On-Call Scientist may have to travel to carry out the work. (Allowed travel time is 45mins.).
- For routine samples as testing will not be carried out until the next routine working day.

- Specimen type.
- Container including any necessary additives for Microbiology/Histology samples.
- Special requirements.
  The special requirements column defines for each diagnostic test, if applicable, the following:
  - Patient preparation, e.g., fasting.
  - Consent form, e.g., Genetic Screening.
  - Special timing for collection of samples e.g., pre and post drug administration.
  - Any special handling needs between time of collection and time received by the laboratory (transport requirements, refrigeration, warming, immediate delivery etc.).
- Minimum Requirements refers to the minimum volume to be sent to the laboratory for examination.
  **Note:** Where multiple tests are required the minimum volume will increase but will not necessarily be the total volume of the individual tests.

## 12.2 Repeat Examination due to Analytical Failure or Further Examination of the Primary Specimen

### 12.2.1 Repeat Examination due to Analytical Failure

It is the policy of the Pathology department in the event of an analytical failure to:

- Repeat the test.
- Store the specimens in appropriate conditions until the cause of the analytical failure is identified, corrected, and then repeat the test. The relevant Chief/Senior Scientist or nominee reviews the urgency of the outstanding specimens and will inform the Clinician/Clinical Area if a prolonged delay is anticipated. The Clinician will be given the option of requesting that the tests be referred to another laboratory for testing, if required prior to the expected availability of the test result.
- Send urgent samples to relevant referral laboratory for analysis if required.

### 12.2.2 Further Examination of the Primary Specimen

Where further testing is relevant to the investigation or diagnosis of the condition or symptoms, which gave rise to the original test request, then it is the policy of the

Pathology department to pursue a diagnosis by performance of additional tests using the primary specimen, subject to approval by the requesting clinician.

### 12.3 Tests Not Listed

If you require a diagnostic test that is not listed, please contact the Pathology department who will endeavour to outsource, as appropriate, your test requirement.

### 12.4 External Laboratory Testing

Samples referred specifically by the Blood Transfusion, Histology and Microbiology Departments are listed in the relevant departmental sections. All other referred tests including specimen requirements are outlined in Section 19.

### 12.5 Emergency Out of Hours Service

Tests provided out of hours in this service will be recognised by the presence of this symbol † in the description column. Other tests which may be processed on call subject to confirmation by the responsible consultant with the On-Call Scientist are indicated by ‡. If any other test is required, the person requesting the test should contact the Laboratory Services Manager to request the test.

## 13 Biochemistry

All tests are performed on blood collected into Sarstedt Monovette bottles refer to Section 8.3 with the exception of Arterial Blood Gas Analysis (ABG). Key below provides details of the colour of the bottle to be used for in-house collection and the additive present in the collection bottle.

**Key**

| Sample | Container/Colour | Additive |
|---|---|---|
| **ABG** | Heparin Syringe | Heparin |
| **B** | Brown | Gel/clot activator |
| **O** | Orange | Lithium Heparin |
| **R** | Red | EDTA |
| **Y** | Yellow | Fluoride Oxalate |
| **UC** | Yellow Cap Universal | None |

## 13.1 Routine Biochemistry

**Table 7:**

| Description | TAT-U | TAT-R | Sample | Ward Requirements | Min Requirement |
|---|---|---|---|---|---|
| ‡Haemoglobin A1C (Whole Blood) | N/A | 3 D | R | N/A | Fill to line |
| †Amylase | 2 H | 4 H | B | N/A | 1.2 ml |
| B12 & Folate Profile | 4H | 3 D | B | Patient fasting preferably | 1.2 ml |
| †**Arterial** Blood Gas | 0.5 H | 1 H | Heparin Syringe | Syringes must have a signed addressograph label applied. Any air must be expelled immediately. Contact Lab staff prior to collection. | |
| †Bicarbonate | 0.5 H | 1 H | Heparin Syringe/O | Syringes must have a signed addressograph label applied. Contact Lab staff prior to collection. | Fill Orange bottle to the Line |
| †BNP | 2H | 4 H | R | Send to Lab ASAP. | Fill to line |
| †Bone Profile (Calcium, Phosphate, Uric Acid, Albumin and Total Protein) | 2 H | 4 H | B | N/A | 1.2 ml |
| †Calcium | 2 H | 4 H | B | N/A | 1.2 ml |
| ‡Ca 125 | 4H | 3 D | B | N/A | 1.2 ml |
| ‡Carcinembryonic Antigen | 4 H | 3 D | B | N/A | 1.2 ml |
| †Chloride | 2 H | 4 H | B | N/A | 1.2 ml |
| ‡Cortisol/ Synacthen Test | 4H | 3 D | B | Please clearly identify specimen as AM Cortisol/PM cortisol/Pre Synacthen/ Post Synacthen | 1.2 ml |
| † Creatine Kinase (Cardiac Enzyme) | 2 H | 4 H | B | N/A | 1.2 ml |
| †Creatinine | 1 H | 4 H | B | N/A | 1.2 ml |
| †C-Reactive Protein | 1 H | 4 H | B | N/A | 1.2 ml |
| Urinary Creatinine Clearance | N/A | 3 D | 24Hr Urine | Serum Creatinine must also be sent within a 24hr period of the collection | N/A |
| Cryoglobulins | N/A | 7 D | B | Contact lab prior to phlebotomy. Pre-warm the specimen collection bottle. Maintain specimen temperature at 37°C and hand-deliver to Laboratory. | 3 ml |

| Description | TAT-U | TAT-R | Sample | Ward Requirements | Min Requirement |
|---|---|---|---|---|---|
| †CSF Profile (CSF Glucose and Protein) | 2 H | 4 H | Y/UC | Send to Laboratory ASAP. | 0.5ml |
| †CSF Glucose (Part of CSF profile) | 2 H | 4 H | CSF Y | Send to Laboratory ASAP | 0.5ml |
| †CSF Protein (Part of CSF profile) | 2 H | 4 H | CSF UC | Send to Laboratory ASAP | 0.5ml |
| †Iron | 2 H | 4 H | B | Morning fasting specimen is recommended. | 1.2 ml |
| ‡Ferritin | 4H | 3 D | B | N/A | 1.2 ml |
| †Fasting Glucose | 2 H | 4 H | Y | B/O acceptable when received during routine Lab hours and within two hours of the sample being taken. Specimens in Y bottles are stable for up to 24 hours. | |
| Fluid Profile (FTP, FLG, FALB, FLDH, FPH) | 2H | 4H | Y/UC | Send to Laboratory ASAP | 1.2 ml |
| Fluid Albumin | 2H | 4H | UC | | 1.2 ml |
| Fluid Amylase | 2H | 4H | UC | | 1.2 ml |
| Fluid Cholesterol | 2H | 4H | UC | | 1.2 ml |
| Fluid Glucose | 2H | 4H | Y/UC | Glucose must be analysed within one hour if specimen is in a plain universal. | 1.2 ml |
| Fluid LDH | 2H | 4H | UC | | 1.2 ml |
| Fluid pH | 2H | 4H | UC/ Heparin Syringe. | Ideally samples should be kept under anaerobic conditions. Specimens at room temperature must be analysed within one hour, refrigerated specimens can be analysed if < 4hours old. | 1.2 ml |
| Fluid Triglyceride | 2H | 4H | UC | | 1.2 ml |
| Fluid Total Protein | 2H | 4H | UC | | 1.2 ml |
| ‡Folate (Part of B12FOL Profile) | 4H | 3 D | B | Patient fasting preferably | 1.2 ml |
| Follicle Stimulating Hormone | 4H | 3 D | B | N/A | 1.2 ml |
| †Glucose: Refer to Fasting, Random or 2 hr Post Prandial Glucose | 1 H | 4 H | Y | B/O acceptable when received by the laboratory during routine hours and within four hours of the sample being taken. Specimens in Y bottles are stable for up to 24 hours. | 1.2 ml |

| Description | TAT-U | TAT-R | Sample | Ward Requirements | Min Requirement |
|---|---|---|---|---|---|
| †2 hour post prandial Glucose | 1 H | 4 H | Y | B/ O acceptable when received by the laboratory during routine hours and within four hours of collection. Specimens in Y bottles are stable for up to 24 hours | 1.2 ml |
| †Gentamycin Trough (Pre) (Patients On Multi-Dose Regimen) | 2 H | 8 H | B | **Pre** -Take immediately before dose | 1.2 ml |
| †Gentamycin Peak (Post) (Patients On Multi-Dose Regimen) | 2 H | 8 H | B | **Post** 30 mins post dose | 1.2 ml |
| †Gentamicin 18 hr post (Patients on Once Daily Dose Regimen) | 2 H | 8 H | B | 18 hours post dose | 1.2 ml |
| †HDL Cholesterol | 2 H | 4H | B | Patient fasting preferably | 1.2 ml |
| †High Sensitivity Troponin I | 2 H | 4H | O | Refer to BST/BIO/I/003 Specimen bottle should be filled to the line. Specimens > 72hr are unsuitable. Specimens >8hr must be refrigerated. | Fill to line |
| †Lactate | 0.5H0 | 1H | Y | N/A | 1.2 ml |
| †Lactate Dehydrogenase | 2 H | 4 H | B | N/A | 1.2 ml |
| †Liver Function Tests Profile (ALP, ALT, AST, Bili, TP, ALB) | 2 H | 4 H | B | N/A | 1.2 ml |
| Lutenizing Hormone | 4H | 3D | B | N/A | 1.2 ml |
| †Lipids | 2 H | 4 H | B | Patient fasting preferably | 1.2 ml |
| †Lipid Profile | 2 H | 4H | B | Patient fasting | 1.2 ml |
| †Magnesium | 2 H | 4 H | B | N/A | 1.2 ml |
| Oestradiol | 4H | 3 D | B | N/A | 1.2 ml |
| Parathyroid hormone | 4H | 4 D | B | Send immediately to laboratory | 1.2 ml |
| †Phosphate | 2 H | 4 H | B | N/A | 1.2 ml |
| †Protein/Albumin/Globulin | 2 H | 4 H | B | N/A | 1.2 ml |
| Prolactin | 4H | 3 D | B | N/A | 1.2 ml |
| ‡Prostate Specific Antigen | 2 H | 4H | B | Specimens >24 hr are unsuitable for testing. | 1.2 ml |
| †Random Glucose | 2 H | 4H | Y | B/ O acceptable when received by the laboratory during routine hours and within four hours of the sample being taken. Specimens in Y bottles are stable for up to 24 hours. | 1.2 ml |

| Description | TAT-U | TAT-R | Sample | Ward Requirements | Min Requirement |
|---|---|---|---|---|---|
| ‡Synacthen Test | 4H | 3D | B | **Pre** – Take immediately before dose given. Patient must be resting. **Post** - 30 - 60 mins after dose | 1.2 ml |
| ‡Thyroid Function Tests (FT4 And TSH) | 4 H | 1 D | B | N/A | 1.2 ml |
| ‡Transferrin Profile (Transferrin and Transferrin Saturation) | 2H | 1D | B | Patient fasting preferably. Order Iron also. | 1.2 ml |
| †Urea | 1 H | 4 H | B | N/A | 1.2 ml |
| †Urate (Uric Acid) | 2 H | 4 H | B | N/A | 1.2 ml |
| Urinary Calcium Spot | 4H | 1 D | Urine | UC (Fresh specimen during routine hours –acidified in Lab) | 0.5mls |
| †Renal Function Tests (U&E – Sodium, Potassium, Urea And Creatinine) | 1 H | 4 H | B | N/A | 1.2 ml |
| Urinary Potassium Spot | 4H | 3D | UC | | 0.5ml |
| Urinary Magnesium Spot | 4H | 3D | UC | | 0.5ml |
| ‡Urinary Sodium Spot | 4 H | 3 D | UC | | 0.5ml |
| Urinary Phosphate | 4H | 3 D | UC | | 0.5ml |
| Urinary Potassium 24 Hour | 4H | 3D | 24hour Urine container no preservative | Void first urine of the day. | N/A |
| Urinary Sodium 24 Hour | 4H | 3D | | | N/A |
| Urinary Protein 24 Hour | 4H | 3D | | | N/A |
| Urinary Urea Spot | 4H | 3D | UC | | 0.5ml |
| Urinary Calcium 24 Hour | N/A | 1D | 24Hr Urine 24hour Urine Container. Acidified with 20ml 6M HCL | Void first urine of the day. | N/A |
| Urinary Urea 24 Hour | N/A | 1 D | 24hour Urine Container 24hour Urine container no preservative | Void first urine of the day. | N/A |
| ‡Vancomycin | 2 H | 8 H | B | | 1.2 ml |
| ‡Venous Blood Gas (pH, Bicarbonate, $PCO_2$) | 0.5 H | 1 H | Heparin Syringe /O | Syringes must have a signed addressograph label applied. Contact label prior to collection. | |

| Description | TAT-U | TAT-R | Sample | Ward Requirements | Min Requirement |
|---|---|---|---|---|---|
| ‡Venous $TCO_2$ | 0.5 H | 1 H | Heparin Syringe /O | Syringes must have a signed addressograph label applied. Contact Lab prior to collection. | |
| ‡Vitamin D | 4 H | 1 D | B | | 1.2 ml |

## 13.2 Gentamicin & Vancomycin Assay Guidelines

Please refer to the following pharmacy guidelines relating to antibiotic assays:

- BST-MMU/PPG/30 Adult ONCE DAILY Dosing Algorithm for GENTAMICIN.
- BST-MMU/PPG/29 ONCE daily GENTAMICIN Algorithm for Paediatric Patients up to Age 18 years.
- BST-MMU/PPG/32 Adult Multiple daily dosing Algorithm for Gentamicin.
- BST-MMU/PPG/56 Vancomycin Dosing & Monitoring Algorithm - Antimicrobial Guideline 2013-2015.

## 14 Blood Transfusion

All tests are performed on whole blood collected into Sarstedt Monovette bottles. The Key below provides details of the colour of the Sarstedt Monovette bottles to be used and the additive present in the collection bottle for each of the tests listed below in Section 14.1 and 14.2.

**Key:**

| Sample | Colour | Additive |
|---|---|---|
| **RBT** | Red | EDTA |

### 14.1 Blood Transfusion Tests

**Table 8:**

| Apex Code | Description | TAT-U | TAT-R | Sample | Ward Requirements | Min Requirement |
|---|---|---|---|---|---|---|
| ABIN*<br>AABIN* | †Antibody Investigation | 6 H* | 1 D* | RBT | N/A | 3ml |
| DCT<br>ADCT | †Direct Coombs Test (Part of Haemolytic screen) | 2 H | 4 H | RBT | N/A | 1ml |
| GEN<br>AGEN* | †Phenotype | 6H | 3D | RBT | N/A | 3ml |
| GH<br>AGH | †Blood Group and Antibody Screen | 1 H | 3 D | RBT | N/A | 3mls |
| XC<br>AXC | †Crossmatch | 1 H | 1 D | RBT | N/A | 3mls |

*Urgent/Routine TAT for samples for Antibody Investigation will depend on the complexity of the antibody detected. The sample may have to be referred to the IBTS, Cork for identification and/or confirmation. As part of an initial antibody investigation the patient's phenotype will also be determined. Both of these tests are generally initiated by the Blood Transfusion scientific staff.

TAT will also depend on whether a blood transfusion sample has already been grouped and is suitable for use in the laboratory.

Refer to Section 14.3 for list of products available from the Blood Transfusion Laboratory.

Please note that the Blood Transfusion Laboratory has implemented 'Second Sampling'. All blood groups require confirmation by 2 separate samples (one of which may be a historic test result) prior to issuing crossmatched blood components. On

receipt of a Group and Hold or Crossmatch request, the transfusion laboratory will identify which patients need a further sample for confirmation of blood group:

- Not all patients will need a confirmation sample. If a patient was tested here previously (even if some years ago) a record of their blood group will be available on the Laboratory Information System.
- If no previous group is available on a patient, they will then require a second sample to be taken to confirm the group.
- The confirmatory sample must be taken by a venepuncture that is separate from that of the initial sample, ideally by a different member of staff.

### 14.2 Referred Tests from Blood Transfusion

Antibody Identification is sent out by the Blood Transfusion department when it is unable to identify or confirm the antibody detected. This test request is initiated by the Blood Transfusion department. Should the patient require blood for transfusion then the IBTS may also be required to antigen-type compatible red cell units and crossmatch them against the patient sample, for the Bon Secours Hospital, Tralee.

On investigation of a Suspected Transfusion Reactions (Refer to BST/BB/SOP/013) samples may also be referred by the Blood Transfusion Department to the IBTS, Dublin for White Cell and/or Platelet Antibody investigation.

**Table 9.**

| Apex Code | Description | TAT-U | TAT-R | Sample | Ward Requirements | Min Requirement |
|---|---|---|---|---|---|---|
| ABID | Antibody Identification | 1 D* | 7 days | RBT | The laboratory initiates this request. ***The request form must be handwritten.*** | 4.5mls |

*Urgent TAT for samples for Antibody Identification will depend on the complexity of the antibody detected. Results may also be issued by telephone where required and this may reduce the TAT to <1 day.

### 14.3 Products Available through the Blood Transfusion Laboratory

It is the responsibility of the requesting clinician to ensure that all patients who may receive Blood and/or Blood Components:

- Must have the risks and benefits of the transfusion explained and documented in the patient notes.
- Give their consent prior to administration of the blood and/or blood components. Consent is filed in the patient chart and documented on the Patient Consent Form as per BST-ORG/PPG/058Policy and Procedure for Informed Consent.

**Table 10: Blood Components/Products Available from the Laboratory**

| Description | Comments |
|---|---|
| †Albumin 20% 50mls | Not routinely held in stock |
| †Albumin 20% 100mls | |
| †Albumin 5% 250mls | Paediatric Use |
| †Factor concentrates* | Contact Haematologist for advice |
| †Rh (D) Immune Globulin* | To be administered within 72hrs of sensitising event. |
| †Fibrinogen Concentrate | Used now instead of Cryoprecipitate |
| †LG-Octaplas | |
| †Prothrombin Complex | Rapid reversal of warfarin |
| †Platelet Concentrate* | Special Requirements may be needed$ |
| †Pooled Platelets* | Special Requirements may be needed$ |
| †Red Cells in SAGM LD | Special Requirements may be needed$ |
| †Varitect 500IU 20mls* | |
| †Whole Blood* | |

Sample requirements and TAT for the listed products is as per Crossmatch request above (Section 10.1). Please contact the Blood Transfusion Laboratory for specific information when ordering any of the above.

Note:

***** Products marked with * must be ordered on a patient-by-patient basis from the IBTS. Products will be delivered by the IBTS van at the next available delivery date/time for routine orders. In an emergency a taxi will be ordered for the delivery of the product(s) to the Blood Transfusion Laboratory.

**$** Contact Consultant Haematologist if advice required.

**†** Available during both routine hours and on-call.

### 14.4 Special Timing of Specimens for Transfusion Requests

Previously grouped specimens are stored in the Blood Bank for retesting if necessary.

The following criteria are a guide to the suitability of specimens:

- Sample to be taken not more than 72hrs before transfusion

The checks carried out on receipt of the sample and form, are initialled on the back of the Request form by the Medical Scientist carrying out the checks.

Requests for Platelet/Plasma Products will be issued against the most recent EDTA-BT sample received by the Blood Transfusion Department up to a maximum sample age of 28 days. Any requests received beyond this time must be accompanied by a new sample.

### 14.5 Retention of Crossmatched Blood for Patients

Requests for Blood/Blood Components are valid up to the "Date and Time required", as indicated on the request form (PRF03). The Blood Transfusion Department will return crossmatched blood to stock the day after this date, providing the haemoglobin for the patient is at a level that would indicate the blood is no longer required (see below). If any doubt arises as to the requirement for the blood, e.g., borderline haemoglobin, the Blood Transfusion Department will contact the Clinician/clinical area to ascertain if the blood will be required.

The following criteria are used as a guideline when returning issued units to stock:
Day after the Date Required has passed on checking the post-op haemoglobin:

- Hb ≥10g/dl the blood may be returned to stock.
- Hb ≤10g/dl the clinical area should be contacted to confirm that units are not needed at present.

# 15 Haematology

## 15.1 Haematology Tests

All tests are performed on whole blood collected into Sarstedt Monovette bottles only. Refer to Section 8.3, Key below provides details of the colour of the bottle to be used for in-house collection and the additive present in the collection bottle.

**Key**

| Sample | Brand | Colour | Additive |
|---|---|---|---|
| **B** | Sarstedt | Brown | Gel/clot activator |
| **G** | Sarstedt | Green | Tri-sodium Citrate 2.9ml or 1.4ml |
| **P** | Sarstedt | Purple | Tri-sodium Citrate/Citric acid |
| **R** | Sarstedt | Red | EDTA K3E |

**Table 11:**

| Apex Code | Description | TAT-U | TAT-R | Sample | Ward Requirements | Min Requirement |
|---|---|---|---|---|---|---|
| APTT | †Activated Partial Thromboplastin Time (Includes APTT Ratio) | 1 H | 4 H | G | Sarstedt 3.0ml Citrate 9NC received in Lab within 3 hours of collection. | Fill to line |
| COAG | †Coagulation Screen (INR & APTT) | 1 H | 4 H | G | | |
| DD | †D-dimer | 1 H | 4 H | G | | |
| ESR* | †Erythrocyte Sedimentation Rate | 3 H | 1 D | P | Sarstedt ESR 4NC 3.5ml or 2mL tubes. Sample received within 4-6 hrs at room temperature | |
| FBC | †Full Blood Count | 1 H | 4 H | R | 2.7 ml EDTA tube K3E. Sample received within 24 hrs if stored at 2-8°C | 1ml |
| FBN | †Fibrinogen | 1 H | 4 H | G | Sarstedt 3.0ml Citrate 9NC received in Lab within 3 hours of collection. | Fill to line |
| INR | †INR (Includes PT - Prothrombin Time) | 1 H | 4 H | G | Sarstedt 3.0ml Citrate 9NC received in Lab within 3 hours of collection. | Fill to line |
| MON* | †Monospot | 2 H | 1 D | R | Sarstedt 2.7mL EDTA K3E tube. Received in Lab within 4 hours of collection. | 1.5mls |
| RETIC | Retic Count | 4 H | 1 D | R | Sarstedt 2.7mL EDTA K3E tube. Sample received within 24 hrs if stored at 2-8°C. | 1ml |
| RFILM | $Blood Films | 4H | 1 D | R | Sarstedt 2.7mL EDTA K3E tube. Sample received within 24 hrs if stored at 2-8°C. | 1ml |
| CFILM | Blood Film reviewed by consultant | 2D | 4D | R | Sarstedt 2.7mL EDTA K3E tube. Sample received within 24 hrs if stored at 2-8°C. | 1ml |

*† Available during both routine hours and on-call.*

*Tests are currently outside our scope of accreditation.

*$ Blood Films for low platelet counts and/or query platelet clumps will be reviewed on-call. All other blood films are left for routine staff to review.*

***Note** - for any add on test requests, the time of initial sample collection will be considered as per the table above.*

## 15.2 Guidelines for Warfarin use and target INR

According to the joint recommendations of the World Health Organization (WHO) and the International Committee on Thrombosis and Haemostasis, the PT results for patients on vitamin K antagonist oral anticoagulants (warfarin) should be reported as INR values. Reported INR results are independent of the reagents and methods used and are specifically intended for assessing patients stabilized on long-term oral anticoagulant therapy.

- INR Normal Range: 0.9 to 1.1
- INR Therapeutic Range for Anticoagulation Therapy: 2.0 to 3.0 (may vary depending on clinical indications (see above).

**Table 12:**

| Target INR 2.5 | Target INR 3.5 | Not indicated |
|---|---|---|
| • Pulmonary embolus<br>• Proximal DVT<br>• Calf Vein thrombosis<br>• Recurrence of venous<br>• Thromboembolism<br>• Non–rheumatic atrial fibrillation<br>• Atrial fibrillation (other causes)<br>• Mural thrombus<br>• Cardiomyopathy<br>• Cardioversion (2.5 or 3.0)<br>• Symptomatic inherited<br>• Thrombophilia<br>• Antiphospholipid syndrome<br>• Bio prosthetic valve if anticoagulated<br>• Arterial grafts if anticoagulated<br>• Mechanical prosthetic aortic valve (2.5 or 3.0) | • Recurrence of venous thromboembolism whilst on Warfarin therapy<br>• Mechanical prosthetic valve | • Ischaemic stroke without AF<br>• Retinal vein occlusion<br>• Peripheral arterial thrombosis and grafts<br>• Coronary artery thrombosis<br>• Coronary artery graft thrombosis<br>• Coronary angioplasty and stents |

*The indications and targets are taken from the British Society of Haematology guidelines, Keeling D et al: Guidelines on oral anticoagulation with warfarin – Fourth edition BJ Haem August 2011; Volume 154; Issue 3; 311-324. BST/HAEM/EX/109*

### 15.3 APTT RATIO

APTT Ratio is used for unfractionated heparin monitoring. Therapeutic Range for Heparin Therapy: 1.5 to 3.0. (This may vary depending on specific clinical indications).
(Dacie and Lewis, Practical Haematology, 12th Edition).

### 15.4 D-DIMER

All D-Dimer have the following canned comment as a reference range (See BST/HAEM/I/018):
A cut off <0.5 mg/l FEU is recommended for the exclusion of DVT/PE
- Values of <0.5 mg/l FEU should be repeated in 12 Hrs where DVT/PE is suspected
- Values of >0.5 mg// FEU may not be diagnostic of DVT/PE.

### 15.5 Special Requirements for Haematology Sample Collection

For further information on the collection of samples for Haematological investigations refer to BST/PHLE/SOP/001.

#### 15.5.1 Coagulation requests on patients with a HCT >55%

If a patient's haematocrit is greater than 55%, the Anti-Coagulant (Sodium Citrate) concentration will be increased in the plasma, potentially leading to spuriously prolonged Coagulation results. Therefore, an adjustment of Vol of anticoagulant in the Coagulation bottle is necessary. If coagulation testing is required on these patients, please contact the Haematology Laboratory to request a Sarstedt bottle with a modified level of Tri-sodium Citrate. HCT from FBC results within 24hrs of the Coagulation order are acceptable.

### 15.6 Automatic Reflex Tests

#### 15.6.1 Blood Films

Blood films can be requested but can also be added on manually by the haematology laboratory based on the FBC result. If the film requires further review it may be forward to Consultant Haematologist.

## 16 Microbiology Tests

All samples for microbiological investigations should be received in the lab within 2 hrs of being taken. If processing is delayed or outside of routine working hours, they should be placed in the specimen fridge in microbiology with the exception of blood cultures, CSF and urgent specimens.

BAL and sputum should be processed promptly to give the best opportunity to culture pathogenic organisms and reduce the risk of overgrowth with contaminants. If processing has to be delayed up to 24 hours, refrigeration is preferable to storage at ambient temperature. If specimens are not processed on the same day that they are collected, this will be noted on the report and interpretation of results should be made with care.

**Samples >48hrs old on receipt will be processed but will have the following preanalytical cautionary comments added to the report.**

**Please note pre-analytical errors may preclude the validity of the results reported. Please discuss with laboratory and the Medical Microbiologist if further discussion is warranted.**

**Key**

| | | | | |
|---|---|---|---|---|
| **Sample:** | **Bl** | Blood | **CSF** | Cerebro-Spinal Fluid |
| | **F** | Faeces | **FL** | Fluid |
| | **U** | Urine | **SNS** | Specific Named Site |
| **Container:** | | **UC** | Universal Container | |
| | | **RCTS** | Routine Charcoal Transport Swab | |
| | | **DAVOL UC** | DAVOL Universal Container | |
| | | **BC Bottle** | Blood Culture Bottle | |
| | | **EDTA** | Red EDTA | |
| | | **B** | Brown Serum/Gel | |

† Available during both routine hours and on-call.

**Table 13:**

| Apex Code | Description | TAT-U | TAT-R | Sample | Container/ Ward Requirements | Min Requirement |
|---|---|---|---|---|---|---|
| AWO | Antral Washout C&S | N/A | 2 - 4 D | Antral Washout | UC | N/A |
| BAL | Bronchial Washings C&S | N/A | 2 - 4 D | Bronchial Washings | DAVOL UC | N/A |
| BC | †Blood Culture Children | N/A | <6 D | Yellow Capped BC Bottle | Inject 1-3mls of whole blood into yellow Capped BC Bottle. Must be hand delivered to the Laboratory and loaded directly onto the BacT/Alert analyzer. | 1mls |

| Apex Code | Description | TAT-U | TAT-R | Sample | Container/ Ward Requirements | Min Requirement |
|---|---|---|---|---|---|---|
| BC | †Blood Culture Adult | N/A | <6 D | Blue & Burgundy Capped BC Bottle | Inject 8-10mls of whole blood into each BC bottle. Must be hand delivered to the Laboratory and loaded directly onto the BacT/Alert analyzer | 8mls per bottle |
| BILE | Bile | N/A | 2 - 4 D | Bile | UC | N/A |
| CDIFF | Clostridium Difficile | 2 H | 1 D | F | UC | Pea sized quantity |
| COVFP | †SARS-CoV-2/Flu/RSV (GeneXpert) | 2 H | 6 H | Nasal & throat combined swab | FLOQ swab in UTM | |
| CPE | CPE Screening | N/A | 2-6D | Rectal swab F | RCTS – Black UC | N/A |
| CRY* | Crystals | N/A | 2D | Synovial Fluid | UC | N/A |
| CSFM | †CSF - C&S †Microscopy | N/A <2hrs | 2-4 D | CSF | UC | 0.2-0.5ml |
| CSU | †Catheter Specimen Urine C&S | N/A | 1-3 D | U | UC | 0.5ml |
| FASC | †Ascitic Fluid | N/A | 2 - 4 D | Ascitic Fluid | UC EDTA for cell count | N/A |
| FAVH | †Aqueous Vitreous Humor C&S Microscopy | N/A <2hrs | 2 - 4 D | Aqueous Vitreous Humor | UC | 1ml |
| FB | Body Fluid C&S | N/A | 2 - 4 D | FL | UC | 0.5ml |
| FL | †Sterile fluid Microscopy | N/A <2hrs | 2 - 4 D <4hrs | FL | UC | 1ml |
| FSY | Synovial Fluid C&S | N/A | 2 - 4D | FL | UC EDTA for cell count | 1ml |
| FPER | †Peritoneal fluid | N/A | 2 - 4D | FL | UC EDTA for cell count | 1ml |
| FPL | †Pleural fluid | N/A | 2 - 4D | FL | UC EDTA for cell count | 1ml |
| FLUBC* | Fluid in blood culture bottle C&S | N/A | <6 D | Blue & Burgundy Capped BC Bottle Or Paediatric (yellow capped bottle) for smaller volumes. | Inject 8-10mls of sterile into each BC bottle. Or Inject 1-3mls of the sterile fluid into yellow Capped BC Bottle. Must be hand delivered to the Laboratory and loaded directly onto the BacT/Alert analyzer | 8mls per bottle 3mls per bottle |
| HVS* | High Vaginal Swab C&S | N/A | 2 - 4 D | SNS | RCTS - Black | N/A |
| MRSA | MRSA | N/A | 1 – 3 D | SNS | RCTS - Black For Screens Nasal & Perineum/Groin Swabs required | N/A |
| MSU | †Mid-Stream Urine C&S | N/A | 1 - 3 D | U | UC | 0.5mls |

| Apex Code | Description | TAT-U | TAT-R | Sample | Container/ Ward Requirements | Min Requirement |
|---|---|---|---|---|---|---|
| FNOR | Norovirus | N/A | 1 D | F | UC | Pea sized quantity |
| FOB* | Faeces Occult Blood | 2 H | 1 D | F | UC<br>3 Consecutive Samples ideally. Sample must have the date/time of collection clearly written on them. | Pea sized quantity |
| POD | Pouch of Douglas Fluid C&S | N/A | 2 - 4 D | FL | UC | 0.5mls |
| PREG | †Pregnancy Test | 0.5 H | 3 H | U | UC<br>Early Morning Specimen recommended. | 0.5mls |
| PUS | Pus C&S | N/A | 2 - 4 D | SNS | UC containing pus recommended. RCTS - Black also accepted. | 0.5mls |
| SAB | Abscess Swab C&S | N/A | 2 - 4 D | SNS | RCTS - Black | N/A |
| SEAR | Swab – Ear C&S | N/A | 2 - 4 D | SNS | RCTS - Orange | N/A |
| SEYE | Swab – Eye C&S | N/A | 2 - 4 D | SNS | RCTS - Black | N/A |
| SMOU | Mouth Swab C&S | N/A | 2 - 4 D | SNS | RCTS - Black | N/A |
| NASS | Nasal Secretion | N/A | 2 - 4 D | SNS | UC | N/A |
| SNAS | Nasal Swab C&S | N/A | 2 - 4 D | SNS | RCTS - Black | N/A |
| SPU | Sputum C&S*** | N/A | 2 - 4 D | SP | UC | N/A |
| SSK | Swab - Skin C&S | N/A | 2 - 4 D | SNS | RCTS - Black | N/A |
| ST | Swab from Tip site C&S | N/A | 2 - 4 D | SNS | RCTS - Black | N/A |
| STH | Throat Swab C&S | N/A | 2 - 4 D | SNS | RCTS - Black | N/A |
| SULC | Ulcer Swab C&S | N/A | 2 - 4 D | SNS | RCTS - Black | N/A |
| SV | Vaginal Swab C&S | N/A | 2 - 4 D | SNS | RCTS - Black | N/A |
| SW | Swab – Wound C&S | N/A | 2 - 4 D | SNS | RCTS - Black | N/A |
| TPCL | TIPS (Central or Arterial) C&S | N/A | 2 - 4 D | Tip | UC | N/A |
| VRE | VRE Screening | N/A | 2 - 5 D | Rectal swab<br>F | RCTS – Black<br>U | N/A |
| VS | Vulval Swab C&S | N/A | 2 - 4 D | SNS | RCTS - Black | N/A |
| TIS** | Tissue | N/A | 2 - 4 D | SNS | UC | N/A |
| TIS | Tissue (Antral/Gastric biopsies) | N/A | 7 D | SNS | UC | N/A |

*Tests are currently outside our scope of accreditation.

**Tissue: All tissue specimens are to be placed in sterile Ballotini beads for transport to the Microbiology laboratory to prevent desiccation.

Note: Specimens received in formol-saline are not suitable for culture.

Tissue samples received before 17:00 on a routine working day will be processed on the same day. Tissue samples received after 17:00 will be processed on the next routine working day. If processing is delayed, refrigeration is preferable to storage at ambient temperature.

*** Please note that Sputum Samples from patients with Cystic Fibrosis are not processed in the Microbiology Laboratory. These Samples need to be referred to the relevant Microbiology Laboratory where the Patient's samples are usually processed.

### 16.1 Antibiotic Susceptibility Testing Categories

Antibiotic sensitivity results are interpreted using EUCAST (European Committee on Antimicrobial Susceptibility Testing) Guidelines. Results appear on the reports using the following definitions:

S- Susceptible standard dosing regimen: A microorganism is categorised as "Susceptible, standard dosing regimen", when there is a high likelihood of therapeutic success using a standard dosing regimen of the agent.

I - Susceptible, increased exposure: A microorganism is categorised as "Susceptible, Increased exposure" when there is a high likelihood of therapeutic success because exposure to the agent is increased by adjusting the dosing regimen or by its concentration at the site of infection.

R - Resistant: A microorganism is categorised as "Resistant" when there is a high likelihood of therapeutic failure even when there is increased exposure.

### 16.2 Special Requirements for Microbiology Sampling and Testing

Refer to hospital policy INF/PPG/31 “Guidelines on specimen collection” for the taking of swabs and collection of urine, faeces and sputum samples. Urine, faeces and sputa samples may on occasion be collected by the patient directly (refer to Section 16.6.5 below for details on how to collect such specimens. These samples should be collected into a sterile universal container available from the Pathology Department. Many local pharmacies also stock universal containers and may be purchased from them, if the patient is an outpatient.

### 16.3 Blood Cultures

The blood culture bottles and system in use are the BacT/ALERT system.

When selecting the relevant bottles for blood culture analysis, ensure the sensor at the base of the bottle is grey. Discard any bottles where the sensor is yellow prior to inoculation. There is an expiry date on each bottle, and they should not be used after this date. All bottles must be kept at room temperature on the wards prior to use.

Relevant Bottles:

| | | |
|---|---|---|
| ➢ Adults: | One aerobic: | Blue top (8-10mls of Blood) |
| | One anaerobic: | Burgundy top (8-10mls of Blood) |
| ➢ Paediatrics: | One biphasic: | Yellow top (1-3mls blood) |

### 16.3.1 Materials

- Blood culture collection pack which includes:
- Microbiology Request form BST/PATH/PRF/005
- Safety-Multifly needle (23-gauge safety Butterfly with adaptor attached)
- Universal Blood culture-adaptor cap
- 70% isopropyl alcohol wipes
- 2 Clinell Wipes, Alcohol 2% Chlorhexidine
- Disposable tourniquet
- Sterile drape
- Additional materials required:
- Relevant blood culture bottle(s) see above
- Completed request forms
- Sharps Container
- Cotton wool/adhesive tape
- Disposable Gloves

### 16.3.2 Procedure for Taking Blood Cultures

- Positively Identify patient as per BST/PHLE/SOP/001 "Guidelines for Phlebotomy"
- Explain procedure and gain verbal consent from the patient.
- Adhere to hand-hygiene guidelines for taking blood samples.
- Choose a venepuncture site and clean vein with 70% isopropyl alcohol wipes for 30 seconds and allow to air dry for an additional 30 seconds as per Infection Control guidelines.
- Remove coloured caps from blood culture bottles and clean each bottle with a fresh Clinell alcohol wipe and allow to air dry.
- Open packaging of the Safety-Multifly needle and the packaging of the adaptor. Remove the protective sleeve and hold the adaptor just behind the threading and screw into the adaptor cap.
- Attach a Safety-Multifly needle to the assembled unit
- Perform venepuncture as per BST/PHLE/SOP/001 "Guidelines for Phlebotomy"
- Insert the **upright** blood culture bottle to the adaptor cap and allow to fill.
- Remove the blood culture bottle and attach the second blood culture bottle to be filled.

  **Please Note:** The blood culture bottles must remain **upright** during the collection process to prevent cross contamination from the fluid in the bottles to the adaptor.
- If further bloods are required, detach the collection unit from the Multifly needle and collect blood as per. BST/PHLE/SOP/001.

- When the last bottle is taken, release the tourniquet. Do not leave in situ >60 seconds.
- Withdraw the needle and engage the safety device. Dispose of the needle, wipes and adaptor in a sharps container. All other waste can be disposed of as per INF/PPG/032 "Guidelines on Waste Management".
- Secure cotton wool over the venepuncture site using adhesive tape.
- Label the bottles with patient details, Name and MRN and the date/time of collection. If using an addressograph label, place the label either vertically to the right of the barcode or horizontally under the barcode. Do not place the addressograph over the barcode on the bottle or on the bottom of the bottle. Remove the barcode, tear off the labels from the blood culture bottles and place on the request form.

Please note that fluids (pericardial, synovial, pleural, ascetic) can also be placed in blood culture bottles. **Fluids in blood culture bottles are outside the scope of our accreditation**. If taking blood cultures/bloods on **insertion** of a cannula, a Multi adapter is attached to the cannula and the process above can be followed.

### 16.3.3 Transport to the laboratory

- Blood Culture Bottles must be brought to the Laboratory promptly and loaded directly into the BacT/ALERT (Blood Culture analyser) located in the Microbiology department, within a maximum of four hours. According to the "UK Standards for Microbiology, Investigations of Blood Cultures (for Organisms other than Mycobacterium species)", an inadvertent consequence of not loading the bottles within the recommended four-hour period, is that a percentage of positive cultures may not be detected once placed on the blood culture instrument.

### 16.3.4 Procedure for Loading Blood Culture Bottles onto the BacT/ALERT 3D

16.3.4.1.1 Health and Safety Precautions

- Staff must wear gloves at all times during the loading of bottles onto the BacT/Alert. Disposable gloves are available beside the instrument and should be put on prior to removing bottles from the specimen-bag attached to the request form.
- In the event of a bottle breaking or leaking please attend to the spillage in accordance with the Hospital policy BST/INF/PPG/3 titled "Policy for the Management of Blood and Body Fluid Spillages" using the spill kit kept at the First Aid Station outside Specimen Reception. Record the details of the event on the "BacT/ALERT Blood Culture Loading Register". Contact a member of the Pathology Department for advice in all cases.

16.3.4.1.2 Procedure

- Put on gloves.

- Remove the BC bottles from the specimen-bag and discard the bag in the bin provided.
- Complete the "BacT/ALERT Blood Culture Loading Register".
- Place the Microbiology Request Form in the labelled box beside the instrument.
- Open either drawer 1A BC or 1B BC of the instrument by gently pulling handle toward you.
- Gently push the bottles – ONE AT A TIME – into an empty slot with the coloured neck pointing outward (see how other bottles are loaded). Look to right hand side to see the empty slots to place bottle/bottles.
- Close the drawer once the bottles are loaded. Ensure the drawer is closed fully. The yellow light at the front of the instrument will go out when the drawer is closed correctly.

16.3.4.1.3 Important Notes

- If the drawer is left open for too long, the instrument will begin to alarm. Simply close the drawer and the alarm should stop. You may resume loading bottles as outlined above, once the alarm has stopped.
- Please contact laboratory staff if you encounter any problems which you cannot resolve during this procedure. Outside routine laboratory hours contact the medical scientist on call via the front desk.
- Use the "BacT/ALERT Blood Culture Loading Register" to document any error codes or problems encountered during the loading process.

16.3.4.1.4 Reporting

- Blood cultures are incubated for up to 5 days, but this time may be extended to 21 days in some cases e.g., Sub-acute Bacterial Endocarditis (SBE) provided this is indicated in the clinical details on the request form.
- Most organisms will be detected within 24-48 hrs.
- Positive cultures are notified to the ward involved immediately on detection by the microbiology/on call staff therefore there is no need for ward staff to contact the microbiology laboratory to determine if a blood culture is positive.
- Full identification including antibiotic susceptibility patterns may take a further 24-48hrs to time of completion.

## 16.4 Cerebrospinal Fluid (CSF)

Bacteraemia is sometimes seen associated with meningitis, and a blood culture should be taken when meningitis is suspected. If in doubt, the Consultant Microbiologist should be contacted for advice.

### 16.4.1 Specimen Requirements

CSF sample divided into 3 sterile universal container bottles sequentially marked I, II and III in order of collection.

**Note:** For Oligoclonal banding, a Yellow-CAPPED universal container is used. Oligoclonal banding profile requires a minimum of 1.5ml in at least one Yellow-capped universal container.

- All specimens are hand delivered to the laboratory as soon as possible and must be given to a medical scientist, during routine and on call hours.
- Send a blood glucose sample (to compare with CSF glucose value).
- Send blood culture.
- Send R x1 - Standard Full Blood Count EDTA (Ethylenediaminetetraacetic Acid) blood sample for PCR for meningococcus if this is suspected.
- Send a throat swab for meningococcus if this is suspected.
- Please send a separate Biochemistry request form for CSF Protein & Glucose.

### 16.4.2 Results

Microscopies are available for ward access once resulted on the laboratory system. Positive Culture results are phoned as soon as detected.

Biochemistry results are available once authorised.

#### 16.4.2.1 *Normal CSF values*

**Table 14:**

| Test | Patient | Normal Values |
|---|---|---|
| Leucocytes | Neonates | 0-30 cells/cmm |
| | 1-4yr old | 0-20 cells/cmm |
| | 5yr-puberty | 0-10 cells/cmm |
| | Adults | 0-5 cells /cmm |
| Erythrocytes | Newborn | 0-675 cells/cmm |
| | Adults | 0-10 cells /cmm |
| Protein | | 10-50mg/dl (<1% of serum protein concentration) |
| Glucose | | 2/3 of simultaneously determined plasma concentration <2.2 mmol/L is reduced- (if no blood glucose available) |
| Culture: | | No Growth after 48hrs |

## 16.5 Fluids from Sites Normally Sterile

### 16.5.1 Samples Required

1. A sample for culture in a sterile universal container.
2. An R x1 (EDTA) filled with the fluid sample for white cell count is also recommended.

**Note:** If a delay in processing is anticipated, i.e. sample is taken outside routine hours, refrigeration is preferable to storage at ambient temperature. Delays of over 48 hours are undesirable.

### 16.5.2 Normal Findings

**Table 15:**

| Sterile Fluid | Normal White Cell Count |
|---|---|
| Pleural | <500/cmm |
| Peritoneal | <500/cmm |
| Pericardial | <500/cmm |
| Synovial/Joint | <200/cmm |

Unless directly requested by the clinician, a differential White Cell Count is only performed when there is a raised white cell count in the fluid.

## 16.6 Urine

A clean mid-stream specimen is the recommended specimen for analysis. Urine acts as a culture medium. After collection of the patient sample, specimens should be stored at 4°C to prevent subsequent multiplication of bacteria which would invalidate the bacterial count. Urine samples should be sent to the lab in <2hrs for routine/urgent processing and to ensure storage at 4°C out of hours. If a delay in processing occurs refrigeration for up to 48hrs is acceptable.

If a Clinician suspects sterile pyuria, they must contact the Consultant Microbiologist to discuss. The Consultant Microbiologist will contact the microbiology department if supplementary media is required.

### 16.6.1 Samples Required

MSU – Mid-stream Urine
Midstream urine is the recommended sample and requires careful collection.
If the request form states sample type as urine, the Microbiology laboratory will process the sample as an MSU, unless clinical details indicate otherwise.

CSU – Catheter Specimen Urine

Samples may be from patients who have had a catheter passed for a one-off urine sample or who have in-dwelling catheters. In patients with a long-term indwelling catheter sample should only be sent if clinically indicated:

- Patient symptomatic
- Systemically unwell
- Catheter change

BSU – Bag Specimen of Urine:
A sterile collection bag is applied to the cleansed perineum to catch urine, which must then be drained into a sterile universal container. This is commonly used in infants. Culture results are difficult to interpret as contamination is common with this method of specimen collection.

### 16.6.2 Mid-stream Urine (MSU) Urine Microscopy

Urine microscopy is used to identify the presence of white blood cells (WBCs), RBC, casts, SECs, bacteria and other cellular components. Urine codes for reporting WBC and RBC counts on Apex will in keeping with the UK Standards for Microbiology Investigations as follows;

White Cells

**<10 WBC/µl** Not significant (unless patient is immunocompromised in some way).

**10-100 WBC/µl** Generally not significant but still requires to be reviewed in a clinical context.

**>100 WBC/µl** Suggestive of infection.

Red Cells

**0-5 RBC/µl** – equates to trace and can be ignored.

**5-25 RBC/µl** – equates to + and should be looked at in clinical setting but persistently > 5 can be considered as persistent microscopic haematuria.

**>25 RBC/µl** – is microscopic haematuria and regarded as such.

### 16.6.3 SARS-CoV-2 (COVID-19)/FLU/RSV Request

SARS-CoV-2/FLU/RSV combined test is used when the Requesting Clinician requests SARS-CoV-2 ± Influenza ± RSV. This is generally used for in-patients who develop respiratory symptoms or where there is a high clinical suspicion of viral respiratory illness.

### 16.6.4 Instructions for Collecting Specimens

For information regarding collection of Microbiology Specimens from patients refer to BST/INF/PP/31 'Policy and Procedure for the Collection of Specimens.

Refer to BST-INF/PPG/97 for instructions on how to take combined nasal/throat swabs from patients.

### 16.6.5 Instructions for Patient Collected Specimens

16.6.5.1 ***Mid-stream Urine (MSU) Specimens for Culture and Sensitivity***

1. Obtain a sterile universal container, from the doctor/clinic you are attending. Sterile universal containers may also be purchased from local pharmacy outlets.
2. Wash hands and attend to genital hygiene to reduce risk of contamination. Male patients should retract the foreskin and clean the surrounding area.
3. Allow the first part of the urine (~15-30ml) to pass directly into the toilet.
4. Collect the middle part in the sterile pot by placing the sterile container into the urine stream without interrupting the flow.
5. Withdraw the container from the urine flow before the container is full. Allow any remaining urine to pass directly into the toilet.
6. Attend to personal hygiene as normal.
7. Screw the lid tightly onto the universal container. Please be aware that leaking samples will not be processed by the laboratory.
8. Label the universal container with the name of the person from whom the sample has been collected, type of sample, i.e., MSU, and the date and time of collection.
9. Deliver the sample to the hospital as soon as possible. If a delay of greater than 2 hours is expected, the sample should be refrigerated.

16.6.5.2 ***Faeces Specimens***

1. Obtain a sterile universal container, from the doctor/clinic you are attending. Sterile universal containers may also be purchased from local pharmacy outlets.
2. Defecate into a clean potty or disposable container.
3. Transfer enough faecal material to fill a third of the universal container (or 10-15 mls of liquid stool). A disposable plastic spoon may be used for this.
4. Screw the lid tightly onto the universal container. Please be aware that leaking samples will not be processed by the laboratory.
5. Label the universal container with the name of the person from whom the sample has been collected, type of sample, i.e., Faeces, and the date and time of collection.
6. Deliver the sample to the hospital as soon as possible.

16.6.5.3 ***Sputa Specimens***

1. Obtain a sterile universal container, from the doctor/clinic you are attending. Sterile universal containers may also be purchased from local pharmacy outlets.
2. Sit upright in a chair, supported as necessary with pillows to facilitate optimum lung expansion and to provide comfort.
3. Take three deep breaths in through their nose, exhale through pursed lips and then force a deep cough. (Deep breathing helps loosen secretions and a deep cough will ensure a good quality specimen is produced.)
4. Collect the sputum directly into the universal container. Ensure the material obtained is sputum and not saliva.
5. Screw the lid tightly onto the universal container. Please be aware that leaking samples will not be processed by the laboratory.
6. Label the universal container with the name of the person from whom the sample has been collected, type of sample, i.e., Sputum, and the date and time of collection.
7. Deliver the sample to the hospital as soon as possible.

16.6.5.4 ***Early Morning Urine (EMU) Specimens for Pregnancy Test***

1. Obtain a universal container, from the doctor/clinic you are attending. Sterile universal containers may also be purchased from local pharmacy outlets.
2. Collect the first sample of the morning into the universal by placing the sterile container into the urine stream without interrupting the flow. Please note that if the urine is also for culture and sensitivity, please follow the instructions outlined in 16.6.5.1.
3. Withdraw the container from the urine flow before the container is full. Allow any remaining urine to pass directly into the toilet.
4. Attend to personal hygiene as normal.
5. Screw the lid tightly onto the universal container. Please be aware that leaking samples will not be processed by the laboratory.
6. Label the universal container with the name of the person from whom the sample has been collected, type of sample, i.e., MSU, and the date and time of collection.
7. Deliver the sample to the hospital as soon as possible. If a delay of greater than 2 hours is expected, the sample should be refrigerated.

## 16.7 Samples Collected in Theatre/Endoscopy

Samples collected in Theatre/Endoscopy: Microbiology specimens are to be delivered directly to microbiology during routine hours where the theatre/endoscopy sample logbook will be signed upon receipt. The samples must be placed in the Microbiology fridge 2 in the box labelled “Microbiology Specimens Out of hours” and the sample logbook must be signed and left on the work bench in Microbiology. The medical

scientist on duty the following routine working day, will check the samples, sign the book and return it to Histology for delivery back to theatre/endoscopy.

### 16.8 Referred Tests from Microbiology

Occasionally Microbiology Samples (initiated in the Microbiology Department of BSHT) will be referred for confirmatory tests to referral laboratories. See Table below for the most common examples.

**Table 16:**

| Description | TAT-U | TAT-R | Sample | Container/Ward Requirements | Referral Lab |
|---|---|---|---|---|---|
| PVL typing of MRSA* | N/A | <6W | Organism | Slope | NMRSAL |
| Salmonella/shigella/ listeria* | N/A | <15 days | Organism | Slope | UCHG |
| Carbapenenase Producing Enterobacteriaceae CPE* | N/A | <15 days | Organism | Slope | UCHG |
| E.coli 0157* | N/A | <5 days | Organism | Slope | Cherry Orchard Hosp |

## 17 Histopathology

The "Nature of Specimen" as documented on the Histopathology request form by the Clinician is required for the appropriate examination and relevant laboratory procedures relating to the sample. This description also forms part of the final diagnostic report and consequently historical medical record of a patient. The accuracy of this description is an essential requirement for all requests.

The Histopathology department may require clarification from the source of the specimen in cases where the description is absent, ambiguous or incomplete.

Note that the "Nature of Specimen" description should not include the procedure, previous diagnosis or clinical history. There is a separate area on the request form for this information.

The time required to receive clarification may result in a delay of the final report. This can be avoided by the initial accurate completion of the specimen description on the request form.

For all urgent or unusual cases please contact the Consultant Histopathologist to discuss the case.

### 17.1 Routine Histopathology

The Histopathology National Quality Improvement Programme (NQAIS) divides Histopathology and Cytology specimens into categories according to the procedure (P) code within which the turnaround times are analysed. Currently the Histopathology Laboratory is meeting the NQAIS recommendations for reporting 80% of cases within 5/7 days (as defined by the procedure code). These turnaround times are reflected in the table below.

**Table 17:**

| **Specimen Type** | **Specimen Requirements** | | | **Special Requirements** | **TAT*** |
|---|---|---|---|---|---|
| | ***Additive Required*** | ***Volume Required*** | ***Container/ Type*** | | |
| Small Biopsy Sample (P01) | 10% Buffered Formalin | Sufficient to fully immerse the specimen | Pre-filled container with lid firmly closed | Completed request form indicating the **Clinical History** outlining the suspected nature of the lesion and any relevant history or treatment | Routine 80% of samples reported within 5 days. Urgent 1-2 days |
| GI Endoscopic Biopsy (P02) | | | | Completed request form indicating the **Clinical History** outlining the suspected nature of the lesion and any relevant history or treatment | Routine 80% of samples reported within 7 days. Urgent 1-2 days |

| Specimen Type | Specimen Requirements | | | Special Requirements | TAT* |
|---|---|---|---|---|---|
| | ***Additive Required*** | ***Volume Required*** | ***Container/ Type*** | | |
| Non-Biopsy – Cancer Resection and Non-Biopsy Other (P03/P04) | | | | As Above. A description of the surgical procedure carried out to allow proper interpretation of the specimen with a description of any sutures or inking used for orientation or to mark relevant margins/structures. | Routine 80% of samples reported within 5 days. Urgent 1-2 days |
| Slides for Immunohistochemistry | None | N/A | N/A | Sections are cut onto adhesive slides. Sections should be placed at least 1cm from the frosted end. Control sections are placed at the bottom of the slide or on another slide if required. Slides are airdried overnight. | 3-5 days |

***** Occasionally samples may exceed the stated TAT for reasons including but not limited to:

- Immunohistochemical or Special Stains
- Special procedures such as decalcification or prolonged fixation
- Examination of additional tissue
- Referral for external technical services
- Consultation with Clinical or Pathology Colleagues

### 17.2 Cytology

Unfixed specimens for Cytology should be sent during routine working hours (samples must be received before 4pm), as these require the immediate attention of laboratory staff. The integrity of *unfixed* samples taken outside routine working hours may be compromised.

All prepared slides must be labelled using a pencil with patient's name and MRN.

Advice is available from the Consultant Histopathologist if required.

**Table 18:**

| Specimen Type | Specimen Requirements | | | Special Requirements | TAT |
|---|---|---|---|---|---|
| | ***Additive Required*** | ***Volume Required*** | ***Container Type*** | | |
| Body Fluid (Various, e.g. pleural, pericardial and ascitic fluids, ovarian cyst fluids, breast cyst fluids, thyroid cyst fluids etc.) | None | >0.5ml | Universal | If it is not possible to send the specimen within working hours, please *refrigerate* and send to the laboratory the next day. | 80% of samples reported within 5 days. |
| Bronchial Brushings | *Cytolyt* | 10ml | Universal Container,<br><br>Slide Holder | Slides should be prepared by directly smearing the brush tip on to a slide and spray fixed with Cytofix. "Fixed" must be written on the slide. The brush tip should then be broken off and placed in<br><br>*Cytolyt* fluid. | |
| Bronchial Lavage & Bronchial Washings | None | N/A | DAVOL Universal | None | |
| CSF | None | >0.5ml | Universal | Send to the Laboratory immediately | |
| FNA (Fine Needle Aspirate) –Thyroid, Salivary Gland and other head and neck aspirates | *Cytolyt* | N/A | Universal Container,<br><br>Slide Holder | Slides should be prepared directly from the FNA sample and **"air dried".** The needle used for aspiration should then be rinsed in *Cytolyt* fluid. | |
| FNA (Fine Needle Aspirate) –Lymph Node | *Cytolyt* | N/A | | **Air dried slides** are the specimen of choice unless metastatic carcinoma is suspected in which case a selection of air dried and spray fixed slides is desirable. Please note that slides for fixing should be spread and spray fixed with Cytofix immediately following material being placed on the slides and "Fixed" written on the slide.<br><br>The needle used for aspiration should be rinsed in *Cytolyt* fluid. | |

| Specimen Type | Specimen Requirements | | | Special Requirements | TAT |
|---|---|---|---|---|---|
| | ***Additive Required*** | ***Volume Required*** | ***Container Type*** | | |
| FNA (Fine Needle Aspirate) – Endobronchial | *Cytolyt* | N/A | Universal Container, Slide Holder | A selection of air dried and spray fixed slides is preferable. Please note that slides for fixing should be spread and spray fixed with Cytofix immediately following material being placed on the slides and "Fixed" written on the slides. The needle used for aspiration should be rinsed in *Cytolyt* fluid. | 80% of samples reported within 5 days. |
| Sputum | None | N/A | Universal Container | None | 80% of samples reported within 5 days |
| Urine | None | 1ml | | Random fresh sample sent to laboratory within 2 hours, only during working hours. | |
| Bile Duct Brushings | *Cytolyt* | N/A | | The brush tip to be broken off, sheath removed and placed directly in *Cytolyt* fluid. | |
| Urgent Cytology Specimens | As Above for each specimen type listed | | | As above for each specimen type listed | 1-2 days |

### 17.2.1 Instructions for Patient-Collected Specimens

#### 17.2.1.1 *Urine Specimens for Cytology*

Urine voided during the first morning urination cannot be used for urine cytology. Cells held overnight in the bladder may be degraded, making them difficult to analyse in the laboratory. Specimens must be analysed on the day of sampling.

1. Obtain a sterile universal container, from the doctor/clinic you are attending. Sterile universal containers may also be purchased from local pharmacy outlets.
2. Discard the first voided sample of the day.
   When the next urge to urinate arises, collect the specimen as follows:
   - Remove the lid from the specimen container making sure not to touch or contaminate the inside of the lid or container.
   - Urinate into and fill the container to at least half full.
   - Screw the lid tightly onto the universal container. Please be aware that leaking samples will not be processed by the laboratory.
   - Label the universal container with the name of the person from whom the sample has been collected and the date and time of collection.
   - Attend to personal hygiene as normal.
3. Deliver the sample to the hospital as soon as possible. Samples can be refrigerated if a delay is anticipated, however samples must be received in the laboratory on the same day of collection. Samples should only be collected during routine hours.

### 17.3 Referred Tests from Histology

Histology Samples are referred to external laboratories as detailed in Table below. Some of the referred tests are initiated within the Histology Department of BSHT at the request of the Consultant Pathologist and are indicated with * below.

**Table 19:**

| Description | TAT-Urgent | TAT-Routine | Sample | Container/Ward Requirements | Referral Lab |
|---|---|---|---|---|---|
| Bone Marrow Biopsy and Aspirate Slides | 1 W | 6 W | Minimum 8 aspirate slides. Biopsy specimen in 10% Buffered Formalin | Slides must be labelled with a pencil. Histology request form. | Histology Department, Bon Secours Hospital Cork |
| Skin Biopsies for Skin Immunofluorescence | N/A | 5 W | Skin Biopsy in Michel's medium. | St John's Institute request form | Histology Department St. John's Institute of Dermatology, St. Thomas' Hospital, London |
| Slides for External Testing (Immuno histochemistry/ Special Stains)* Molecular Testing (e.g KRAS & EGFR)* | 2 W | 4 W | N/A | N//A | Bon Secours Hospital, Cork HSL Advanced Diagnostics, London St. Vincent's University Hospital Dublin, Beaumont, Dublin, Cork University Hospital, Poundbury Institute, St James's Hospital, Dublin |
| Sural Nerve Biopsy | 2 W | 8 W | Fresh Specimen wrapped in Saline moistened gauze. | External Request Form. | Neuropathology Department, Cork University Hospital, Cork |
| Muscle Nerve Biopsy | 2 W | 6W | Fresh Specimen wrapped in Cling Film | External Request Form. | |

## 18 Point of Care Testing

The following Point of Care/Near Patient Testing is performed and reported in designated clinical areas.

**Table 20:**

| Test/ Profile | Specimen Type | Specimen Requirements | | | Special Requirements | Turnaround Time |
|---|---|---|---|---|---|---|
| | | ***Additive Required*** | ***Volume Required mL*** | ***Container Type*** | | |
| **ACTk** (Activated Clotted Time Kaolin) (Cath Lab) | Arterial or Venous Whole Blood | N/A | 0.5 | Plastic syringe (no additives or anticoagulants) | Sample taken in a controlled Cath Lab environment and processed immediately. Refer to procedure BST/POCT/SOP/019. | <5 mins |
| **Blood Gas Arterial** | Whole Blood <10 mins old. | Heparin | 0.5 | Heparinised Blood Gas Syringe | Do not shake sample as haemolysis may cause an elevation in potassium conc. Sample must be <10 mins old. Refer to procedure BST/POCT/SOP/003. | <10 mins |
| **Blood Gas Venous** | Whole Blood <10 mins old. | Heparin **OR** Li-Hep | 0.5 Fill to line | Heparinised Blood Gas Syringe Li-Hep Paediatric Bottle | Do not shake sample as haemolysis may cause an elevation in potassium conc. Sample must be <10 mins old. Refer to procedure BST/POCT/SOP/003. | <10 mins |
| **Calprotectin** | Faeces | N/A | 1 | N/A | Sample taken and tested by the patient in their home. | N/A |
| **Clo Test** for *Helicobacter pylori* (Endoscopy) | Tissue | Follow test kit protocol | | | N/A | <10 mins |
| **cTnI** (Troponin) | Whole Blood | Li-Hep | Fill to line indicated | Li-Hep | N/A | <15 mins |

| Test/ Profile | Specimen Type | Specimen Requirements | | | Special Requirements | Turnaround Time |
|---|---|---|---|---|---|---|
| | | ***Additive Required*** | ***Volume Required mL*** | ***Container Type*** | | |
| **Glucose (Capillary)** (All Clinical Locations) | Capillary Blood (Finger Prick) | N/A | N/A | N/A | N/A | <5 mins |
| **Haemoglobin** | Capillary Blood (Finger Prick) | N/A | N/A | N/A | Capillary blood must be preloaded into haemocue cuvette before analysis. Refer to procedure BST/POCT/SOP/010. | <5 mins |
| **Ketone (Capillary)** (Approved Wards) | Capillary Blood (Finger Prick) | N/A | N/A | N/A | N/A | <5 mins |
| **Influenza A&B** | Combined nasal/throat swab | N/A | N/A | N/A | Dry swab | <20 mins |
| **SARS-CoV-2** | Combined nasal/throat swab | N/A | N/A | N/A | Dry swab | <20 mins |

Note: Records/Reports of Point of Care Test results are maintained in the patient's Medical Record.

### 18.1 Special Requirements for POC Sampling and Testing

For information regarding collection of specimens from patients refer to BST/INF/PP/31 Policy and Procedure for the Collection of Specimens and BST/PHLE/SOP/001 Guidelines for Phlebotomy.

#### 18.1.1 Combined Nasal/Throat Swab for ID NOW Analysis

Freshly collected specimens should be used for optimal test performance. Inadequate specimen collection or improper sample handling/storage/transport may yield erroneous results. It is highly recommended that direct nasal and throat swabs should be tested immediately after collection for optimal sensitivity.

To collect a nasal swab sample for POCT influenza/COVID-19 testing complete the following:

1. Inform the patient that a swab will be taken from the back of the throat and also the nose.
2. Confirm the patient identity as outlined in BST/PHLE/SOP/001.
3. Request the patient to open their mouth wide and apply the ID NOW specific foam tipped dry swab to swab the back of the throat by rotating against the back of the throat for 5 sec.
4. Carefully insert the swab into the nostril exhibiting the most visible drainage, or the nostril that is most congested if drainage is not visible.
5. Using gentle rotation, push the swab until resistance is met at the level of the turbinates (less than one inch into the nostril).
6. Rotate the swab several times against the nasal wall then slowly remove from the nostril.
7. Test the swab immediately.

### 18.1.2 Capillary Blood Sample for Glucose/Ketones/Haemoglobin

1. The patient is positioned comfortably, and the test is explained and obtain informed consent.
2. Clean the patient's fingers thoroughly using soap and water and rinse well. Ensure the finger selected is thoroughly dry. The index finger and thumb are avoided as sites for blood sampling. The sides of the remaining fingers may be selected as the puncture site.
3. Avoid using the fingertip as a puncture site and rotate the finger used if testing multiple times daily.
4. Promote blood flow to the site by allowing the arm to hang down by the side for a few seconds and then flex arm and fingers. If the hand is very cold, allow it to warm up before trying to obtain a blood sample.
5. Puncture the skin with a single use sterile safety lancet.
6. Lancets are disposed of immediately after use into the sharps bin.
7. Touch the droplet of blood to the strip. The blood is drawn into the test strip.
8. Give the patient a clean cotton wool ball to apply pressure to the puncture site.

## 19 External Test

Table 21 outlines the in-house specimen requirements for tests sent from BSHT to referral laboratories and any other relevant collection information.

| Sample | Container/Colour | Additive |
|---|---|---|
| **B** | Brown | Gel/clot activator |
| **O** | Orange | Lithium Heparin |
| **R** | Red | EDTA |
| **Y** | Yellow | Fluoride Oxalate |
| **UC** | Yellow Cap Universal | None |

**Table 21:**

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| Autoantibody Screen (Anti-Nuclear Factor, Mitochondrial Antibodies, Parietal Cell Antibodies, Smooth Muscle Antibodies, Liver Kidney Muscle Antibodies, Collagen Screen) | B | 1-2 | 1ml Non-Haemolysed Serum: + 4°C | |
| Alpha 1 Anti Trypsin Phenotype | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Anti-Carbonic Anhydrase Antibodies *Autoimmune Pancreatitis | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Anti-Citrullinated Peptide Antibodies | B | 1-2 | 1ml Non-Haemolysed Serum: + 4°C | |
| Angiotensin - Converting Enzyme | B | 4-6 | 1ml Non Haemolysed Serum: + 4°C | |

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| Angiotensin II | R | 4-6 | EDTA Plasma -20°C | |
| Acid Phosphatases | B | 4-6 | 1ml Non Haemolysed Serum: + 4°C | |
| Anti - Acetylcholine Receptor Antibodies | B/R | 4-6 | 1ml Non-Haemolysed Serum Or EDTA Plasma: -20°C | |
| ACTH - Corticotrophin | R | 4-6 | 1ml EDTA Plasma -20°C | |
| Adenosine Deaminase | B/CSF/ Ascites Fluid | 4-6 | Serum, Pleural or Ascites Fluid or CSF. + 4°C | |
| Anti-Adrenal Gland Antibodies | B | 4-6 | 1ml Non Haemolysed Serum + 4°C | |
| ADH (Anti-Diuretic Hormone) / Vasopressin | Pink Capped Aprotinin | 4-6 | 1ml Aprotinin Plasma -20°C | |
| Acid Fast Bacilli | EMU/ Urine/ Sputum/BAL | 6-8 | Sterile Container: + 4°C | 3 Consecutive Samples Over A Period Of 3 Days. 1 Sample Bronchial Wash/ Pericardial Fluid |
| Alpha Feto Protein | B | 1-2 | 1ml Non Haemolysed Serum + 4°C | |
| Anti-Gliadin Abs | B | 4-6 | 1ml Non Haemolysed Serum + 4°C | |
| Androgen Index | | 4-6 | 1ml Non Haemolysed Serum + 4°C | See SHBG And Testosterone |
| Aluminium | O | 4-6 | 1ml Lithium Heparin Plasma + 4°C | |
| Alcohol Levels | Y | 4-6 | Whole Blood : +4°C | |

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| Aldolase | B | 4-6 | 1ml Non Haemolysed Serum : + 4°C | |
| Allergen | B | 4-6 | 1ml Non Haemolysed Serum : + 4°C | |
| Alkaline Phosphatase Isoenzymes | B | 4-6 | 1ml Non Haemolysed Serum : + 4°C | |
| Aldosterone | R | 4-6 | 1ml EDTA Plasma Non Haemolysed -20°C | |
| Anti-Mullerian Hormone AMH | B | 4-6 | 1ml Non Haemolysed Serum: + 4°C | |
| Amikacin | B | 4-6 | 1ml Non Haemolysed Serum: + 4°C | |
| Ammonia | O | 4-6 | 1ml Lithium Heparin Plasma -20°C | |
| Amyloid | B | 4-6 | 1ml Non Haemolysed Serum: -20°C | |
| Anti-Phospholipids Antibodies | B | 4-6 | 1ml Non Haemolysed Serum: + 4°C | |
| Anti - NMDA Receptor Antibodies | B | 4-6 | 1ml Non Haemolysed Serum: + 4°C | |
| Anti-Neutrophil Cytoplasmic Antibody | B | 4-6 | 1ml Non Haemolysed Serum: + 4°C | |
| Anti-Transglutaminase (TTG) Abs | B | 1-2 | 1ml Non Haemolysed Serum: + 4°C | |
| Anti-Neuron Antibodies (Hu/Yo) Paraneoplastic Abs | B/CSF | 4-6 | 1ml Non Haemolysed Serum: + 4°C Or 1ml CSF + 4°C | |
| Androstenediol | B/O | 4-6 | 1ml Serum or Plasma: +4°C | |
| Atypical Pneumonia Screen (Mycoplasma/Legionella/Chlamydia Pneumonia) | B/EMU | 4-6 | 1ml Serum/ 20mls Urine: +4°C | |

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| Aqua Porin 4 Antibodies | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Anti-Streptolysin O | B | 1-2 | 1ml Non-Haemolysed Serum: + 4°C | |
| Aspergillus Titre | B | 4-6 | 1ml Non Haemolysed Serum: + 4°C | |
| Aspergillus Confirmation | B | 4-6 | 1ml Non Haemolysed Serum : + 4°C | |
| Aspergillus Fumigatus | B | 4-6 | 1ml Non Haemolysed Serum : + 4°C | |
| Anti T3 Antibodies | B | 4-6 | 1ml Non Haemolysed Serum : + 4°C | |
| Anti T4 Antibodies Thyroxine | B | 4-6 | 1ml Non Haemolysed Serum : + 4°C | *Attach Thyroid Evaluation Results |
| Anti-Thyroglobulin Abs. | B | 4-6 | 1ml Non Haemolysed Serum : -20°C | |
| Anti-Voltage Gated Calcium Channel Abs | B | 4-6 | 1ml Non Haemolysed Serum : -20°C | |
| Anti-Voltage Gated Potassium Channel Abs | B | 4-6 | 1ml Non Haemolysed Serum : + 4°C | |
| Avian Precipitants | B | 4-6 | 1ml Non Haemolysed Serum : + 4°C | |
| Lyme Antibodies Borreliosis Burgdorferi | B | 4-6 | 1ml Non Haemolysed Serum : + 4°C | |
| Beta 2 Glycoprotein | B | 4-6 | 1ml Non Haemolysed Serum: + 4°C | |
| Beta 2 Micro Globulin | B | 1-2 | 1ml Non Haemolysed Serum: + 4°C | |
| Beta 2 Transferrin | Fluid/ B | 4-6 | 2ml Fluid Universal Container<br>1ml Non-Haemolysed Serum: -20°C | |
| Direct And Indirect Bilirubin | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C Protect From Light | |

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| Bence Jones Protein/ Urinary Electrophoresis | EMU | 1-2 | 30mls Of Urine Non-Haemolysed | |
| Brucellosis Screen | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| Ca153 | B | 1-2 | 1ml Non-Haemolysed Serum: + 4°C | |
| Ca19 9 | B | 1-2 | 1ml Non-Haemolysed Serum: + 4°C | |
| Ca27 29 | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |
| Anti-Centromere B Antibody | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Calcitonin | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |
| Renal Stone Calculi | Stone | 4-6 | Renal Stone in A Universal Container | |
| Calprotectin | Stool | 4-6 | Stool + 4°C | |
| Carbamazepine Tegretol | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Cold Agglutinins | R | 4-6 | EDTA Whole Blood Ambient | |
| Catecholamines Profile (Adrenaline, Noradrenaline, Dopamine) | 24hr/ Spot Urine | 4-6 | 5ml Aliquot -20°C. | |
| Catecholamine Plasma | R/O | 4-6 | 3ml Plasma -20°C | |
| Ceruloplasmin | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Cystic Fibrosis | Rx2 | 6-8 | 5mls EDTA Whole Blood + 4°C | Https://Www.Eurofins-Biomnis.Com/Referentiel/Liendoc/Renseignements/Intgb/B12-Intgb-Molecular_Genetics.Pdf |
| Array CGH Analysis | R X 2 | 6-8 | 5mlsEDTA Whole Blood + 4° | |
| Chlamydia | U | 4-6 | 2mls Urine + 4°C | |

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| | Cobas Kit | | | |
| Chlamydia Antibody | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| Cholinesterase | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| Erythrocyte Cholinesterase | R | 4-6 | 2mls EDTA Whole Blood : + 4°C | |
| Chromosome Analysis Karyotyping | O | 6-8 | 5mls Whole Blood Lithium Heparin : + 4°C | Https://Www.Eurofins.Ie/Media/12162014/Genetic-Test-Request-Option-2.Pdf?_Gl=1*5dco91*_Up*Mq..*_Gs*Mq..&Gclid=Eaiaiqobchmi-Zg_RuqnIgMvowhhar2qptr4eaayasaaegjq5vd_Bwe |
| Chromogranin A | B | 4-6 | 1ml Serum: -20°C | |
| Chromogranin B | Px2 | 4-6 | 2mls EDTA Plasma and Aprotinin -20°C | |
| C1 Esterase Inhibitor Total | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Cardiac Enzymes | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Chloride | B/O | 4-6 | 0.3mls Serum or Plasma | |
| Cardiolipin Antibody (Phospholipid) | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Charcot–Marie–Tooth Disease (Pmp22 Gene) HSMN1 | Rx2 | 6-8 | 5mls Of EDTA Whole Blood Ambient | Https://Www.Eurofins.Ie/Media/12162014/Genetic-Test-Request-Option-2.Pdf?_Gl=1*5dco91*_Up*Mq..*_Gs*Mq..&Gclid=Eaiaiqobchmi- |

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| | | | | Zg_RuqnIgMvowhhar2qptr4eaayasaaegjq5vd_Bwe |
| Cytomegalovirus Antibody (CMV) | B | 1-2 | 1ml Non-Haemolysed Serum: + 4°C | |
| Coeliac Screen (TTG) | B | 1-2 | 1ml Non-Haemolysed Serum: + 4°C | |
| Copper | 24hr Urine/O | 4-6 | 24hr Urine Collection + 4°C/ Lithium Heparin Plasma + 4°C | |
| Complement Screen - C3 And C4 | B | 1-2 | 1ml Non-Haemolysed Serum: + 4°C | |
| Coxsackie (Enterovirus) | Stool | 4-6 | 5gs Stool: + 4°C | |
| IgG Antibody Test for Sars-Cov-2 (Covid Antibodies) | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| C Peptide | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |
| Cervical Smear Cytology And HPV | Thin Prep | 6-8 | Thin Prep Vial + 4°C | |
| Cyclosporin | R | 4-6 | 2mls Whole Blood EDTA: + 4°C | |
| Cystine | O | 4-6 | 1ml Non-Haemolysed Plasma: -20°C | |
| DHEA Dehydroepiandrosterone | B/R/O | 4-6 | 1ml Serum Or EDTA Or Heparin Plasma: + 4°C | |
| Dehydroepiandrosterone Sulphate | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Digoxin | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| Anti- DNA Antibody | B | 1-2 | 1ml Non-Haemolysed Serum: + 4°C | |
| Drug Screen - Morphine, Amphetamines, Barbiturates, Marijuana -Cannabis, Cocaine, Benzodiazepines, Methadone, Methamphetamine - Ecstasy, Phencyclidine - Angel Dust, Tricyclic Antidepressants | Urine | 24 Hours | 10mls Spot Urine: + 4°C | *Inpatients Of BSHT Only |
| Epstein Barr Virus (EBV) | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Coeliac Screen | B | 1-2 | 1ml Non-Haemolysed Serum: + 4°C | |
| Extractable Nuclear Antibody Ro and La | B | 1-2 | 1ml Non-Haemolysed Serum: + 4°C | |
| Erythropoietin | B/O | 4-6 | 5mls Whole Blood EDTA: + 4°C | |
| Erythrocyte Fatty Acids (Omega 3 + 6) | Rx2 | 4-6 | 5mls Whole Blood EDTA: + 4°C | |
| Ena | B | 1-2 | 1ml Non-Haemolysed Serum: + 4°C | |
| Faecal Elastase | Stool | 4-6 | 5g Stool + 4°C | |
| Adenovirus | Stool | 1-2 | 5g Stool + 4°C | |
| Faeces C/S | Stool | 1-2 | 5g Stool: + 4°C | |
| Flecainide | B | 4-6 | 1ml Non-Haemolysed Serum -20°C | |
| Farmers Lung | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| Flow Cytometry | R/Bone Marrow Aspirate | 4-6 | 2.7mlx2 EDTA Whole Blood 4°C 1.2mlx2 Bone Marrow Aspirate In EDTA | *Attach FBC Result |
| Fragile X | Rx2 | 6-8 | 5mls Whole Blood EDTA : + 4° | Https://Www.Eurofins-Biomnis.Com/Referentiel/Liendoc/Renseignements/Intgb/B12-Intgb-Molecular_Genetics.Pdf |
| Free T3 | B | 1-2 | 1ml Non-Haemolysed Serum : + 4°C | |
| (Ristocetin) FVIII Von Willebrand | G X 2 | 4-6 | 2.7mls Coag Plasma : -20°C | |
| Factor V Leiden Mutation | R | 4-6 | 5mls Whole Blood EDTA : + 4°C | Https://Www.Eurofins-Biomnis.Com/Referentiel/Liendoc/Renseignements/Intgb/B12-Intgb-Molecular_Genetics.Pdf |
| Glucose 6 Phosphate Dehydrogenase | R | 4-6 | 2mls EDTA Whole Blood : + 4°C | Send FBC With This Sample |
| Anti-GAD Antibodies | B | 4-6 | 1mls Non-Haemolysed Serum : + 4°C | |
| Gastrin | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |
| Glomerular Basement Membrane | B | 4-6 | 1mls Non-Haemolysed Serum : + 4°C | |
| Cervical Smear Cytology | Thin Prep | 6-8 | Thin Prep Vial | |
| Growth Hormone | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |
| Anti-Ganglioside GM1 Antibodies | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C Or 1ml CSF | |

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| Haemophilus Influenza B IgG Serology | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| Haemochromatosis | Rx2 | 4-6 | 5mls Whole Blood EDTA : +4°C | Https://Www.Eurofins.Ie/Media/12162014/Genetic-Test-Request-Option-2.Pdf?_Gl=1*5dco91*_Up*Mq..*_Gs*Mq..&Gclid=Eaiaiqobchmi-Zg_RuqnIgMvowhhar2qptr4eaayasaaegjq5vd_Bwe |
| Haptoglobin | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| Hepatitis B Core | B | 1-2 | 1ml Non-Haemolysed Serum: + 4°C | |
| Haemoglobin Electrophoresis | B And Spot Urine | 4-6 | 4mls Whole Blood EDTA :+ 4°C | |
| B - HCG Human Chorionic Gonadotrophin (Blood) | B | 24 Hours | 1ml Non-Haemolysed Serum : + 4°C | *Please Contact The Lab For Urgent Samples |
| Hepatitis C Antibodies | B | 1-2 | 1ml Non-Haemolysed Serum : + 4°C | |
| Homocysteine | B/O | 4-6 | EDTA Plasma Or Heparin Plasma -20°C | |
| Hepatitis A IgM Antibody | B | 1-2 | 1ml Non-Haemolysed Serum : + 4°C | |
| Hepatitis B Molecular | B | 1-2 | 1ml Non-Haemolysed Serum : + 4°C | |
| Hepatitis B Surface Antibodies | B | 1-2 | 1ml Non-Haemolysed Serum : + 4°C | |
| Hepatitis C PCR | Rx2 | 4-6 | 1ml EDTA Plasma : -20°C | |
| Hepatitis C Antibody | B | 1-2 | 1ml Non-Haemolysed Serum : + 4°C | |

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| Hepatitis D Serology | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| Hepatitis E Serology | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| Hep Screen (HEPAS - HEPCS - HPBSAG) | B | 1-2 | 1ml Non-Haemolysed Serum : + 4°C | |
| Herpes Simplex Virus | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| Herpes Simplex Virus Swab | Viral Swab | 4-6 | Viral Swab | |
| Heparin Induced Thrombocytopenia | Gx3 | 4-6 | 3x 2.7mls Co-Ag Whole Blood + 4°C | |
| HIV | B | 1-2 | 1ml Non-Haemolysed Serum : + 4°C | |
| HLA Typing | R X2 | 4-6 | 2.7mls EDTA X 2 + 4°C | |
| HLA B27 | R X2 | 4-6 | EDTA Whole Blood Ambient Temperature | |
| Anti-HMG-CoA Reductase Abs | R | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| Hereditary Pressure Palsy | R X3 | 6-8 | 2.7mls EDTA X 3 : + 4°C | Https://Media.Childrenshealthireland.Ie/Documents/Consent-Form-For-Genetic-Anylsis.Pdf |
| Helicobacter Pylori Titre | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| Hepatitis B Surface Antigen | B | 1-2 | 1ml Non-Haemolysed Serum : + 4°C | |
| Helicobacter Pylori Antigen | Stool | 4-6 | 4g Stool + 4°C | |
| Huntington's Chorea | R X3 | 6-8 | 10mls EDTA Whole Blood : + 4°C | Https://Www.Eurofins-Biomnis.Com/Referentiel/Liendoc/Rensei |

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| | | | | gnements/Intgb/B12-Intgb-Molecular_Genetics.Pdf |
| Gastric Intrinsic Factor | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| Immunoglobulin Profile IgG IgM IgA | B | 1-2 | 1ml Non-Haemolysed Serum : + 4°C | |
| Immunoglobulin IgD | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| IgE | B | 1-2 | 1ml Non-Haemolysed Serum : + 4°C | |
| IGF1 Somatomedin C | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |
| IgG Subclasses | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| Interleukin 6 | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |
| Immunofixation | B | 1-2 | 1ml Non-Haemolysed Serum : + 4°C | |
| Immunofixation Urine | Spot Urine | 1-2 | 10mls Spot Urine : + 4°C | |
| Influenza A And B IgG Serology | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| Infliximab Levels | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| Infliximab Antibodies | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |
| Insulin Levels | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |
| Anti-Insulin Antibodies | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |
| Islet Cell Antibodies | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| Jak 2 Mutation | R | 6-8 | 2.7mls EDTA Whole Blood | Https://Www.Eurofins-Biomnis.Com/Referentiel/Liendoc/Renseignements/Intgb/B8-Intgb-Malignant_Blood.Pdf |
| JC Virus/Bk Virus/Sv40 | B/CSF | 6-8 | 1ml Non-Haemolysed Serum<br>Or 1ml CSF : + 4°C | |
| Lamotrigine | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |
| L. Acting Thyroid Stimulating Abs /Anti TSH Receptor Antibodies | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| Lead | O | 4-6 | 4.7mls Whole Blood Lithium Hep : + 4°C | |
| Legionella Abs | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| Legionella Urine | Urine | 1-2 | 20mls Urine : + 4°C | |
| Leptospira (Weil's Disease) | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| Leptin | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |
| Lithium | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| Light Chains Kappa And Lambda | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| Lipase | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| Listeria | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| Urinary Lipase | Urine | 4-6 | 15mls Spot/24hr Urine | |

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| Lebers Optic Hereditary Neuropathy | R X2 | 6-8 | 5mls Whole Blood EDTA: + 4°C | Https://Media.Childrenshealthireland.Ie/Documents/Consent-Form-For-Genetic-Anylsis.Pdf |
| Micro Albumin Creatine Ratio | Urine | 1-2 | 10mls Spot Urine: + 4°C | |
| Bone Marrow Cytogenetics | Bone Marrow Aspirate | 6-8 | 1.2ml Bone Marrow Aspirate in Lithium Heparin X2 Ambient | Https://Www.Eurofins.Ie/Media/12162014/Genetic-Test-Request-Option-2.Pdf?_Gl=1*5dco91*_Up*Mq..*_Gs*Mq..&Gclid=Eaiaiqobchmi-Zg_RuqnlgMvowhhar2qptr4eaayasaaegjq5vd_Bwe |
| Anti Mag Abs | B/CSF | 4-6 | 1ml Non-Haemolysed Serum Or 1ml CSF: + 4°C | |
| Malaria Films | R | 1-2 | Fresh Blood Films | Send FBC Report With Sample |
| Measles | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Mercury | R | 4-6 | 5mls Whole Blood EDTA: + 4°C | |
| Meningococcal PCR | R X 2 | 1-2 | 1.2mls Whole Blood EDTA X 2: + 4°C | Https://Media.Childrenshealthireland.Ie/Documents/Imsrl-Request-Form-Jul-2022.Pdf |
| Metanephrines | 24hr Urine | 4-6 | 2ml Aliquot -20°C | |
| Methylmalonic Acid | O | 4-6 | 2mls Heparin Plasma -20°C | |
| Methylene Dihydrofolate Reductase | R X 2 | 4-6 | 5mls Whole Blood EDTA:+ 4°C | |

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| Methotrexate Levels | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Anti Mog Antibodies | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Mumps | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Mycoplasma | B | 1-2 | 1ml Non-Haemolysed Serum: + 4°C | |
| Anti-Myeloperoxidase Antibodies | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Myoglobin | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Myocyte Panel | B | 4-6 | 1ml Non-Haemolysed Serum: +4 C | |
| Mycology | Misc | 6-8 | Ambient | |
| Netilmicin | B | 4-6 | 1ml Non-Haemolysed Serum : + 4°C | |
| Neutrophil Antibodies | R And B X2 | 4-6 | 1ml EDTA/7ml Clotted : + 4°C | |
| Neuron Specific Enolase | B | 4-6 | 1ml Non-Haemolysed Serum : -20°C | |
| NMDA Receptor Antibodies | B/ CSF | 4-6 | 1ml Non-Haemolysed Serum Or 300ul CSF : + 4°C | |
| Ova Cysts And Parasites | Stool | 4-6 | 20g Stool : + 4°C | |
| Osmotic Fragility Test | R X2 | 4-6 | 5mls Whole Blood EDTA : + 4°C | |
| Oligoclonal Band And CSF Electrophoresis | CSF And B | 4-6 | 1mls CSF And 1mls Non-Haemolysed Serum+ 4°C | |

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| Alkaline Phosphatases | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |
| Paracetamol | B | 4-6 | 1ml Serum 4 Hours Post Ingestion +4oc | |
| Para Influenza | Swab | 4-6 | Throat Swab : + 4°C | |
| Parvo Virus | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Phenobarbitone | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Penicillium Mould IgE | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Penicillin V And G Profile | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Protein Electrophoresis | B | 1-2 | 1ml Non-Haemolysed Serum: + 4°C | |
| Pertussis Serology (Whooping Cough, Bordetella) | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Adult Pertussis Viral Swab Perinasal | Viral Swab | 4-6 | Viral Swab Nasal: +4oc | |
| Pertussis Swab Amies Swab Perinasal | Amies Swab | 4-6 | Amies Swab Nasal: + 4°C | |
| Phenylalanine | O Or Fasting EMU | 4-6 | 1ml Heparin Plasma -20°C Or 10mls EM : -20°C | |
| Philadelphia Chromosome | O X 2 | 6-8 | 1.2mls Heparin Whole Blood: + 4°C | Https://Www.Eurofins.Ie/Media/12162014/Genetic-Test-Request-Option-2.Pdf?_Gl=1*5dco91*_Up*Mq..*_Gs*Mq..&Gclid=Eaiaiqobchmi- |

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| | | | | Zg_RuqnIgMvowhhar2qptr4eaayasaaegjq5vd_Bwe |
| Epanutin (Phenytoin) | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Enterovirus (Polio, Echo, Coxsackie A&B, Enterovirus) | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Platelet Antibodies | B | 4-6 | 1ml Non-Haemolysed Serum (Unseparated): + 4°C | |
| Pneumococcal Antigen Urine | Urine | 4-6 | 10mls Spot Urine: + 4°C | |
| Pneumococcal Antibodies | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| PNH Paroxysmal Nocturnal Haemoglobinuria | R X2 | 4-6 | 5-10mls EDTA Whole Blood Ambient | |
| Pouch Of Douglas Fluid | Fluid | 4-6 | 0.5mls Fluid Universal Container + 4°C | |
| Poliomyelitis | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Porphyrin Screen | 24hr Urine / O And R/ Stool /Spot Urine | 4-6 | 0.2gs Stool/ 2.7mls Whole Blood EDTA And 0.5ml Plasma / 20mls Urine | *Contact The Lab for Full Screen Requirements |
| Renin | R | 4-6 | 1ml EDTA Plasma Frozen: -20°C | |
| Primidone | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| Prolactin Molecular Forms - Macroprolactin (Eclia & Ria After Peg Precipitation) | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |
| Procollagen III | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |
| Progesterone | B | 24 Hours | 1ml Non-Haemolysed Serum: + 4°C | *Please Contact the Lab For Urgent Samples |
| Prothrombin Mutation | R X2 | 4-6 | 5mls Whole Blood EDTA: + 4°C | |
| Anti-Proteinase 3 Antibodies | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Quinidine | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |
| Q Fever (Coxiella) | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Quantiferon | QuantiFERON Kit | 4-6 | 4 Quantiferon Bottles, Incubated, Spun + 4°C | |
| Reducing Substances | Stool | 4-6 | Stool 20g + 4°C | |
| Rheumatoid Factor | B | 1-2 | 1ml Non-Haemolysed Serum : + 4°C | |
| Glucagon | Pink Capped Aprotinin + EDTA | 4-6 | 2ml Aprotinin Plasma Frozen -20°C | |
| Rotavirus | Stool | 1-2 | 5gs Faeces Universal Container | |
| Reverse T3 | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| Rubella | B | 1-2 | 1ml Non-Haemolysed Serum: + 4°C | |
| Protein S100 | CSF | 6-8 | 1ml Non-Haemolysed CSF -20°C | |
| Amino Acid Screen Plasma | B/O | 4-6 | 1mls Non-Haemolysed Serum Or Plasma: -20°C | |
| Salicylate Levels | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Sputum Cystic | Sputum | 4-6 | Sputum Universal Container : + 4°C | |
| Serotonin | 24hr Urine Collection | 4-6 | 10mls Aliquot: -20°C | |
| Serotonin 5ht | O | 4-6 | 3mls Whole Blood -20°C | |
| Sex Hormone Binding Globulin | B | 4-6 | 1mls Non-Haemolysed Serum: + 4°C | |
| Serum Osmolality | B | 1-2 | 1mls Non-Haemolysed Serum: + 4°C | |
| Somatostatin | Pink Capped Aprotinin+ EDTA | 4-6 | 1ml Plasma Aprotinine: -20°C | |
| Spinal Bulbar Dystrophy Kennedys Disease | R X3 | 6-8 | 10mls EDTA Whole Blood +4°C | Https://Media.Childrenshealthireland.Ie/Documents/Consent-Form-For-Genetic-Anylsis.Pdf |
| Tacrolimus | R X2 | 4-6 | 5mls EDTA Whole Blood +4°C | |
| Teicoplanin (Targocid) | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| Testosterone Total | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Free Testosterone | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Testosterone Woman And Child | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Tetanus | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Thyroxine Binding Globulin | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |
| Theophylline | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Thrombophilia Screen | G X3 +R X2 | 4-6 | 2mls Citrated Plasma: -20°C and 5mls EDTA Whole Blood | Https://Www.Eurofins-Biomnis.Com/Referentiel/Liendoc/Renseignements/Intgb/B12-Intgb-Molecular_Genetics.Pdf |
| Thyroglobulin Levels/Antibodies | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |
| T And B Cell Lymphocytes | R X2 | 4-6 | 4mls Whole Blood EDTA: + 4°C | |
| TPMT | R X2 | 4-6 | 4mls Whole Blood EDTA: + 4°C | |
| Tobramycin | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Toxicara | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Toxoplasma | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Syphilis (VDRL, TPHA, RPR) | B | 1-2 | 1ml Non-Haemolysed Serum: + 4°C | |
| Anti-Thyroid Peroxidase Antibodies | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| Tryptase | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Trypsinogen | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |
| Tryptic Activity | Stool | 4-6 | 2g Stool: + 4°C | |
| Tau/Phospho Tau/Beta Tau Amyloid | CSF | 6-8 | 4 - 0.5ml Aliquots CSF -20°C | |
| Urinary Amino Acid | 24hr Urine | 4-6 | 5mls Aliquot of A 24hr Urine Non Acidified Collection: -20°C | |
| Urinary Citrate | EMU | 4-6 | | |
| Urinary Cystine | EMU | 4-6 | 10mls Urine: + 4°C | |
| Urinary Myoglobin | 24hr Urine | 4-6 | 10mls Aliquot of A 24hr Urine Non Acidified Collection: + 4°C | |
| Urinary Organic Acid | Spot Urine | 4-6 | 10mls Urine Freeze: -20°C | |
| Urinary Osmolality | Spot Urine | 1-2 | 10mls Urine: + 4°C | |
| Urinary Oxalate | 24hr Urine | 4-6 | 20mls Aliquot of Acidified 24 Hr Urine Collection: + 4°C | |
| Urinary Zinc | Spot Urine | 4-6 | Spot Urine + 4°C | |
| Valproic Acid (Epilim Levels) | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |
| Varicella (Chicken Pox, VZV) | B | 1-2 | 1ml Non-Haemolysed Serum: + 4°C | |
| Anti-Voltage Gated Channel Ion Antibodies | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| Vasoactive Intestinal Peptide | Pink Capped Aprotinin+ EDTA | 4-6 | 1ml Plasma Aprotinine: -20°C | |
| Viscosity | R | 4-6 | 2.7mls EDTA Whole Blood Ambient | |
| Vitamin A | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Vitamin B1 Thiamine | R | 4-6 | 2.7mls EDTA Whole Blood + 4°C | |
| Vitamin B6 | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Vitamin E | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Very Long Chain Fatty Acid | R | 4-6 | 2mls Non-Haemolysed EDTA Plasma: -20°C | |
| Voriconazole | B | 4-6 | 1ml Non-Haemolysed Serum: -20°C | |
| VMA | 24hr Urine | 4-6 | 5mls Aliquot of A 24hr Urine Non-Acidified Collection: -20°C | |
| Widal Felix Test (Salmonellosis, Typhoid and Paratyphoid) | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Y Chromosome Microdeletions | R X2 | 6-8 | 5mls EDTA Whole Blood + 4°C | Https://Media.Childrenshealthireland.Ie/Documents/Consent-Form-For-Genetic-Anylsis.Pdf |
| Yersinia | B | 4-6 | 1ml Non-Haemolysed Serum: + 4°C | |
| Zinc | B | 4-6 | 1ml Non-Haemolysed Serum: +4 C | |

| Test Name | Sample Type | Turn Around Time (weeks) | Sample Preparation | Supporting Documents/ Special Requirements |
|---|---|---|---|---|
| Protein 14.3.3 -Creutzfeldt Jakob | CSF | 6-8 | CSF - 20°C | Https://Www.Eurofins-Biomnis.Com/Referentiel/Liendoc/Renseignements/Intgb/R33-Intgb-Frc_Protein_14.3.3.Pdf |
| 17 Ketosteroids | 24 Hr Urine | 4-6 | 15ml 24hr Urine: + 4°C | |
| 17 Hydroxy Progesterone | B/R/O | 4-6 | 1ml Non-Haemolysed Serum Or EDTA Or Heparin Plasma: + 4°C | |
| 5HIAA | 24hr Urine | 4-6 | 5mls Aliquot of A 24hr Urine Non Acidified Collection: -20°C | |

# 20 Reporting of Test Results

Refer to BST/PATH/SOP/007 "Procedure for the Review and Release of Reports to Users" for full details of the Pathology Department's policy on the reporting of results. Listed below is a concise guide to elements of this procedure.

## 20.1 Reporting of Results within the Hospital

All results, once released, are available on the Hospital computer system (iLab/APEX). Hard copy reports are printed and delivered to the clinical area via the pneumatic chute system. Reports for Outpatients or discharged patients and requests originating from Consultants from the Kerry Clinic are placed in relevant consultant internal post boxes in Specimen Reception. They are placed in envelopes and delivered to the relevant consultant's post box in the Hospital Post Room daily at 15:30h.

All results, once released in the Laboratory can also be reviewed in Maxims (Order Comms Software). Please note that the hardcopy report continues to be the official copy of the report for Histopathology. Note that blood transfusion crossmatch reports are NOT sent to Maxims.

Reports for POCT are placed directly into the patients' Medical Record at time of testing.

## 20.2 Reports for External Locations

Reports for External Locations, e.g. Outpatient requests from General Practitioners, will be posted on the day of testing if results are available and printed before 15:30h. These reports are addressed to the relevant Medical Practitioner/Health Care Office and delivered to the main Hospital Reception for postage at 15:30h.

## 20.3 Telephoned Results

It is the policy of the Pathology Department to avoid issuing results on the telephone. All telephone conversations relating to such results are documented on the iLab/Apex LIS (Laboratory Information System) as per procedure BST/PATH/SOP/007.

Parameters that have reached critical levels will be notified to the relevant clinical area by telephone. The nurse clinician receiving the call will be advised of the parameter that has reached a critical level and directed to review the result for clinical impact.

The overall policy of the Laboratory is to limit the need for verbal reports. Where the issuing of such reports may be necessary to ensure the optimum care of a patient, trained staff may issue such reports.

At ward level, where information is received concerning reports, a record should be maintained on the ward of the nature of the verbal communication (ISBAR).

### 20.4 Emailed Reports

The overall policy of the Laboratory is to limit the need for such reports whilst at all times recognising that the issuing of such reports may be necessary to ensure the optimum care of patients. Emailed reports are issued only to verified and secure email addresses as per BST/PATH/SOP/007.

### 20.5 Reference Ranges (Biological Reference Intervals)

Reference ranges for test attributes are documented on all reports where appropriate.

Biological reference Intervals are provided where clinically indicated on all tests performed by the Pathology Department as defined by the following documents:

- BST/PATH/I/014 Pathology Department Test Critical Intervals (Excl Micro/Histopathology)
- BST/PATH/I/015 Bon Secours Microbiology Department Test Critical Intervals
- BST/PATH/I/016 Bon Secours Histopathology Test Critical Intervals
- BST/POCT/I/002 POCT Critical Test Results

In addition, a list of Critical Values has been prepared in consultation with our clinical users. These ranges are available in all clinical areas, on Q Pulse and are also available on the intranet.

**Warning:** Many diaries and handbooks provide lists of reference intervals for common analytes. You are asked not to refer to these in the interpretation of results generated by the Pathology laboratory. We have prepared our own reference intervals, which are dependent on the method of analysis, used and are also specific to the population, which we serve. The use of inappropriate reference intervals can be at best confusing and at worst dangerous. If you are in any doubt about the validity of any reference interval provided to you, please contact the Pathology laboratory for clarification.

## 21 Customer Complaints and Feedback

The Pathology department operates a feedback system. Feedback and Complaints to the Pathology Department are managed in accordance with BST/QA/SOP/016 “Complaints and Feedback Handling System”.

Patients are invited to submit feedback via Cemplicity, which is sent to patients following their treatment in BSHT. Alternatively, Laboratory Users/Patients can submit feedback directly to the Laboratory Services Manager (Gene Ferris) and/or Laboratory Quality Assurance Manager (Cara Wrenn).

The objectives of our complaints handling system are:

- That all complaints are rapidly and effectively handled.
- The customer and/or patient difficulties are alleviated promptly.
- That the same problem will not occur again because the cause has been identified and corrected.
- That customer confidence is restored in our service.
- That relevant information is recorded and reported to Clinical Director & Laboratory Services Manager.

## 22 Education & Training

Refer to BST/QA/SOP/006 Control of Training in the Pathology Laboratory for education and training requirements.

## 23 Audit and Evaluation

Refer to BST/QA/SOP/011 Internal Quality Audit Procedure for audit and evaluation requirements in the Laboratory.

## 24 Frequency of Review

This policy will be reviewed in accordance with local review schedule (BST/QA/SOP/003) or as required by changes in practice, processes, guidelines or legislation.

## 25 References

BST/QA/EX/001 ISO 15189:2022 Medical Laboratories - Requirements for Quality and Competency.
BSHS-Guide-Int-005 JCI 8th Edition Hospital Standards 1 January 2025.

## 26 Appendices

N/A