EDIS GEN 013 04
SNBTS EDINBURGH
LABORATORY USER HANDBOOK

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1. INTRODUCTION

1.1 The Scottish National Blood Transfusion Service (SNBTS) is a division of National Services Scotland (NSS). SNBTS is the specialist provider of transfusion medicine in Scotland, supplying safe high-quality blood, tissues, cells, products and services. SNBTS works with communities, hospitals and professionals to ensure that the donor's gift is used wisely and effectively for the benefit of patients.

There are five regional centres providing blood banking / reference laboratory services across the county. These are found at the following locations.

SNBTS Aberdeen
Aberdeen Royal Infirmary
Foresterhill Road
Aberdeen
AB25 2ZW

SNBTS Dundee
Ninewells Hospital
Dundee
DD1 9SY

SNBTS Edinburgh
Royal Infirmary of Edinburgh,
51 Little France Crescent,
Edinburgh,
EH16 4SA

SNBTS Glasgow
25 Shelley Road
Glasgow
G12 0XB

SNBTS Inverness
Raigmore Hospital
Inverness
IV2 3UJ

This handbook is intended for users of the services provided by the SNBTS Patient Services Directorate:

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1.2 **The SNBTS Patient Services Blood Bank Laboratories** provides a 24 / 7 service, offering: -

TEST /Activity	CORE hours Mon-Fri (0900-1700)	BACKSHIFT Mon-Fri (1700-2200)	SAT/SUN/ P.Hol (0800-1700)	NIGHT SHIFT (Out with Core hours)
Group & Save	√	√	√	√
Crossmatch	√	√	√	√
Antibody Investigation	√	√	√	√
Patient/donor phenotype	√	√	√	√
DAT	√	√	√	√
Antenatal testing	√			
Antibody titrations (a/natal)	√			
Anti-D and anti-c levels (IU)	√			
Neonatal group/DAT	√	√	√	√
FMH (Kleihauer)	√	√	√	
FMH (Flow)	√			
Neonatal grouping for anti-D prophylaxis	√	√	√	√
Anti-A/Anti-B titre* (renal)	√	*	*	*
Transfusion reaction *	√	*	*	*
Elution (Tx reaction)*	√	*	*	*
Alloabsorption *	√	*	*	*
Elution (AIHA) *	√	*	*	*
Cold agglutinin/PCH investigation *	√	*	*	*
Monoclonal Antibody Therapy Investigations	√	*	*	*
Blood group genotype	√			
Component recalls	√	√	√	√
Receipt/ordering of blood stocks	√	√	√	√
Responding to temperature alarms	√	√	√	√
Raising Quality incidents	√	√	√	√
Component/product issue	√	√	√	√

*For outside core hours medical input is required.

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1.3 **The SNBTS Patient Services Histocompatibility and Immunogenetics Laboratory located within Edinburgh SNBTS** provides a 24 / 7 service, offering: -

TEST /Activity	CORE hours Mon-Fri (0900-1700)	NIGHT SHIFT – via on-call (Outwith Core, hours)
HLA class I and II antibody screening	√	√*
HLA class I and II antibody identification	√	√*
HLA class I and II genotyping	√	√*
HPA antibody screening	√	
HPA antibody identification	√	
HPA genotyping	√	
CD34+ enumeration	√	
Flow cytometry donor-recipient crossmatching	√	√*
HLA typing (Disease association)	√	
Transplant recipient reviews	√	
HLA typing and reporting of potential solid organ donors	√	√*
Virtual crossmatching of transplant recipients with potential organ donors	√	√*
Assessment of living donor-recipient pairings	√	
Allocation of HLA/ HPA-selected platelets	√	
Transfusion related HLA/HPA genotype and antibody identification	√	

*For outside core hours H&I CCS input is required

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1.4 SNBTS Laboratory Sample Referral Matrix

		Samples referred by Centre				
Service Provided	Centre Providing Service	Aberdeen	Dundee	Edinburgh	Glasgow	Inverness
Antibody Quant	Glasgow	√	√	√		√
FMH by Flow Cytometry	Glasgow	√	√	√		√
Extended Phenotype Units issued	Glasgow	√	√	√		√
Reference Serology	Glasgow	√	√	√		√
Red Blood Cell (RBC) Genotyping	Glasgow	√	√	√		√
Extended Reference Serology Services	IBGRL*	√	√	√	√	√
HLA Typing (Donor) + (Patient)	Edinburgh	√	√		√	√
HPA Typing (Donor) + (Patient)	Edinburgh	√	√		√	√
HLA Typing (Disease Association)	Edinburgh	√	√		√	√
HLA Antibody Investigation (Refractory Patient)	Edinburgh	√	√		√	√
HPA Antibody Investigation (Refractory Patient)	Edinburgh	√	√		√	√
HPA Confirmatory Antibody Investigation (Refractory Patient)	NHSBT Filton			√		
HLA Antibody Investigation (Donor)	Edinburgh	√	√		√	√
TRALI Investigation (HLA)	Edinburgh	√	√		√	√
TRALI Investigation and risk reduction (HNA)	NHSBT Filton			√		
FNAIT Screening	Edinburgh	√	√		√	√
FNAIT Confirmatory Testing	NHSBT Filton			√		
Non- Invasive Prenatal Diagnosis (NIPD)	IBGRL*	√	√	√	√	√

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1.5 Medical Staff

Consultant in Transfusion Medicine:
Dr Jennifer Easterbrook 01312421283 Jenny.easterbrook@nhs.scot

Blood transfusion (BTS) Registrar Bleep 2215 (9am – 5pm, Mon – Fri.
Out of hours, contact Haem. Reg.)/ 01312427524

- Duty Haematology Registrar
- 9am - 7pm – Bleep 5817
- 7pm - 9am
  and weekend Contact switchboard (0 or 01315361000)

Transfusion Practitioner
Bella Brownhill 07812659445 Bella.brownhill@nhs.scot

Laboratory Staff
Regional Head of Service, Edinburgh SNBTS:
Marion Mathie 01414335856 Marion.mathie@nhs.scot
Blood Bank (BB) Laboratory Manager**:**
Ross Medine 01312427518 Ross.Medine@nhs.scot

Quality Department
Quality Department Manager:
Gemma Ruck 07811769987 Gemma.ruck2@nhs.scot

Patient Services Contact List

RIE Blood Bank

Monday-Friday 9am-5pm
Laboratory Telephone Number – 0131 242 7501/7502
Laboratory Mobile Number – 07887626917
Generic department e-mail – NSS.RIE-Blood-Bank@nhs.scot

Out of hours
Laboratory Telephone Number - 0131 242 7501/7502

2 TESTS AND AVAILABILITY

2.1 Sample requirements for Testing

Test	Sample type	Minimum Sample Volume	Labelling requirements	
			Handwritten	Addressograph
Group and save	EDTA	1 x 6ml	√	

Red Cell Crossmatch	EDTA	1 x 6ml	√	
Antibody ID	EDTA	1 x 6ml	√	
Antibody Quantification	EDTA	1x 6ml	√	
FMH	EDTA	1x 4.5ml	√	√
ABO/RhD investigation	EDTA	1x 6ml	√	
Transfusion Reaction	EDTA and Clotted	1x 6ml of each	√	
Red cell genotyping	EDTA	1x 6ml	√	
Cold agglutinins	EDTA	1x 6ml at 37°C	√	
Pre anti-CD38 therapy	EDTA	1x6ml	√	
Post anti-CD38 therapy	EDTA	2x 6ml	√	
Auto immune haemolytic anemia (AIHA)	EDTA	2x 6ml	√	
Direct Antiglobulin test	EDTA	1x 6ml	√	
Paternal Investigation	EDTA	1x 6ml	√	
Elution Studies	EDTA	1x 6ml	√	
Platelet Refractory investigation	EDTA and Clotted	1x 5ml of each	√	
FNAIT	EDTA/Clotted	Mother: 4.5ml EDTA, 2 x 7ml clotted. Baby: paediatric EDTA Father: 4.5ml EDTA	√	
Post Transfusion Purpura	EDTA/Clotted	2 x 7ml clotted, 2 x 4.5ml EDTA	√	
Transfusion related lung injury	EDTA/Clotted	2 x 7ml EDTA, 2 x 10ml clotted	√	

2.2 Turnaround times

Investigation	Target Turnaround Time
Group & Save	Within 6 hours
Cross match “urgent”	Within 60 minutes
Cross match “routine”	Within 3 hours Note: Routine samples are batched for automated testing; if a requirement becomes urgent the laboratory should be informed immediately.
Cross match “complex”	Minimum of 4 hours

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	Note: The complexity of the investigation and subsequent availability of suitable components will determine actual time taken. On some occasions samples may need to be referred to Reference Laboratories which will have a significant impact on the time taken. Where there may be considerable delay, the situation will be discussed with the requesting clinical area.
Antibody investigation	Within 10 working days
Neonatal Group & DAT	Within 6 hours
Grouping Anomaly	Within 7 days
Transfusion reactions	Within 7 working days for serological results, bacteriology up to 14 working days
Blood Group Genotyping	Within 10 working days
Antenatal Group & Save / Antibody monitoring	Within 72 hours
FMH by Keilhauer	Within 72 hours
FMH by Flow Cytometry	Within 48 hours
Anti-D quantification	Within 7 working days
Anti-c quantification	Within 7 working days

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3 EXTERNAL QUALITY ASSURANCE AND ACCREDITATON

3.1 External Quality Assurance Schemes

3.1.1 SNBTS Patient Services Laboratories participate in the relevant external quality assurance schemes as listed below: -

- **UK NEQAS Blood Transfusion Laboratory Practice**
  Examinations covered include ABO and RhD typing, antibody screening, antibody investigation, cross matching including emergency situations, red cell phenotyping, selection of suitable units and titrations, Direct Agglutination Testing (DAT, genotyping.

- **UK NEQAS Feto-Maternal Haemorrhage (FMH)**
  Examinations covered are the estimation of FMH by acid elution or Flow Cytometery.

- **AQQAS**
  Examinations covered are the quantification of anti-D and anti-c

- **Instand**
  Examinations covered are red cell genotyping

- **Internal Proficiency Exchange Scheme (IPEX) – NHSBT**
  Examinations covered include ABO and RhD typing, antibody screening, antibody investigation, red cell phenotyping, selection of suitable units, titrations and competency based questions.

3.2 Accreditation/Regulation

3.2.1 The SNBTS Patient Services Laboratories are accredited through UKAS (www.ukas.com) to the internationally recognised standard ISO 15189:2012 (Laboratory No 8098).
www.ukas.com/wp-content/uploads/schedule_uploads/00007/8098-Medical-Single.pdf

3.2.2 SNBTS Patient services laboratories are assessed by Medicines and Healthcare products Regulatory Agency (MHRA) as a Blood Establishment in line with 2005 Blood Safety and Quality Regulations (BSQR)

3.2.3 The SNBTS Patient Services H&I laboratory holds the EFI certificate awarded by The European Federation for Immunogenetics

4 MEASUREMENT OF UNCERTAINTY

4.1 SNBTS Laboratories shall consider the measurement of uncertainty for all critical points of any assay.

4.2 Within reported values there is an inherent uncertainty, or variability, in the data generated. Data obtained from these tests enable an assessment of this uncertainty of measurement (UoM). Please contact the laboratory for discussion or advice on results and UoM if required.

5 SAMPLE REQUIREMENTS AND LABELLING

5.1 Sample for Testing

5.1.1 Please refer to section 2.1 for sample requirements and labelling (handwritten or addressograph)

5.1.2 All blood samples are treated as potentially infectious and must be handled with caution.

5.1.3 Samples must be accurately labelled at the patient's bedside. Patients should be asked to confirm their name and date of birth. This information should be checked against the Patient's ID band and against the request form to ensure details match.

5.1.4 Label the form and sample with: -

- Patient's full name (first name and surname)
- Date of Birth.
- Community Hospital Index (CHI) or A&E Number.
- Gender, Ward, Hospital.
- Date & Time sample was taken and signature of person taking sample on sample and form.

5.2 Sample Acceptance Criteria

5.2.1 Pre-transfusion samples which do not meet the following criteria will be rejected and a new sample will be required.

5.2.2 Pre-transfusion sample tubes and request forms must be labelled with the following four points of patient identifying data (core identifiers) as detailed in the BSH guidelines:

- Last Name (spelt correctly)
- First Name (spelt correctly)
- Date of Birth

- Unique Identification Number (CHI or Hospital Number where no CHI number is available)

5.2.3 Unknown patients

Where patients are unidentified at the time of sampling, it is best practice to use an additional non-sequential numerical identifier (eg Typenex)

The minimum acceptance criteria for pre-transfusion samples from unidentified patients are:

- Typenex number/ A&E Number/ Organ Donor Transplantation Number/ other unique identifier
- Gender

5.2.4 There **must** be no discrepancy between the patient identifying information on the sample tube and request form. Local Transfusion request forms or National Red Cell Immunohematology request form NATF 1648 should accompany all samples.

5.2.5 There **must** be no attempt made to replace a *different* patient's details on the sample tube, therefore any sample tube where any patient core identifier has been obliterated either by correction fluid or by pen will be discarded. Minor amendments or corrections, where it is clear both refer to the same patient can be accepted.

5.2.6 Pre transfusion samples and/or request forms for pre-transfusion testing are also expected to have:

- the gender of the patient
- the date and time on which the sample was taken
- the signature or initials of the person taking the sample

Unsigned samples may be tested so long as the requesting doctor and phlebotomist have signed the request form.

5.2.7 Pre-transfusion request forms should also give legibly:

- the name of the person authorising the test / transfusion
- the location of the patient
- relevant clinical details regarding the diagnosis, the reason for transfusion and the rationale for any special requirements for components ordered

Although this information is desirable, its absence will not impact patient testing.

5.2.8 Under no circumstances can the sample or request form be altered by the clinical area after receipt by the laboratory.

5.3 **Sample Acceptance Criteria** for non pre-transfusion samples.

5.3.1 Non pre-transfusion samples are listed below with their specific acceptance criteria.

5.3.2 FMH estimation by flow cytometry:

- Samples are labelled with the four core patient identifiers in Section 5.2.2
- Addressograph labels are acceptable (forms and sample tubes)

Samples for FMH estimation sent from Western Isles Hospital are exempt from the above and must be hand labelled. FMH estimation for these samples is performed initially by flow cytometry. In some cases, estimation by flow cytometry will not be possible (for example neonatal weak D) the sample will be referred for FMH estimation by Kleihauer test. The sample must therefore meet the standard sample acceptance criteria (see section 5.2).

5.4 **Transport of Samples**

5.4.1 It is the responsibility of the referring lab or clinical area to ensure the sample is adequately transported to the testing laboratory. All packages should be clearly addressed to the appropriate department.

5.4.2 Leaking, haemolysed or samples more than 7 days old will not normally be processed by any of the laboratories.

6 BLOOD AND BLOOD COMPONENTS

6.1 The blood ordering schedules (MSBOS) are designed to provide guidance primarily for pre-planned surgical procedures. They have been prepared in order to allow the most efficient use of blood stocks and laboratory facilities.

6.2 Available component types

Component type	Volume (ml)	Storage (°C)	Pediatric	Additional Info
Red Cells	220 – 340	+2 to +6	Pedi-Packs – 4 splits	Irradiated or washed available on request

Platelets (Pooled or Apheresis)	160 – 380	+20 to +24	Pedi-Packs – 3 splits	Irradiated as standard. Washed on request
Fresh Frozen Plasma (FFP)	200-250	-30	Small Volume available	IgA deficient available from NHSBT
Cryoprecipitate (pooled)	100 – 250	-25	Small Volume available	Rich source of Fibrinogen, FVIII & VWF.
Octaplas	200	-25	N/A	
Granulocytes (pooled)	~230	+20 to +24	N/A	Supplied under 'Concessionary Release'

6.3 HLA and HPA matched platelets for platelet refractoriness

Platelet transfusion refractoriness may result from immune or non-immune platelet destruction. Targets for clinically relevant platelet allo antibodies that can cause immune platelet refractoriness include: -

- Human leucocyte antigens (HLA) class I.
- Human platelet antigens (HPA) or in some cases high titre ABO blood group antibodies.

The H&I Laboratory at Edinburgh Royal Infirmary investigate the presence of allo antibodies against HLA class I or HPA. You should be aware that HPA antibodies in the absence of HLA class I antibodies are a rare cause of platelet refractoriness.

6.3.1 Making an initial request

For an initial request for HLA or HPA matched platelets you must complete the SNBTS initial request form NATF 249 and discuss it with the local SNBTS Blood Transfusion Service medic. NATF 249 is available on request from the BTS lab.

6.3.2 Platelet Provision

Depending on the antibody and typing results, both HLA class I and HPA compatible platelets can be provided.

Provision of HLA or HPA matched platelets depends on: -

1. Exclusion of non-immune causes of platelet refractoriness.
2. Platelet refractoriness to ABO compatible single donor platelets on two or more occasions.
3. Positivity for HLA class I and HPA antibodies.

A search is performed on all blood donors suitable to donate apheresis platelets who have been HLA class I and HPA typed. If compatible HLA or HPA platelets are required, you should inform Edinburgh H&I and the BTS or haematology registrar as soon as possible – it can take time to call in specific donors and perform mandatory donor testing before platelets can be released.

6.3.4 **Post Infusion of HLA compatible platelets**

In order to monitor the effectiveness of selected donations it is important to receive a platelet count after the transfusion by completing NATF 1004 and returning to the H&I Laboratory at Edinburgh Royal Infirmary. A copy of NATF 1004 will be sent to the ward with the HLA match platelet and contains the information required for returning to the H&I Laboratory in Edinburgh.

6.4 **PROCEDURE FOR REQUESTING BLOOD COMPONENTS**

6.4.1 Clinicians need to allow for the time it takes for blood components to be collected from hospital Blood Bank to reach clinical areas.

6.4.2 **URGENT: Red Cells required immediately**

- Send a patient cross match sample before any transfusion.
- Advise Blood Bank of urgency.
- Use emergency O RhD Negative red cells from designated fridge.(see section 7..9)
- Inform Blood Bank immediately if emergency blood is used so that it can be replaced.
- Inform Blood Bank immediately if anticipating uncontrolled bleeding.

NOTE: O RhD Negative, K Negative blood should be used for all female patients of childbearing potential, until group specific is available or anyone whose plasma is known to contain anti-D.

O RhD Positive blood may be given in an emergency to male patients and women of post-childbearing age or known to be RhD Positive during times when O RhD Negative stock is limited or on restriction.

6.4.3 **Red Cells Required in 20 minutes**

- Send a patient EDTA cross match sample and second sample if necessary.
- Advise Blood Bank of urgency.
- ABO / RhD group-specific red cells available from Blood Bank within 20 minutes of receipt of sample.

6.4.4 Red Cells required in 60 minutes

- Send a patient EDTA cross match sample and second sample if necessary.
- ABO / RhD group, antibody screen and cross match will be carried out.
- Red cells available for collection within 60 minutes of receipt of sample (unless red cell antibodies have been identified in patient samples – this may cause an added delay).

6.4.5 Provision of blood components (Platelets, FFP, Cryoprecipitate)

FFP

- Requested by Clinician
- Normally available 25-30 minutes after request to allow time for thawing.

Platelets

- Requested by Clinician
- Normally available in 10 minutes.

Cryoprecipitate

- Requested by Clinician
- Normally available in 35-40 minutes after request to allow time for thawing.

Products

- Beriplex and Anti-D Prophylaxis are available on request from Blood Bank. If clinical advice is required regarding Beriplex dosing, please discuss with Clinical Haematologist prior to contacting Blood Bank.

7 EMERGENCY BLOOD

7.1 Blood Tests

In an emergency the blood group should be established as soon as possible. Blood tests for full blood count, coagulation screen and biochemistry should be taken at baseline and periodically to guide the need for blood and blood components.

7.2 Haematology Advice

Advice should be sought from the local haematology team about additional blood product support if bleeding is ongoing. Seek early haematology advice for patients on anticoagulants or with known bleeding disorders.

7.3 Emergency Red Cells

Group O RhD Negative red cells can be transfused in an emergency when the blood group is unknown.

7.4 Emergency Fresh Frozen Plasma (FFP)

Group AB plasma or group A plasma that is high-titre negative can be transfused in an emergency when the blood group is unknown.

If transfusing Octaplas or Methylene Blue Treated FFP to patients of unknown group, group AB plasma must be used.

7.5 Emergency Platelets

Platelets of any group can be transfused to bleeding patients of unknown group. If RhD positive platelets are transfused to an RhD negative woman under the age of 50 years, anti-D Ig may be required within 72 hours of the transfusion.

- Group A Negative (or O Negative) platelets that are labelled high-titre negative can be given to any blood group.
- In men and women aged over 50 years the RhD group is not important.

7.6 Major Haemorrhage Protocol

Local activation policies apply for Major Haemorrhage Protocol (MHP):

- You should activate the MHP to obtain blood and blood components in an emergency where significant blood loss needs a rapid response without authorisation by a blood transfusion service (BTS) medic.

7.7 Major Surgical Bleeding, Major Obstetric Haemorrhage and Code Red Traumatic Major Haemorrhage

You should refer to local policies to find out what steps to take.

7.8 For Major Haemorrhage Protocol or Code Red

See Appendix 1 – MHP and Appendix 2 – Code Red.

7.9 Location of Emergency O RhD Negative Red cells

Location	No of units
RIE A&E*	4
RIE Delivery Suite*	2
RIE Blood Bank	6

*NOTE: When this blood is removed from the satellite fridge, the blood bank must be informed immediately (27501 or 27502). 6 units of O RhD Negative, K Negative red cells are available at all times from the blood bank.

8 DELIVERY AND DISTRIBUTION OF MATCHED BLOOD

Within the RIE, blood components will be delivered by the Portering service provided by Engie (Telephone extension 33333).

Delivery of blood components out-with the RIE will be by SNBTS transport or approved Taxi Companies. (N.B. 'Blood Bikes Scotland' are **not** authorised to carry blood components)

Urgent Delivery

Within the RIE, blood components will be delivered by the emergency Portering service provided by Engie (Telephone extension 51312).

Emergency 'Blue Light' delivery may be provided in a life threatening emergency if there is an SNBTS driver available. This has to be justified to, and approved by, an SNBTS consultant.

Transfer of blood to another hospital

If a patient is going to be transferred to another hospital and requires ongoing transfusion support, the Blood Transfusion Laboratory should be informed immediately.

If required, blood components will be prepared for transport and will be sent to the clinical area in a validated transport box with accompanying documentation and marked with the time of despatch.

In general, no more than two units are required to travel with the patient. **Previously issued blood components should not be sent to another**

hospital directly from the clinical area, as they are likely to be discarded by the receiving hospital.

9 ADVERSE TRANSFUSION REACTIONS

9.1 In the event of a suspected transfusion reaction, stop the transfusion immediately. Inform the relevant clinicians and blood bank.

9.2 Advice on necessary investigations and the management of transfusion reactions can be sought from the local haematology or SNBTS medical staff.

9.3 If investigations are required, the following should be sent immediately to the Blood Bank:

1. Component pack suspected of causing the reaction

2. Any used or unused component units issued to the patient

3. A 4.5ml EDTA sample and 10ml clotted sample, taken post transfusion, together with a completed request form indicating the degree of urgency of further transfusion

4. Completed Transfusion Reaction Investigation Form (NATF 1263, can be obtained from Blood Bank)

9.4 Further guidance on the management of transfusion reactions can be obtained from the hospital Transfusion Policy.

10 PROTECTION OF PERSONAL INFORMATION

10.1 In line with National Services Scotland (NSS) Information Security Policies, the laboratory has in place information technological and organisational safeguards to ensure that the confidentiality, integrity and availability of all forms of information held on patients, donors, NHS Scotland staff and family and health contractors, is not lost of compromised.

11 FEEDBACK

11.1 We are continually assessing the service we provide with the aim of providing an excellent service at all times. The annual User Survey and Service Level Agreement review meetings with customer hospitals provide formal opportunities for obtaining feedback; the six monthly BTS Clinical Laboratories User Group meetings provide an additional forum for feedback and discussion of services.

11.1.1 We are happy to receive your comments and suggestions as to how we can best meet your needs and those of your patients at any time; comments or suggestions specifically about this User Handbook would also be appreciated.

11.2 **Customer Complaints**

11.2.1 SNBTS operates a formal complaints procedure. If you are dissatisfied with either the service or "products" provided by the laboratories or personnel, we would like to hear from you so that we can try to understand the nature of the problem and take appropriate action to address it. A Customer Communications Form (NATF 1022) is available to document your concerns. Please return forms to the local Transfusion Laboratory.

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Appendix 1

Activate MAJOR HAEMORRHAGE PROTOCOL

RIE & DCN

To enable the rapid supply of blood components & rapid transport of blood samples

****BEFORE YOU CALL CHECK THE PATIENT'S ID BAND****

STEP 1.

- PHONE 2222
- Say **"MAJOR HAEMORRHAGE, ROYAL INFIRMARY" or "MAJOR HAEMORRHAGE, DCN"**
- State your current location
- If an emergency team is needed state **"MEDICAL EMERGENCY" or "MEDICAL EMERGENCY AND MAJOR HAEMORRHAGE"**

STAY ON THE LINE WHILST YOU ARE CONNECTED TO BLOOD BANK

STEP 2.

Tell Blood Bank

- Patient's Name, Sex, DoB, CHI number (or UHPI number if no CHI)
- Which blood components you require (BE SPECIFIC, there is no standard pack)
- Define how soon you want blood components: **IMMEDIATE OR WITHIN 30 MINUTES**
- The patient's exact location and any planned moves
- Your Name & Contact Details to act as the point of contact for Blood Bank
- Which blood samples you are sending to the lab. **BLOOD BANK WILL INFORM YOU IF A TRANSFUSION SAMPLE IS REQUIRED**

Major Haemorrhage Porter will automatically be notified of major haemorrhage and attend Blood Bank

STEP 3.

Consider administration of tranexamic acid (initial dose 1 gram I.V.)

Confirm activation of the Major Haemorrhage Protocol with the Clinical Team Lead
Record which blood components have been requested and when they were ordered.

For further communication with Blood Bank, phone ext 27501 or 27502.
For Haematology Laboratory bleep (110) 6550.

STEP 4.

Clinical Team Lead identifies the team member to act as named point of contact with Major Haemorrhage Porter

- Record receipt of ordered blood components
- Write this information on the MHP feedback sheet provided or somewhere else easily visible
- Handover any samples to the Major Haemorrhage Porter for urgent transfer to the lab

Major Haemorrhage Porter will return to Blood Bank unless advised otherwise

STEP 5.

When the rapid supply of blood components & rapid transport of blood samples are no longer required the Clinical Team Lead announces the end of the Major Haemorrhage Protocol

- Inform Blood Bank the Major Haemorrhage is over
- Ensure all transfusion labels, tags and documentation including MHP feedback sheet completed and returned

For further guidance about managing a Major Haemorrhage see:
Intranet > Directory > Blood Transfusion > Major Haemorrhage
or seek advice from on-call Haematologist

Revised July 2019 | Authorised by NHS Lothian Transfusion Committee | Review due July 2022

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Appendix 2

CODE RED – ROYAL INFIRMARY OF EDINBURGH 2020

Activate **pre-hospital or in ED** for **TRAUMA** patient with:
Suspected or confirmed bleeding
Systolic blood pressure < 90 mmHg (in an adult patient) who is
Unresponsive to fluid boluses.

STEP 1. PHONE 2222. Say "CODE RED TRAUMA CALL, ROYAL INFIRMARY OF EDINBURGH" & state your current location and patient ETA

✳✳STAY ON THE LINE WHILE YOU ARE CONNECTED TO BLOOD BANK✳✳ ☎

Ensure the patient gets a name band at the earliest opportunity after arrival

STEP 2. Tell Blood Bank:

i. A contact number (likely Trauma Team Leader phone)
ii. Gender and if pregnant
iii. Patient's exact location and planned moves
iv. Ask for **TRAUMA PACK A** components to come down to ED (You do not need to state what you specifically require.

- You will be automatically issued with 4 units of universal red cells (or type specific if BTS sample received) and 4 units of universal FFP (or type specific if BTS sample received).
- Red cells are likely to come down first followed by other components as they become available.
- You do not need to make a further phone call, FFP will now come down to the ED as soon as it is ready.

BLOOD PORTER WILL AUTOMATICALLY BE NOTIFIED OF CODE RED AND WILL ATTEND BLOOD BANK

STEP 3. Confirm Activation of Code Red with the Trauma Team Lead (TTL).

i.Confirm blood available in ED emergency satellite blood fridge (4xO negative red cells)
ii.If on arrival of the patient/after resuscitation the TTL wants further blood components then phone **27504** and request **TRAUMA PACK B**.

- You do not need to state what you specifically require. You will be automatically issued with 6 unit of universal red cells (or type specific if BTS have a tube), 6 units of universal (or type specific) FFP, 1 unit of universal (or type specific) platelets, 2 units of cryoprecipitate

FOR FURTHER COMMUNICATION WITH BLOOD BANK PHONE ext 27504

STEP 4. TTL identifies the team member to act as named point of contact with emergency blood porter.

i.Confirm &/or log receipt of expected blood components
ii.Handover any samples to the blood porter for urgent transfer to the lab
iii.Perform ROTEM
iv.Remember 1g TXA within 3 hrs of injury and remember TXA infusion after bolus dose
v.Remember Calcium replacement. **Stand down Code Red when appropriate**

- 1 unit of platelets refers to a pool of 6 whole blood derived concentrates (i.e. you would give 1 unit every 6 units of blood if practising 1:1:1 transfusion).
- Notify blood bank if you have used or wasted the ED blood fridge red cells so that it can be replenished. Do not put platelets in the ED blood fridge

BLOOD PORTER WILL RETURN TO BLOOD BANK UNLESS ADVISED OTHERWISE

STEP 5. At the end of the Code Red the TTL should:

i. Inform Blood Bank the Code Red is over
ii. Ensure all transfusion Labels, Tags & Documentation completed & returned

Code Red RIE protocol v 24 08 2020; Authors Matt Reed, Dean Kerslake, Megan Rowley, Catherine Innes, Ross Medine, Julie Taylor