	Acute Services Division, Diagnostics, Department of Haematology - Clyde Sector			MF-CGEN-022
	Management Form – SERVICE USER HANDBOOK			
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CLYDE HAEMATOLOGY & BLOOD TRANSFUSION LABORATORY SERVICE USER HANDBOOK

Version 22


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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
- BCSH Blood Transfusion Task Force – Spectrum of fresh-frozen plasma and cryoprecipitate products 12th March 2018 www.bcshguidelines.com
- BCSH Blood Transfusion Task Force – Guidelines for the use of Platelet Transfusions 23rd December 2016 www.bcshguidelines.com
- Guidelines for Compatibility Procedures in Blood Transfusion Laboratories (2012)
- Rules and Guidance for Pharmaceutical Manufacturers and Distributors (2015)

1. GENERAL INFORMATION


1.1 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 Hospital Specimen Reception (C88) Biochemistry/Haematology	8.30 – 17.00	Mon-Fri 17.00 – 8.30 Sat 08.30 – Mon 8.30

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Larkfield Road Greenock PA16 0XN 01475 635 213 (Ext: 04213)		
Royal Alexandra Hospital Specimen Reception (R30) Biochemistry/Haematology Corsebar Road Paisley PA2 9PN 0141 314 7347 (Ext: 07347)	8.30 – 17.00	Mon-Fri 17.00 – 8.30 Sat 08.30. – Mon 8.30
Vale of Level District Hospital Specimen Reception Biochemistry/Haematology Main Street Alexandria 01389 817 518 (Ext: 87518) G83 0UA	8.30 – 20.00	From RAH

*At Vale of Leven the service is Monday to Friday 08.30 to 20.00 with point of care at MAU out of hours for WBC, Hb and INR testing. All other tests must be sent by taxi to RAH for processing.

At VOL 5-8pm the lab service for Haematology covers FBC's, Coagulation screens, Fibrinogen's, D-Dimers and INR's. Blood Transfusion requests should be directed to 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	01475 505494	05494 (04285)	Blood Transfusion Emergencies - 06159
	Haematology Laboratory	01475 504324	04324	
	Blood Transfusion Laboratory	01475 504323	04323	
IRH	Laboratory Office	01475 505494	05494 (04285)	Blood Transfusion Emergencies - 04323
	Haematology Laboratory	01475 504324	04324	

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	Blood Transfusion Laboratory	01475 504323	04323	
VOL	Laboratory Office	01389 817518	87518	Blood Transfusion Emergencies - 87502
	Haematology Laboratory	01389 817265	87265	
	Blood Transfusion Laboratory	01389 817502	87502	

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	07803063644	michael.manson@ggc.scot.nhs.uk
Dr S. Rhodes	Staff Haematologist grade	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)


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1.2 Service Summary

Tests performed on site:

TEST/Activity	Mon-Fri 0830-2030			Sat/Sun/Public Holiday			Night Shift 2030-0830		
	RAH	IRH	VOL	RAH	IRH	VOL	RAH	IRH	VOL
Site									
Group and Save	X	X	X	X	X	*	X	X	*
Crossmatch	X	X	X	X	X	*	X	X	*
Antibody Investigation	X	X	X	X	X	*	X	X	*
DAT	X	X	X	X	X	*	X	X	*
Antenatal testing	X	X	*	X	X	*	X	X	*
Anti-body titrations	X	X	X	X	X	*	X	X	*
Neonatal group/DAT	X	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	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	*
Blood film investigation	X	X	*	X	X	*	X	X	*

* Performed at RAH site during these hours

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Tests performed off-site (referred analyses):


TESTS	HOSPITAL	DEPARTMENTS
<ul style="list-style-type: none"> Thrombophilia Screens Haemophilia screens Factors, Anti-Xa. Platelet Function tests. HIT testing 	McEwen Building Glasgow Royal Infirmary Castle Street GLASGOW G4 0SF	Haemostasis Laboratory (0141 211 4461)
<ul style="list-style-type: none"> Haemoglobinopathy Plasma Viscosity 	Laboratory Medicine & Facilities Management Building Queen Elizabeth University Hospital Govan Road Glasgow G51 4TF	Haematology Department (0141 354 9108)
<ul style="list-style-type: none"> JAK2 BCR-ABL Cytogenetic testing 	Dept.of Molecular Diagnostics Level 2 Laboratory Medicine Queen Elizabeth University Hospital 1345 Govan Road Glasgow G51 4TF	Molecular Haematology (0141 354 9110)
<ul style="list-style-type: none"> EPO (Erythropoetin) 	McEwen Building Glasgow Royal Infirmary Castle Street GLASGOW G4 0SF	Biochemistry Department (0141 211 4356)
<ul style="list-style-type: none"> Malarial Parasites 	Scottish Parasite Diagnostic and Reference Laboratory New Lister Building, GRI, Alexandra Parade, G31 2ER	Malaria Diagnostics Service 0141 201 8667
<ul style="list-style-type: none"> Tissue typing (transplantation) 	Tissue typing lab Gartnavel General Hospital 21 Shelley Road GLASGOW G12 0XB	Tissue typing lab (0141 301 7755)
<ul style="list-style-type: none"> Immunophenotyping EMA (hereditary spherocytosis) 	Haemato-oncology Lab Gartnavel General Hospital 12 Shelley Road GLASGOW G12 0XB	Haemato-oncology Lab (0141 301 7707)
<ul style="list-style-type: none"> Cross Matching Platelet Serology Reference Serology 	West of Scotland Blood Transfusion Centre Gartnavel General Hospital 25 Shelley Road GLASGOW G12 0XB	Cross Matching Platelet Serology Reference 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

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1.3 Specimen collection

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

[Appendix 1](#) – Vacuette Selection Chart


[Appendix 2](#) – Vacuette Selection Chart - Paediatric

1.4 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
<p>Sample:</p> <ul style="list-style-type: none"> • Surname • Forename • CHI number • Date of Birth <p>Form:</p> <ul style="list-style-type: none"> • 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 	<p>Handwritten on Sample:</p> <ul style="list-style-type: none"> • Surname • Forename • Gender • CHI number • Date of Birth • Signature of person who took sample • Date of sample <p>Form:</p> <ul style="list-style-type: none"> • 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)
<p>Matching patient information on sample and form:</p> <ul style="list-style-type: none"> • CHI number/Unique Identifier (e.g. TJ number etc.) or DOB if no unique identifier available* • Surname • Forename 	<p>Matching patient information on sample and form:</p> <ul style="list-style-type: none"> • Surname • Forename • CHI number • Date of Birth • Signature of person who took sample (sample only) • Date of sample

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***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	4°C	Can be performed up to 24 hours after withdrawal.
Blood Transfusion - Routine	YES	4°C	
Ante-Natal Serology	YES	4°C	

1.6 Danger of Infection Specimens

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

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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
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)**. Glandular fever screening testing (GFST) and Abnormal Haemoglobin Screening (Sickle SCAN) are 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 GFST and SickleScan.’

Further information around accreditation and our User complaints procedure can be found on our [website](#).

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 PM	Outpatient clinic area	Dr. Patrick (07702871655)
	Thurs PM	Outpatient clinic area	S. Rhodes (07872524716)
	Daily	Day Unit	
RAH	Mon AM	Outpatient clinic area	Haematology Secretary 87598
	Wed PM	Outpatient clinic area	
	Thurs PM	Outpatient clinic area	
	Daily	Day Unit	
VOL	Fri AM	Outpatient clinic area	Haematology Secretary 87598
	Wed/Fri	Day unit	


2.2 Routine Tests available in Haematology

Further advice on collection tubes and 'order of draw' can be found in [Appendix 1](#) – Vacuette Selection Chart and [Appendix 2](#) – Paediatric Vacuette Selection Chart.

TEST	COLLECTION TUBES	ADULT NORMAL RANGE (* = derived from textbook)	COMMENTS
FBC	Lavender		UKAS Accredited
WBC	Lavender	4.0-10.0 (10 ⁹ /L)*	UKAS Accredited
Neutrophils	Lavender	2.0-7.0 (10 ⁹ /L)*	UKAS Accredited
Lymphocytes	Lavender	1.1-5.0 (10 ⁹ /L)*	UKAS Accredited
Monocytes	Lavender	0.2-1.0 (10 ⁹ /L)*	UKAS Accredited
Eosinophils	Lavender	0.02 -0.5 (10 ⁹ /L)*	UKAS Accredited
Basophils	Lavender	0.02-0.1 (10 ⁹ /L)*	UKAS Accredited
RBC	Lavender	Men 4.5-6.5 (10 ¹² /L)* Female 3.8-5.8 (10 ¹² /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 (10 ⁹ /L) (0.2 -2.3%)*				UKAS Accredited
PLTS	Lavender	150-410 (10 ⁹ /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	180 - 1000 (ng/L)*				Biochemistry Test
Serum Folate	Ochre	3.0 - 20 (µg/L)*				Biochemistry Test
Serum Ferritin	Ochre	<ul style="list-style-type: none"> 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

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- 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) and Inpatients 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 month After 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	4 Hours	2 hours	1 hour	
E.S.R	4 Hours		2 hours	
COAGULATION				
Coagulation Screen	4 Hours	2 hours	1 hour	
Anticoagulant - I.N.R	4 Hours	2 hours	1 hour	
Anticoagulant - Heparin	4 Hours	2 hours	1 hour	

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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

3. 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.

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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** be taken, 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.

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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](#) – Vacuette Selection Chart and [Appendix 2](#) – 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

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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

General Surgery	
A.P. Resection	G&S
Anterior Resection	G&S
Colectomy	G&S
Panproctocolectomy	G&S
Hartmans Procedure	G&S
Unstable GI Bleed	2 units
Splenectomy	2
All bowel related operations	G&S
Laparotomy	G&S
Urology	
Cystectomy	4
Laparoscopic Nephrectomy	G&S
Open Nephrectomy	4
Prostatectomy	G&S
Percutaneous Nephrolithotomy (PERC)	G&S
Orthopaedic	
Hip Replacement	G&S
Revision Total Hip Replacement	2
Shoulder Replacement	G&S
Fracture Femur or Long Bone	G&S
Fracture neck of Femur	G&S

Gynaecology	
Ectopic Pregnancy (ruptured)	2
Ectopic pregnancy (stable or laparoscopic)	G&S
Hysterectomy	G&S
Laparotomy	G&S
Obstetrics	
All Obstetric Patients	G&S
Placenta praevia (delivery)	2 ANY
LU SCS for anterior placenta previa	4
PPH 500mls – 1500ml	2
PPH ≥ 1500ml (Major Haemorrhage Policy)	4
APH Severe	4
Evacuation	G&S
Miscarriage	G&S

There is further GG&C guidance re Gynaecology and Obstetrics on the Intranet search 'Blood Transfusion'

4. Appendices

4.1 Appendix 1 – Vacuette Selection Chart - Adult

VACUETTE®

 NHS Greater Glasgow & Clyde
 Department of Laboratory Medicine

SELECTION CHART

ORDER OF DRAW AS SHOWN

Item Numbers	Volume	Cap Colour	Cap Ring Colour	Tube Contents	Tests	Special Instructions
456018	5ml	Ochre	Ochre	Clotting Accelerator and Separation Gel	Routine Biochemistry CRP Magnesium B12, Serum Folate, Ferritin TDM, Reproductive Hormones Tumor Markers Vitamin D TRAB, Bile Acids, Beta-Hydroxybutyrate Bacterial and Atypical pneumonia screen serology	
454332	3.5ml	Blue	Black	Trisodium Citrate	Coagulation Screen Anticoagulant Control (INR/APPT) -1 Tube Clotting Factor Assays - 2 Tubes Thrombophilia Tests - 4 Tubes D-Dimers	
454247	3ml	Green	Yellow	Li Heparin and Separation Gel	Troponin	
454209	4ml	Lavender	Black	EDTA	Full Blood Count ESR, Haemoglobinopathy Kleihauer Glandular Fever Screening Test RBC Folate Haemoglobin A1C Lead, Mercury, Cadmium Porphyrins Tacrolimus, Ciclosporin, Sirolimus PTH, TPMT, HFE Genotype	
456252	6ml	Pink	Black	EDTA for Crossmatch	Blood Transfusion Blood Group and retain Blood cross-match, Direct Coombs test Antenatal Serology - blood grouping	All labels must be handwritten
454238	2ml	Grey	White	NaF/KOx	Glucose Alcohol Lactate* (Lab analysis only) NEFA (non-esterified fatty acids)	* Deliver Urgently

FOR LESS COMMON TESTS NOT INCLUDED ABOVE PLEASE CONTACT THE RELEVANT DEPARTMENT FOR DETAILS

VACUETTE® products and ordering codes

 Tel: 01453 826250
 sales-uk@gbo.com
 www.gbo.com





VAGW02 March 2022

4.2 - Appendix 2 – Vacuette selection chart - Paediatric

PAEDIATRIC SELECTION CHART

NHS Greater Glasgow & Clyde



RECOMMENDED ORDER OF DRAW					
	Item No. / Tube Type	Volume	Cap Colour	Tests	Special Instructions
1	5 459 036 EDTA	1.3 ml	 Lavender	• Routine Haematology	Deliver to Haematology
2	5 459 084 Lithium Heparin	1.3 ml	 Green	• Routine Biochemistry • CRP • Antibiotic Assay	Deliver to Biochemistry
3	5 459 085	1.3 ml	 Grey	• Glucose • Lactate	Deliver to Biochemistry
4	5 459 075 Trisodium Citrate	1.3 ml	 Blue	• Routine Coagulation	Deliver to Haematology
5	5 459 093 EDTA	1.3 ml	 Pink	• Routine Crossmatch • Group and Coombs test	Deliver to Haematology

VERSION 01 / LAST UPDATE: MAY 2022