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|  See the source image |
| **CLYDE HAEMATOLOGY & BLOOD TRANSFUSION LABORATORY SERVICE USER HANDBOOK** |
| Version 26 |
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| Leave us feedback using QR code below: |
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##

## 0. INTRODUCTION

### 0.1 Scope and purpose

This document describes the services provided and contact telephone numbers of the three Haematology/Blood Transfusion laboratories in Clyde;

* Royal Alexandra Hospital, Corsebar Road, Paisley PA2 9PN.
* Inverclyde Royal Hospital, Level C, Larkfield Road, Greenock PA16 0XN.
* Vale of Leven Hospital, Main Street, Alexandria G83 0UA.

### 0.2 Responsibility

The Site Lead Clinicians are responsible for ensuring the implementation and maintenance of this procedure.

### 0.3 Applicability

This document applies to all Clyde Laboratory stakeholders.

### 0.4 References

* ISO 15189 – 2012: Medical Laboratories, Requirements for Quality & Competence.
* BCSH Blood Transfusion Task Force – Administration of blood components 6th November 2017. [www.bcshguidelines.com](http://www.bcshguidelines.com)
* BCSH Blood Transfusion Task Force – Spectrum of fresh-frozen plasma and cryoprecipitate products 12th March 2018 [www.bcshguidelines.com](http://www.bcshguidelines.com)
* BCSH Blood Transfusion Task Force – Guidelines for the use of Platelet Transfusions 23rd December 2016 [www.bcshguidelines.com](http://www.bcshguidelines.com)
* Guidelines for Compatibility Procedures in Blood Transfusion Laboratories (2012)
* Rules and Guidance for Pharmaceutical Manufacturers and Distributors (2015)

## 1. GENERAL INFORMATION

### Laboratory opening hours, contacts and clinical advice

**Clinical Advice:**

Clinical advice can be obtained 24 hours a day by contacting the duty Haematologist using the hospital switchboards on the following numbers:

* Internal – Dial ‘1000’
* External – Dial 0141 314 7294 (RAH)
* Dial 0141 314 9504 (IRH)
* Dial 01389 828 599 (VOL)

|  |  |  |
| --- | --- | --- |
| **Hospital** | **Core hours Mon - Fri** | **Out of hours shift service** |
| Inverclyde Royal HospitalSpecimen Reception (C88)Biochemistry/Haematology Larkfield RoadGreenockPA16 0XN01475 635 213 (Ext: 04213) | 08.30 – 17.00 | Mon-Fri 17.00 – 08.30Sat 08.30 – Mon 08.30 |
| Royal Alexandra Hospital Specimen Reception (R30)Biochemistry/HaematologyCorsebar RoadPaisleyPA2 9PN0141 314 7347(Ext: 07347) | 08.30 – 17.00 | Mon-Fri 17.00 – 8.30Sat 08.30. – Mon 08.30 |
| Vale of Level District HospitalSpecimen ReceptionBiochemistry/HaematologyMain StreetAlexandria01389 817 518(Ext: 87518)G83 0UA | 08.30 – 17.00 | 17.00-08.30 From RAH |

|  |
| --- |
| **Clyde Haematology and Blood Transfusion Laboratory Contacts:** |
| Mr. Martin Wight | Technical Services Manager | 0141 314 6162 | 06162 | martin.wight@ggc.scot.nhs.uk |
| Mrs. Patricia Bradley | Sector Manager | 0141 314 7395 | 07395 | patricia.bradley@ggc.scot.nhs.uk |
| Mr. Robert Anderson | Quality/ Training/POC Manager | 0141 314 6653 | 06653 | robert.anderson3@ggc.scot.nhs.uk |
| Ms Corrinne Duncan | Reception Supervisor | 0141 314 6650 | 06650 | corrinne.duncan@ggc.scot.nhs.uk |
| **Clyde Duty Consultant Haematologist “Out Of Hours” via Switchboard - 0141 314 7294** |
| **RAH** | Laboratory Office | 0141 314 6712 | 06712 | **Blood Transfusion Emergencies – 06159** |
| Haematology Laboratory | 0141 314 6158 | 06158 |
| Blood Transfusion Laboratory | 0141 314 6159 | 06159 |
| **IRH** | Laboratory Office | 01475 505494 | 05494 (04285) | **Blood Transfusion Emergencies - 04323** |
| Haematology Laboratory | 01475 504324 | 04324 |
| Blood Transfusion Laboratory | 01475 504323 | 04323 |
| **VOL** | Laboratory Office | 01389 817518 | 87518 | **Blood Transfusion Emergencies – 06159** |
| Haematology Laboratory | 01389 817265 | 87265 |

**Clyde Haematology and Blood Transfusion Medical contacts:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Role** | **Telephone** **number** | **Email** |
| Dr A Sefcick | Consultant Haematologist | 07874 760653 | alison.sefcick@ggc.scot.nhs.uk |
| Dr. F. Patrick | Consultant Haematologist | 07702871655 | fraser.patrick@ggc.scot.nhs.uk |
| Dr A. Yasmin | Consultant Haematologist | 07909 770889 | arshi.yasmin@ggc.scot.nhs.uk |
| Dr. Caroline Sweeney | Consultant Haematologist | 07890 314703 | caroline.sweeney2@ggc.scot.nhs.uk |
| Mr M. Manson | Consultant Haematologist | 07576939409 | michael.manson@ggc.scot.nhs.uk |
| Dr S. Rhodes | Staff grade Haematologist | 07872524716 | Susan.Rhodes@ggc.scot.nhs.uk |

For samples sent from GP’s which are regarded as very urgent and require results back before 6pm that day then contact the laboratory directly on the numbers below to warn them and give contact details.

* RAH - 0141 314 6158
* IRH - 01475 504324 (Dunoon and Rothesay only)
* VOL - 01389 817265 (Faslane only)

### 1.2 Service Summary

Tests performed on site:

|  |  |  |  |
| --- | --- | --- | --- |
| **TEST/Activity** | **Mon-Fri 0830-2030** | **Sat/Sun/Public Holiday** | **Night Shift****2030-0830** |
| Site | RAH | IRH | VOL | RAH | IRH | VOL | RAH | IRH | VOL |
| Group and Save | X | X | \* | X | X | \* | X | X | \* |
| Crossmatch | X | X | \* | X | X | \* | X | X | \* |
| Antibody Investigation | X | X | \* | X | X | \* | X | X | \* |
| DAT | X | X | \* | X | X | \* | X | X | \* |
| Antenatal testing | X | X | \* | X | X | \* | X | X | \* |
| Anti-body titrations | X | X | \* | X | X | \* | X | X | \* |
| Neonatal group/DAT | X | X | \* | X | X | \* | X | X | \* |
| FMH | X | X | \* | X | X | \* | X | X | \* |
| Neonatal grouping for AntiD-Prophylaxis | X | X | \* | X | X | \* | X | X | \* |
| Abnormal Haemoglobin Screen (Sickle Cell) | X | X | \* | X | X | \* | X | X | \* |
| Malaria screen | X | X | X\*\* | X | X | \* | X | X | \* |
| Glandular fever Screening Test | X | X | X\*\* | X | X | \* | X | X | \* |
| Full blood count | X | X | X\*\* | X | X | \* | X | X | \* |
| Coagulation screen | X | X | X\*\* | X | X | \* | X | X | \* |
| D-Dimer | X | X | X\*\* | X | X | \* | X | X | \* |
| Blood film investigation  | X | X | \* | X | X | \* | X | X | \* |

\* Performed at RAH site during these hours

\*\* Performed at RAH 1700-2030

Tests performed off-site (referred analyses):

|  |  |  |
| --- | --- | --- |
| **TESTS** | **HOSPITAL** | **DEPARTMENTS** |
| * Thrombophilia Screens
* Haemophilia screens
* Factors, Anti-Xa.
* Platelet Function tests.
* HIT testing
 | McEwen BuildingGlasgow Royal InfirmaryCastle StreetGLASGOW G4 0SF | Haemostasis Laboratory(0141 211 4461) |
| * Haemoglobinopathy
* Plasma Viscosity
 | Laboratory Medicine & Facilities Management BuildingQueen Elizabeth University HospitalGovan RoadGlasgow G51 4TF | Haematology Department(0141 354 9108) |
| * JAK2
* BCR-ABL
* Cytogenetic testing
 | Dept.of Molecular Diagnostics Level 2 Laboratory Medicine Queen Elizabeth University Hospital 1345 Govan RoadGlasgow G51 4TF | Molecular Haematology(0141 354 9110) |
| * EPO (Erythropoetin)
 | McEwen BuildingGlasgow Royal InfirmaryCastle StreetGLASGOW G4 0SF | Biochemistry Department(0141 211 4356) |
| * Malarial Parasites
 | Scottish Parasite Diagnostic and Reference Laboratory New Lister Building, GRI, Alexandra Parade, G31 2ER | Malaria Diagnostics Service 0141 201 8667 |
| * Tissue typing (transplantation)
 | Tissue typing labGartnavel General Hospital21 Shelley RoadGLASGOW G12 0XB | Tissue typing lab(0141 301 7755) |
| * Immunophenotyping

EMA (hereditary spherocytosis) | Haemato-oncology LabGartnavel General Hospital12 Shelley RoadGLASGOW G12 0XB | Haemato-oncology Lab(0141 301 7707) |
| * Cross Matching
* Platelet Serology
* Reference Serology
 | West of ScotlandBlood Transfusion CentreGartnavel General Hospital25 Shelley RoadGLASGOW G12 0XB | Cross MatchingPlatelet SerologyReference Serology |

All specimens should be sent to the laboratory. They will then be despatched to other hospitals. They should **NOT** be posted directly from wards or through the General Office.

There must be adequate clinical details. Some laboratories will refuse to process specimens if not enough clinical information is given.

***The accreditation status of all referral laboratories is checked annually to ensure they meet the required standards.***

* For test requests not detailed above please contact the laboratory.
* Test costs are available on request

### 1.3 Specimen collection

Advice on specimen receptacles and ‘order of draw’ are listed in the appendices below:

[Appendix 1](#_4.1_Appendix_1) – Vacuette Selection Chart

[Appendix 2](#_4.2_-_Appendix) – Vacuette Selection Chart - Paediatric

### Specimen Labelling

* Following collection, ensure each specimen bottle is labelled as below
* **DO NOT** use addressograph labels on samples as the analysers are not compatible
* A fully completed request form must accompany a properly identified sample in all cases

Patient identification information required on sample and form are defined below:

|  |  |
| --- | --- |
| **Haematology and Coagulation** | **Blood Transfusion** |
| Sample:* Surname
* Forename
* CHI number
* Date of Birth

Form:* Surname
* Forename
* CHI number
* Date of Birth
* Gender
* Source of request i.e. ward and consultant in charge
* Brief clinical details
* Date of request
* Investigation requested
* Signature/name of requesting doctor and bleep number
 | **Handwritten** on Sample:* Surname
* Forename
* Gender
* CHI number
* Date of Birth
* Signature of person who took sample
* Date of sample

Form:* Surname
* Forename
* CHI number
* Date of Birth
* Gender
* Source of request i.e. ward and consultant in charge
* Brief clinical details
* Date of request
* Investigation requested
* Signature/name of requesting doctor and bleep number
 |
| **Haematology and Coagulation Minimum Acceptance Criteria (MAC)** | **Blood Transfusion Minimum Acceptance Criteria (MAC)** |
| Matching patient information on sample and form:* CHI number/Unique Identifier (e.g. TJ number etc.) or DOB if no unique identifier available\*
* Surname
* Forename
 | Matching patient information on sample and form:* Surname
* Forename
* CHI number
* Date of Birth
* Signature of person who took sample (sample only)
* Date of sample
 |

**\*GP requests from patients who are temporary residents will have address accepted in lieu of a CHI number. Please indicate clearly on the request for that the patient is a temporary resident.**

Samples which do not meet Minimum Acceptance Criteria will **NOT** be accepted for analysis. In these circumstances the clinician or clinical area making the request will be notified and a fresh, suitably identified sample requested. Under NO circumstances will labelling changes be permitted to any samples.

### 1.5 Specimen Transport

Inpatient sample transport mechanisms:

* Porter
* Pneumatic air tube
* VOL PM – collection by HCSW staff
* Clinical staff
* Courier
* Taxi

GP sample transport mechanisms:

* NHS driver
* Taxi
* Courier

Specimens can be grouped together in transport bag available from central stores. These are colour coded as below:

|  |  |
| --- | --- |
| **Bag** | **Contents** |
| Green  | Biochemistry & Haematology samples |
| Pink  | Urgent Biochemistry & Haematology samples |

Overnight Storage of Laboratory Specimens

|  |  |  |
| --- | --- | --- |
| **Specimen Type** | **Overnight Storage** | **Comments** |
| Full Blood Counts | NO |  |  |
| ESR | NO |  |  |
| Coagulation | NO |  |  |
| D-Dimers | YES | 40C | Can be performed up to 24 hours after withdrawal. |
| Blood Transfusion - Routine | YES | 40C |  |
| Ante-Natal Serology | YES | 40C |  |

### 1.6 Danger of Infection Specimens

Users MUST alert relevant laboratories by phone (contact details below) for the following samples:

**Body fluids containing Hazard Group 4 pathogens, namely from patients with confirmed or high possibility viral haemorrhagic fevers (VHF).**

The above samples **MUST NOT** be transported via the pneumatic tube system.

### 1.7 Results and Reports

If really urgent please arrange with laboratory for results to be phoned. Please restrict the use of this service as it takes technical staff away from performing the analyses. Please state the location where report is to be sent, especially if different from the requesting location and if an extra copy is required and for what location.

Results can be accessed on either SCI store or using the clinical portal. It is not helpful to phone the laboratory for results as this delays other work.

### 1.8 Add-on tests

Add on tests can be requested as described below:

|  |  |
| --- | --- |
| **Test** | **Cut off for add on (after blood draw)** |
| Cell Markers | 36 hours  |
| Blood Film | 24 hours  |
| Reticulocytes | 24 hours  |
| ESR | 24 hours |
| Coagulation tests | 4 hours |
| D-Dimers | 24 hours  |
| Glandular Fever Screen | 36 hours |
| Malarial Parasites | 2 hours  |
| B12, Folate | 72 hours (if Biochemistry sample available) |
| Sickle Screen | 36 hours |

### 1.9 Quality Policy and User complaints

Clyde Haematology laboratories are accredited by the United Kingdom Accreditation Service (UKAS Number 8046). Abnormal Haemoglobin Screening (SickleDex) is not currently UKAS accredited. A comment on the hard copy reports outline this as below:

**‘Clyde Haematology labs are a UKAS accredited medical lab (No 8046) for all tests except Sickle Cell Screening.’**

Further information around accreditation and our User complaints procedure can be found on our [website](https://www.nhsggc.scot/staff-recruitment/staff-resources/laboratory-medicine/haematology-and-blood-transfusion/clyde-sector-haematology/).

**1.10 Measurement uncertainty**

Measurement uncertainty is calculated for quantitative Haematology measurands and qualitative Blood Transfusion results. This information is available from the laboratory upon request.

## 2. Haematology and Coagulation Service

Advice on investigation and management can be sought from the Haematology Consultant. You may be referred to a Haematology Consultant providing on-call telephone cover from another hospital in Clyde directorate.

On statutory public holidays the laboratory has reduced staffing levels and should be used for emergency investigations only (VOL closed on public holidays)

### 2.1 Haematology Clinics

There are weekly out-patient clinics for the investigation and treatment of Haematological disorders.

|  |  |  |  |
| --- | --- | --- | --- |
| **SITE** | **TIMES** | **LOCATION** | **CONTACT DETAILS** |
| IRH | Wed PMThurs PMDaily | Outpatient clinic areaOutpatient clinic areaDay Unit | Dr. Patrick (07702871655)S. Rhodes (07872524716) |
| RAH | Mon AMWed PMThurs PMDaily | Outpatient clinic areaOutpatient clinic areaOutpatient clinic areaDay Unit | Haematology Secretary 87598 |
| VOL | Fri AMWed/Fri | Outpatient clinic areaDay unit | Haematology Secretary 87598 |

**2.2 Routine Tests available in Haematology**

Further advice on collection tubes and ‘order of draw’ can be found in [Appendix 1](#_4.1_Appendix_1) – Vacuette Selection Chart and [Appendix 2](#_4.2_-_Appendix) – Paediatric Vacuette Selection Chart.

|  |  |  |  |
| --- | --- | --- | --- |
| **TEST** | **COLLECTION TUBES**  | **ADULT NORMAL RANGE****(\* = derived from textbook)** | **COMMENTS** |
| **FBC** | Lavender |  | UKAS Accredited |
| WBC | Lavender | 4.0-10.0 (109/L)\* | UKAS Accredited |
| Neutrophils | Lavender | 2.0-7.0 (109/L)\* | UKAS Accredited |
| Lymphocytes | Lavender | 1.1-5.0 (109/L0\* | UKAS Accredited |
| Monocytes | Lavender | 0.2-1.0 (109/L)\* | UKAS Accredited |
| Eosinophils | Lavender | 0.02 -0.5 (109/L)\* | UKAS Accredited |
| Basophils | Lavender | 0.02-0.1 (109/L)\* | UKAS Accredited |
| RBC | Lavender | Men 4.5-6.5 (1012/L)\*Female 3.8-5.8 (1012/L)\* | UKAS Accredited |
| Hb | Lavender | Men 130-180 (g/L)\*Female 115-165 (g/L)\* | UKAS Accredited |
| HCT | Lavender | Men 0.40-0.54 (L/L)\*Female 0.37-0.47 (L/L)\* | UKAS Accredited |
| MCV | Lavender | 83 -101 (fL)\* | UKAS Accredited |
| MCH | Lavender | 27.0-32.0 (pg)\* | UKAS Accredited |
| MCHC | Lavender | 315 -345 (g/L)\* | UKAS Accredited |
| RETICULOCYTES | Lavender | 50 – 100 (109/L) (0.2 -2.3%)\*  | UKAS Accredited |
| PLTS | Lavender | 150-410 (109/L)\* | UKAS Accredited |
|  |  |  |  |
| **Coagulation** |  | **Derived from local NR** |  |
| PT | Blue | 9 -13 (secs) | UKAS Accredited |
| INR | Blue | 2.0 - 4.5 | UKAS Accredited |
| APTT | Blue | 27 - 36 (secs) | UKAS Accredited |
| APTT Ratio | Blue | 1.8 – 2.8 | UKAS Accredited |
| TCT | Blue | 11 -15 (secs) | UKAS Accredited |
| D-Dimer | Blue | <230 (ng/ml) | UKAS Accredited |
| Fibrinogen | Blue | 1.7 - 4.0 (g/L) | UKAS Accredited |
|  |  |  |  |
| **OTHERS** |  |  |  |
| ESR –male (age in yrs) | Lavender | 17-50 = <10 | 50-61 =<12 | 61-70 = <14 | >70 = <30 | UKAS Accredited |
| ESR- female (age in years) | Lavender | 17-50 = <12 | 50-61 =<19 | 61-70 = <20 | >70  = <35 |
| Glandular Fever | Lavender | NA |  |
| Malarial Parasites | Lavender | NA | UKAS Accredited |
| Haemoglobinopathy | Lavender | NA | At QEUH |
| SickleScan | Lavender | NA |  |
| Vitamin B12 | Ochre | >25pmol/L | Biochemistry Test |
| Serum Folate | Ochre | 3.0 - 20 (μg/L)\* | Biochemistry Test |
| Serum Ferritin | Ochre | * Males 15-300μg/L (<20 iron deficiency)\*
* Females 15-200μg/L (<15 iron deficiency)\*
* 15-50 μg/L\* - intermediate result.  Consider iron deficiency in anaemic patients, older patients and those with inflammatory disease
 | Biochemistry Test |

**References:**

* + - 1. **All data with the exception of Hb, Hct, RBC Count and Lymphocyte Count - Dacie & Lewis - Practical Haematology - 12th Edition.**
			2. **Hb, Hct, RBC Count and Lymphocyte Count – Barbara J. Bain – Blood Cells a Practical Guide – 4th Edition.**

**Vitamin B12, Folate and Ferritin**

These tests are performed in Biochemistry. All queries regarding interpretation should be referred to Haematology Consultant.

**Please note**: Specimens must be taken prior to haematinic administration or Blood Transfusion.

**Malarial Parasites**: If urgent examination is required this **must** be discussed with the consultant haematologist. The specimen preferably should be taken when the patient is febrile. **Details of any recent travel or previous history should be supplied.** A 4.0ml EDTA specimen (FBC) is required.

### 2.2 Special Investigations

The following tests are more specialised investigations and should only be undertaken after discussion with the Consultant Haematologist.

* **Bone Marrow Examination**
* **Cell Marker Studies** (immunophenotyping investigations, flow cytometry)
* **Haemoglobinopathies**: Haemoglobinopathy screens are performed at Queen Elizabeth University Hospital and despatched daily Monday to Friday. (Please use Family origin questionnaire (FOQ) for Ante Natal requests)
* **Haemolysis screen**: Investigations may include:Direct Antiglobulin (Coombs) test, urine for Hb, haemosiderin, reticulocytes.
* **Hereditary Spherocytosis Ratio (EMA):** Please discuss with Consultant Haematologist A 4.0ml EDTA sample is required. Please send specimen in the morning together with a sample taken at the same time, from a normal subject, to serve as a control.
* **Investigation of Suspected Bleeding or Prothrombotic Disorder;** Check Thrombophilia guidelines (Staffnet) and discuss with Consultant Haematologist if necessary.

**Please note**: Thrombophilia screens are performed at Glasgow Royal Infirmary and despatched daily Monday to Friday. If Lupus inhibitor is suspected, it is important that the sample is as fresh as possible. 4 x 3.5 ml of blood in sodium citrate should be taken on the morning and despatched to laboratory together with the Thrombophilia request form.

* **Reticulocytes**: Performed on 4.0ml EDTA (FBC) sample.
* **PNH**: Please discuss with Consultant Haematologist.

### 2.3 Action Limits and Turnaround Times

Samples from hospital patients are analysed as they arrive in the laboratory. Urgent samples will be prioritised.

**Outpatient/GP sample results (8am to 6pm) andInpatients sample results (anytime)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Low trigger** | **High trigger** | **Comments** |
| Haemoglobin | <80g/l | - | Unless most recent result similar  |
| White cell count | - | >50 | Unless most recent result similar and taken in last month |
| Neutrophil count | <1.0 | - | Unless most recent result similar and taken within last month |
| Platelet count | <50 | >1000 | Unless most recent result similar and taken in last monthAfter checking validity of count on film |
| INR | - | >4.5 |  |

**GP Sample Results (6pm – 10pm) – Phone to GEMS**

* Any results phoned to GEMS will also be phoned to requesting GP the next working day (before 10am).
* GEMS do not wish to be phoned with abnormal results after 10pm, unless exceptional circumstances, in which case the Haematology medic should phone GEMS.

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Low trigger** | **High trigger** | **Comments** |
| Haemoglobin | <70g/l<50g/l if MCV<70fl | - | Unless most recent result similar or unless MCV <70fl thereby making IDA most likely. |
| White cell count | - | >50 | Unless most recent result similar and taken in last month |
| Neutrophil count | <0.75 | - | Unless most recent result similar and taken within last month |
| Platelet count | <30 | - | Unless most recent result similar and taken in last month |
| INR | - |  >6.0 |  |

All vitamin B12 and folate results are available within three working days.

**Turnaround times**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test** | **GP’s** | **Inpatients** | **Emergency** |  |
| **HAEMATOLOGY** |
| [Full Blood Count](#_Full_Blood_Count) | 4 Hours | 2 hours | 1 hour |  |
| [E.S.R](#_Erythrocyte_Sedimentation_Rate) | 4 Hours |  | 2 hours |  |
| **COAGULATION** |
| [Coagulation Screen](#_Coagulation_Screen) | 4 Hours | 2 hours | 1 hour |  |
| [Anticoagulant - I.N.R](#_Anticoagulant_Control_–) | 4 Hours | 2 hours | 1 hour |  |
| [Anticoagulant - Heparin](#_Anticoagulant_Control_–_1) | 4 Hours | 2 hours | 1 hour |  |
| D-Dimer | - | 2 hours | 1 hour |  |
| **BLOOD TRANSFUSION** |
| Group & Save | 1 – 4 Hours | 60 Minutes |  |  |
| Crossmatch | 1 – 4 Hours | 60 Minutes | 50 Minutes | Group specific ready in 20 mins |
| Ante-Natal Serology Group | 2 – 6 Hours |  |  |  |

###

### 2.4 Interfering factors

All blood samples require a clean venepuncture, the tube filled to the correct level and proper mixing of the sample before being sent to the laboratory. The following factors may cause erroneous results:

* + - * 1. A clotted sample tube
				2. An over or underfilled sample tube
				3. A lipaemic, icteric or haemolysed sample tube
				4. An activated sample for Coagulation
				5. High Bilirubin/Hb/Triglycerides for Coagulation
				6. Delayed transport time
				7. Incorrect transport temperature or storage conditions

Where possible, fibrinogen assays should not be performed on samples collected within 4 h of administration of therapeutic doses of unfractionated heparin, or on samples collected from heparin-contaminated venous or arterial lines.

## Blood Transfusion Service

**3.1 Written Request**

A request for blood grouping and/or compatibility testing must always be made on a blood transfusion department request form.

Both the request form and sample tube should have the following minimum patient ID:

* The patient’s full surname, with correct spelling.
* Forename(s).
* Date of Birth.
* CHI Number or TJ (Trakcare) number.
* Sex.
* Signature of Requestor
* Time and Date of Sample.

Full patient identification is essential on both specimens and request forms. For medico-legal reasons the laboratory staff are instructed to reject all specimens that are unlabelled, specimens with errors in labelling or specimens with missing or illegible data

A full 6ml EDTA specimen is required. In special cases further samples may be required.

In accordance with National Guidelines, addressograph labels must not be used on specimen bottles as their use could give rise to errors leading to fatalities.

Acute haemolytic transfusion reactions due to ABO incompatibility may be fatal. The majority of ABO incompatible transfusions are due to clerical, documentation or identification errors and are avoidable.

### 3.2 Antibodies

Please check case notes for any previous blood transfusion records. The presence of previously detected antibodies should **always** be recorded on the transfusion request form.

### 3.3 Urgent Requests

**Always telephone the laboratory** (or page the shift BMS out of hours) to ensure that the staff are aware of the clinical nature of the problem. In the case of a life threatening emergency a rapid group will be performed and group specific blood issued while matching is in progress. Confirmation of compatibility will be telephoned as soon as possible. Until then the responsibility of giving unmatched blood rests with the clinician.

***3.3.1 Second Sample policy***

In accordance with recommendations of the BCSH and SHOT – in order to provide cross-matched blood or group specific blood products the current Blood transfusion database must have 2 ABO group samples on record. Please refer to staffnet and second sample policy leaflets for further guidance.

### 3.4 Transfusions for Elective Surgery

There is a policy of group screen and save (GS) or matching a set number of units according to the operation. A pre-operation transfusion sample **must** betaken, clinical details and date of the procedure must be stated on the request form. The appropriate action will then be taken by the laboratory. If antibodies are detected, cross matched blood will be provided if appropriate for the operation. If no compatible blood can be provided from the hospital blood bank the ward will be informed (see: Maximum Surgical Blood Ordering System, MSBOS.)

### 3.5 Platelet Antibodies

This test can be requested after discussion with a Consultant Haematologist or SNBTS medical staff. Specimens should preferably be taken before starting steroids.

### 3.6 Kleihauer Test

Performed on all Rh (D) Negative women who have delivered a Rh(D) Positive baby or are subject to a potential sensitising event if >20weeks gestation. The test is used to detect a feto-maternal haemorrhage and to determine the amount of Anti-D Immunoglobulin which must be given.

### 3.7 Blood Components

Requests for the following blood products should initially be discussed with the on call haematologist:

* **Fresh Frozen Plasma (FFP)**: This is a source of clotting factors. It is available for specified patients, with a proven coagulation disorder or for patients who are bleeding. It is not issued without a coagulation screen. Dose 10 – 15 ml Kg/Body weight
* **Cryoprecipitate**: (contains mostly fibrinogen and FVIII) is used as a source of fibrinogen in small volume. For adult, 2 pools (equivalent to 10 donations) is a suitable dose (Volume = approx 300 mls, 4g fibrinogen approximately)
* **Platelets**: are obtained from the regional transfusion centre. The initial adult dose is provided either as a dose of pooled platelets or a dose of apheresis platelets. They are issued with a special giving set and should not be administered through any other type of set. The platelet count should be monitored. If bleeding continues a further platelet transfusion may be required.

### 3.8 Blood Products

 Please note: Albumin preparations are currently supplied by Pharmacy.

* **Human Anti-D Immunoglobulin:** Indicated for all Rh (D) negative women who deliver a Rh (D) positive infant. It is also indicated for Rh (D) Negative women who have a termination, threatened abortion, or who have PV bleeding during pregnancy.

 The standard post-natal dose is 500 IU.

 For pre-natal exposure, under 20 weeks gestation the standard dose is 250 IU,

 After 20 weeks gestation the standard dose is 500 IU but this may be increased depending on the results of a Kleihauer examination.

 Anti D is also given to Rh Neg women prophylactically at 28-32 weeks (1500 IU)

* **Beriplex**: is a concentrate of FII, FVII, FIX & FX (Prothrombin complex) and should be used for immediate reversal of warfarin effect (limited stock kept at A/E in RAH and IRH).
* **Human Albumin Solution 4.5%:** Supplied by Pharmacy
* **Human Albumin Solution 20%:** Supplied by Pharmacy
* **Human Hepatitis B Immunoglobulin 500IU:** Supplied by Pharmacy
* **Human Anti-Tetanus Immunoglobulin 250 IU**: Supplied by Pharmacy.
* **Varicella-Zoster Immunoglobulin 250 IU:** Supplied by Pharmacy.

### 3.9 Special Requirements

Transfusion associated GVHD (Graft Versus Host Disease) is a rare complication but avoidable. Irradiated cellular blood components must be requested for: -

1. Allogenic bone marrow transplant
2. Donors of bone marrow or haemopoietic stem cells
3. Autologous bone marrow transplant: from 7 days prior to harvest and for at least 6 months post-transplant
4. Hodgkins Disease: all patients irrespective of stage or therapy
5. Purine analogues: patients receiving purine analogues (cladribine, fludarabine, 2- deoxycoformycin [Pentastatin])
6. Babies who have received intrauterine transfusions
7. Babies where there is a possibility of congenital immunodeficiency predominantly affecting cell mediated immunity. Please inform Transfusion Laboratory.

GGC Special requirements policy is available on the Blood Transfusion pages of StaffNet

### 3.10 Reaction to Blood and Blood Products

* Febrile and allergic reactions: Stop the drip and give oral Paracetamol and if there is no improvement, intra venous anti-histamine and/or hydrocortisone.

If patient’s condition improves the transfusion can be restarted.

* Suspected incompatibility: **Stop transfusion immediately and telephone laboratory.** Retain used and partly used blood packs.
* Advice and forms for investigation of a suspected transfusion reaction are available on the transfusion pages of StaffNet

### 3.11 Routine tests available in Blood Transfusion

Further advice on collection tubes and ‘order of draw’ can be found in [Appendix 1](#_4.1_Appendix_1) – Vacuette Selection Chart and [Appendix 2](#_4.2_-_Appendix) – Paediatric Vacuette Selection Chart.

|  |  |  |
| --- | --- | --- |
| **TEST** | **COLLECTION TUBES** | **COMMENTS** |
| Blood Group & Retain | Pink | Kept for 7 days(14 days for pre-op samples) UKAS Accredited |
| Compatibility Testing (Crossmatching) | Pink | UKAS Accredited |
| Direct Coombs test | Pink | UKAS Accredited |
| Antibody identification | Pink | UKAS Accredited |
| Red Cell Phenotyping | Pink | UKAS Accredited |
| Platelet Antibodies | Pink | Performed by SNBTS |
| Kleihauer | Lavender | UKAS Accredited |

**ALL OF THIS INFORMATION IS ESSENTIAL**

**Care should be taken with patient identifiers. Staff within the transfusion laboratory are obliged to refuse to accept a request for compatibility testing when either the request form or the sample is inadequately identified.**

**THIS WASTES TIME FOR ALL CONCERNED AND CONTRIBUTES TO SERIOUS ERRORS**

**LI-CBTR-021 - MSBOS – Version 3**



# 4. Appendices

## 4.1 Appendix 1 – Vacuette Selection Chart - Adult



## 4.2 - Appendix 2 – Vacuette selection chart - Paediatric

