NHS
Blood and Transplant

NHSBT PORTFOLIO OF BLOOD COMPONENTS AND GUIDANCE FOR THEIR CLINICAL USE

SPN223 Version 12

PORTFOLIO OF BLOOD COMPONENTS CONTENTS PAGE

This portfolio contains information and specification sheets for all blood components routinely produced by NHSBT.

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NHSBT PORTFOLIO OF BLOOD COMPONENTS

Objective

To provide details of the therapeutic blood components currently supplied to hospitals.

Changes in this version

- Change of clinical team details on page 7
- Addition of reduced volume platelets in the non-routine components section
- Addition of contingency platelets in the non-routine components section
- Minor changing to wording in Section 3, page 18
- Included Facility Identification Numbers in Appendix 9 for other UK blood services whose components may be issued to hospitals by NHSBT
- Removal of Methylene Blue components
- Removal of appendix 8 – vCJD Risk Reduction
- Comment added to section 3 “The initial request needs to be made through a NHSBT consultant.” for frozen red blood cell components”
- Clarifications of priority and substitution recommendations on pages 27 (FFP) & 28 (cryo) as requested by Lead Specialist - Blood Stocks Management Scheme Chris Gallagher.
- Inclusion of “and infant” where appropriate after neonatal for clarity
- Renumbering of red book references in product specification to reflect version 9
- Removal of low titre anti T FFP
- Clarified storage and handling for Red Cells, Washed
- Replaced original table with replacement table Green L et. Al. British Journal of Haematology, 2018,181,54–67 in section 3.1
- Addition of NHSBT-Basildon 9977J1 in Appendix 8.
- Removed reference to Handbook of Transfusion Medicine, now withdrawn.
- The SLA for urgent washed platelet orders changed from the currently listed '6 hours', to '8.5 hours'.

Definitions

Please refer to Appendix 1

Related Documents

ESD1 – Guidelines for the Blood Transfusion Services in the United Kingdom. Current edition. TSO (The Stationery Office) Norwich, 2013. http://www.transfusionguidelines.org.uk/

MPD42 – Review & Revision Process for ‘NHSBT Portfolio of Components & Guidance for Clinical Use’

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1. Introduction

This portfolio contains specification sheets for all blood components routinely produced by NHSBT. Not all components are manufactured in all centres but can be obtained if requested through your local Hospital Services Department. Some requests will require discussion of the clinical case with a NHSBT consultant and/or advance notice.
The information in this portfolio will be reviewed annually, however, new components may be added between reviews. MPD42 details the review process.

Quality Standards

All centres are inspected by the Medicines and Healthcare Products Regulatory Agency (MHRA) and hold Blood Establishment status under the Blood Safety and Quality Regulations 2005[1]. They may also be inspected by other third-party accreditation bodies such as United Kingdom Accreditation Service (UKAS) and are subject to regular peer audit.

Blood, blood components, products and services must comply with the requirements of the current edition of the following standards:

- European Union Commission Directives 2002/98/EC and subsequent documents 2004/33/EC, 2005/61/EC and 2009/135/EC
- Rules and guidance for Pharmaceutical Manufacturers and Distributers (The Orange Guide)
- UK Acts of Parliament. Blood Safety and Quality Regulations 2005(BSQR). Statutory Instrument 2005/50 (ISBN 0110516222) [1]
- Guidelines for the Blood Transfusion Services in the United Kingdom (Red Book) [2]
- ISO 15189
- Council of Europe. Guide to the preparation, use and quality assurance of blood components

Quality monitoring of blood components

Regular monitoring is undertaken to ensure that blood components continue to meet the specifications defined in the Guidelines for the Blood Services in the UK [2].
All components, except granulocytes and buffy coats, are leucodepleted by methods which are demonstrated to leave a residual WBC count of $< 5 \times 10^6$ leucocytes/unit in > 99 % of units and $< 1 \times 10^6$ leucocytes/unit in > 90% of units, both with 95% statistical confidence.
A national quarterly report is produced for and reviewed by the Component Strategy Group (CSG).
'NHSBT mean' figures on the individual component specification sheets are calculated using the Quality Monitoring (QM) data in the quarterly report.

Concessionary release of components not conforming to specified requirements.

If a component is required urgently, and it does not meet the required specification, it may be released under 'concession' following consultation and agreement between a NHSBT consultant and the treating hospital consultant. The requirement needs to be clinically justified and is for use on a single named patient basis only.

Donor Assessment

All donors are assessed by interview and formal questionnaire according to the Whole Blood and Component Donor Selection Guidelines (a constituent of the Guidelines for Blood Transfusion Services in the United Kingdom) [2]

Serological and Microbiological Testing

All NHSBT donations are tested prior to issue, as follows:

- ABO, Rh and K blood group antigens
- High titre anti-A, anti-B, and atypical red cell antibodies
- Hepatitis B surface antigen (HBsAg)
- HIV 1 and 2 antigen and antibody
- Antibodies to HCV, syphilis, and HTLV-I and -II
- HBV, HCV, HEV and HIV genome (Nucleic Acid Amplification Technology (NAT) testing)
- HTLV-I and -II antibody testing will be restricted to first time donors and for buffy coats and pooled granulocytes

Components with a very short shelf-life (e.g., intra-uterine platelets and granulocytes) can be issued before HIV, HBV, HCV NAT, and HTLV-I and -II results are available. These components are sourced from donors who have been previously tested and found negative for these markers.

Additional Testing

Donors are tested for Malaria, T. Cruzi antibodies and West Nile Virus when indicated by their travel history. Other discretionary tests include anti-HBc (e.g., after body piercing) and HbS (sickle cell test). A proportion of donations are tested for CMV antibodies and extended red cell phenotypes. A panel of platelet apheresis donors are HLA-typed, and HLA matched platelets are available.

NHSBT also stock a small number of special components:

- HPA-1a/5b negative red cells and platelets
- Red cells, FFP and platelets from IgA deficient donors (washed red cells are a suitable alternative for IgA deficient patients)

Standard platelets are screened for bacterial contamination and have a seven-day shelf life.

Irradiation

NHSBT irradiates some cellular clinical components using Gamma or X-ray irradiation. BSH Guidelines list the clinical indications for the use of irradiated components[3]. It is not necessary to irradiate non-cellular frozen components.

Administration of Blood Components

Refer to:

- BCSH Guidelines on the Administration of Blood Components[4]
- Guidelines for Compatibility Procedures[5]

Blood Component Development

NHSBT strives to improve the blood components manufactured. Information on any new components that are not routinely issued or that are under development may be found in appendix 5.

Any components that are not routinely available for order but may be used in contingency situations, and therefore need details included on hospital IT systems, can be found in appendix 6.

Feedback

If you are dissatisfied with the blood components or services provided, please inform your local Customer Services Manager. It is important for NHSBT to understand and meet your needs. There is a national customer complaint procedure to measure our performance and ensure that we handle all complaints effectively.

Communication

All formal communications and requests for components and services should be made through the hospital haematologist and blood transfusion laboratory.

NHSBT can provide advice or discuss transfusion related problems, this can be accessed by contacting your local Hospital Services Department or Customer Services Manager. NHSBT Consultants are also available to provide transfusion related clinical advice and can be contacted via your local NHSBT Hospital Services Department.

Responsibilities of NHSBT and Hospital

NHSBT is responsible for the quality of blood components and services supplied until the point of delivery or collection by requester. Hospital Transfusion Laboratories assume responsibility upon receipt of blood components for their correct storage, handling, compatibility testing, issue, and documentation.

Clinical Team

The following consultants work within the Components Clinical Team and are happy to answer general queries about NHSBT components and their use.

For immediate patient needs, contact your local Blood Centre.

Consultant	Based at	Products specialisation	Other responsibilities
Laura Green Laura.green@nhsbt.nhs.uk	Colindale Centre	Plasma & Platelet Transfusion	Haemostasis & Massive Transfusion
Samah Alimam sam.alimam@nhsbt.nhs.uk	Colindale Centre	Components	Myeloid disorders
Suzy Morton Suzy.Morton@nhsbt.nhs.,uk	Birmingham Centre	Granulocytes	Education Lead for Transfusion
Anne Kelly anne.kelly2@nhsbt.nhs.uk	Colindale Centre	Paediatric and neonatal transfusion	Paediatric haematology

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2. STANDARD RED CELL COMPONENTS - GENERAL INFORMATION

1) Standard Red Cells in Additive Solution
2) Red Cells, Washed
3) Red cells, Thawed and Washed

1) Red Cells in Additive Solution

Each unit is obtained from a standard donation of 470 mL (range of 427.5 - 522.5mL) of blood from a single donor bled into a blood pack containing 66.5 mL of Citrate Phosphate Dextrose (CPD) anticoagulant. During processing, the majority of plasma is removed and replaced by additive solution comprising of saline, adenine, glucose and mannitol (SAG-M). A standard red cell component in additive solution contains red cells (Hct 0.50 - 0.70 and Hb content > 40 g/unit), 5 – 30 mL of plasma, and 100 mL of SAG-M solution in a total volume of 220 - 340mL.

Specific clinical indications: To raise the oxygen-carrying capacity of the blood when it is symptomatically reduced due to red cell loss or reduced erythropoiesis. Hospitals should have protocols in place to guide transfusion management according to haemoglobin triggers and targets.

Dosage should be determined by a medical practitioner.

Contraindications, cautions: Fluid overload may be precipitated in patients with expanded plasma volume, heart failure or hyperviscosity syndromes.
Patients with red cell antibodies will require more extensive compatibility testing and may necessitate the provision of phenotyped red cells. Please give as much notice as possible when requesting these components.

Storage and handling: Store at 4 ± 2 °C in an approved blood refrigerator fitted with a temperature recorder and alarm.

Transport: When in transit (except immediately prior to transfusion), blood should be kept in a validated and approved container and appropriate records kept according to local procedures.

For occasions when red cells are removed from 4 ± 2 °C controlled storage (e.g., when issued to a clinical area immediately prior to transfusion) and returned then:

If possible, time out of a controlled temperature environment should be restricted to less than 30 minutes. If 30 minutes is exceeded the unit should not be returned to the issue location in the refrigerator but returned to the transfusion laboratory or quarantined remotely using electronic blood tracking.

Up to 60 minutes out of controlled temperature is acceptable, provided the unit is then quarantined by placing in a secure refrigerator for at least 6 hours prior to reissue, to allow the unit to return to 4 ± 2 °C. Hospitals will need to identify such units so that they are not subject to being out of controlled temperature storage for between 30 and 60 minutes on more than three occasions.

N.B. These recommendations do not apply to washed or frozen-washed red cells: return and re-issue of these components following removal from a controlled environment should be subject to risk assessment and issue under clinical concession.

Transfusion should be completed within 4 hours of issue out of a controlled temperature environment.
No drugs should be added directly to the unit of red cells.

Special requirements: Irradiated red cells are available for recipients at risk of transfusion associated graft versus host disease (TA-GvHD)[3]
Red cell units which are CMV seronegative should be given to recipients at highest risk of CMV disease. Blood components which are leucodepleted shortly after collection by validated methods are deemed by many experts to be CMV safe.

Red Cell selection for ABO group

Recipient's group	**O**	**A**	**B**	**AB**
1st choice	O	A	B	AB
2nd choice	-	O	O	A or B
3rd choice	-	-	-	O

Red Cell D Selection: Red cells of the correct D status should be used; recipients with preformed anti-D antibodies should receive D negative red cells. In an emergency, females of childbearing age, if the D status is unknown, should receive D negative red cells.

Standard red cells contain no functional platelets, granulocytes, or coagulation factors.

2) Red cells, Washed

Red cells from a single donor from which most of the plasma has been removed by sequential washing and re-suspension in SAGM additive solution.

The initial request needs to be made through a NHSBT consultant.

Specific clinical indications: When there is history of recurrent and/or severe allergic reactions or febrile reactions to transfusion. Washed red cells can be used for IgA deficient patients with anti-IgA antibodies if red cells from IgA deficient donors are not available.

Storage and handling: As in general information, the shelf life of the non-irradiated washed cells is 14 days post washing. Following irradiation washed red cells that are suspended in a validated additive solution should be transfused as soon as possible and no later than 5 days after irradiation if irradiated on the day of washing, or 48 hours if irradiated after the day of washing. Washing may occur up to day 14 following bleed.

3) Red cells, thawed and washed

These are red cells which have been frozen in the presence of a cryoprotectant, thawed and washed on request. The initial request needs to be made through a NHSBT consultant.

Specific clinical indications: Red cells of rare phenotype/s which cannot be easily provided from current stock are stored in the National Frozen Blood Bank.

Storage and handling: Refer to the section above in general information for red cells.
The shelf life of this component is limited to 24 hours if produced in an open system and 72 hours when using the automated closed production system. The final suspension medium is SAGM regardless of production systems used.

Transportation: It should be noted that, occasionally, red cell components are issued before they have been cooled to their storage temperature (4 ± 2°C). In such circumstances, it may not be possible or necessary to maintain the transport temperature within the range 2–10°C and local judgement should be exercised.[2]

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Specification sheets for RED CELLS

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Red Cells in Additive Solution LD

Component name	Red Cells in Additive Solution LD

Red Book reference	Section 7.3.2

Parameter	NHSBT mean	NHSBT/UK Specification	Note
Volume (mL)	289	220-340	
Haemoglobin (g/unit)	55.0	>40	
Haematocrit (L/L)	0.57	0.50-0.70	
WBC count (x10^6/unit)	0.32	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration (x10^9/L)	N/A	N/A	
Platelet yield (x10^9/unit)	N/A	N/A	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	<0.8%	Of red cell mass at the end of shelf life
pH at expiry	N/A	N/A	

Anticoagulant(s)	CPD (Other anticoagulant may be used for red cells collected by component donation)
Suspension medium	SAG-M
Shelf Life	35 days
Availability	Stock
Storage	4°C±2°C.
Transport	The component surface temperature must be maintained between 2°C and 10°C during transportation.
CMV status	Available as CMV Negative
Red cell phenotype	Available on request. Some phenotypes may require 24hrs notice.
Additional testing requirement	
Donor Specification	Standard
Additional notes	

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
0054	a0	04333	3b	From whole blood donation

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Red Cells in Additive Solution, LD Irradiated

Component name	Red Cells in Additive Solution, LD Irradiated

Red Book reference	Section 7.3.2

Parameter	NHSBT mean	NHSBT/UK Specification	Note
Volume (mL)	289	220-340	
Haemoglobin (g/unit)	55.0	>40	
Haematocrit (L/L)	0.57	0.50-0.70	
WBC count x10^6/unit)	0.32	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration (x10^9/L)	N/A	N/A	
Platelet yield (x10^9/unit)	N/A	N/A	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	<0.8%	Of red cell mass at the end of shelf life
pH at expiry	N/A	N/A	

Anticoagulant(s)	CPD (other anticoagulant may be used for red cells collected by component donation)
Suspension medium	SAG-M
Shelf Life	14 days from date of irradiation for adult use
Availability	Stock
Storage	4°C±2°C.
Transport	The component surface temperature must be maintained between 2°C and 10°C during transportation.
CMV status	Available as CMV Negative
Red cell phenotype	Available on request. Some phenotypes may require 24hrs notice.
Additional testing requirement	
Donor Specification	Standard
Additional notes	Component must be irradiated within 14 days of donation

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
G054	a0	44333	3b	From whole blood donation

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Red Cells Thawed and Washed, LD, Manual Preparation

Component name	Red Cells Thawed and Washed, LD Manual Preparation

Red Book reference	Section 7.3.4

Parameter	NHSBT mean	NHSBT/UK Specification	Note
Volume (mL)	292	locally defined	
Haemoglobin (g/unit)	44	>36	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	< 0.3	<1	Pre-freeze
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	N/A	N/A	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	0.13	<2.0	Per unit
pH at expiry	N/A	N/A	

Anticoagulant(s)	N/A
Suspension medium	SAGM
Shelf Life	24 hrs from time of preparation
Availability	24 hours' notice preferred for planned procedures, shorter time for urgent requests. Please see Appendix 7, "Availability of Non-Stock and Special Components", for further information including availability for urgent requests.
Storage	4°C±2°C.
Transport	The component surface temperature may not be between 2°C and 10°C during transportation since it is not always possible to cool it to its storage temperature of (4 ±2°C) prior to issue.
CMV status	N/A
Red cell phenotype	Available by arrangement for specific phenotypes
Additional testing requirement	
Donor Specification	Standard
Additional notes	Frozen using a manual technique but thawed and washed using an automated system

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
0071	a0	06460	3b	

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Red Cells Thawed and Washed, LD, Closed System Preparation

Component name	Red Cells Thawed and Washed, LD Closed System Preparation

Red Book reference	Section 7.3.4

Parameter	NHSBT mean	NHSBT/UK Specification	Note
Volume (mL)	295	225-325	Pre-freeze
Haemoglobin (g/unit)	42	>36	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	< 0.3	<1	Pre-freeze
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	N/A	N/A	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	0.12	<2.0	Per unit
pH at expiry	N/A	N/A	

Anticoagulant(s)	N/A
Suspension medium	SAG-M
Shelf Life	3 days
Availability	24 hours' notice preferred for planned procedures, shorter time for urgent requests. Please see Appendix 7, "Availability of Non-Stock and Special Components", for further information including availability for urgent requests.
Storage	4°C±2°C.
Transport	The component surface temperature may not be between 2°C and 10°C during transportation since it is not always possible to cool it to its storage temperature of (4 ±2°C) prior to issue
CMV status	N/A
Red cell phenotype	Available by arrangement for specific phenotypes.
Additional testing requirement	
Donor Specification	Standard
Additional notes	Prepared for freezing, and thawed and washed, using automated systems.

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
0072	a0	54263	3b	

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Red Cells, Washed LD (Manual Preparation in SAGM)

Component name	Red Cells, Washed LD (Manual Preparation in SAGM)

Red Book reference	Section 7.3.3

Parameter	NHSBT mean	NHSBT/UK Specification	Note
Volume (mL)	278	220-340	
Haemoglobin (g/unit)	54.2	>40	
Haematocrit (L/L)	0.60	0.50-0.70	
WBC count ($x10^6$/unit)	0.32	<1	Pre-washing
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	N/A	N/A	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	< 0.8%	Of red cell mass at the end of shelf life
pH at expiry	N/A	N/A	

Anticoagulant(s)	N/A
Suspension medium	SAGM
Shelf Life	14 days
Availability	24 hours' notice preferred for planned procedures, shorter time for urgent requests. Please see Appendix 7, "Availability of Non-Stock and Special Components", for further information including availability for urgent requests.
Storage	4°C±2°C.
Transport	The component surface temperature must be maintained between 2°C and 10°C during transportation.
CMV status	Available as CMV Negative
Red cell phenotype	Available by arrangement for specific phenotypes.
Additional testing requirement	N/A
Donor Specification	Standard
Additional notes	Residual protein < 0.5 g/unit.

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
0076	a0	46531	3b	

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Red Cells, Washed, LD, Irradiated (Manual Preparation in SAGM)

Component name	Red Cells, Washed, LD, Irradiated (Manual Preparation in SAGM)

Red Book reference	Section 7.3.3

Parameter	NHSBT mean	NHSBT/UK Specification	Note
Volume (mL)	278	220-340	
Haemoglobin (g/unit)	54.2	>40	
Haematocrit (L/L)	0.60	0.50-0.70	
WBC count ($x10^6$/unit)	0.32	<1	Pre-washing
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	N/A	N/A	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	< 0.8%	Of red cell mass at the end of shelf life
pH at expiry	N/A	N/A	

Anticoagulant(s)	N/A
Suspension medium	SAGM
Shelf Life	Following irradiation washed red cells that are suspended in a validated additive solution should be transfused as soon as possible and no later than 5 days after irradiation if irradiated on the day of washing, or 48 hours if irradiated after the day of washing.
Availability	24 hours' notice preferred for planned procedures, shorter time for urgent requests. Please see Appendix 7, "Availability of Non-Stock and Special Components", for further information including availability for urgent requests.
Storage	4°C±2°C.
Transport	The component surface temperature must be maintained between 2°C and 10°C during transportation.
CMV status	Available as CMV Negative
Red cell phenotype	Available
Additional testing requirement	N/A
Donor Specification	Standard
Additional notes	Residual protein < 0.5 g/unit Component must be irradiated within 14 days of donation.

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
G076	a0	46532	3b	

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3. STANDARD PLATELET COMPONENTS – GENERAL INFORMATION

1) Standard Pooled and Apheresis Platelet Components
2) Apheresis Platelets Suspended in Additive Solution (known as 'washed')
3) HLA and HPA Selected Platelets

1) Standard Pooled and Apheresis Platelet Components

Standard platelet components are currently produced via two processes:

- A pool of buffy coat-derived platelets from four whole blood donations, suspended in 30 - 35% plasma and 65 - 70% additive solution or

- An adult therapeutic dose (ATD) obtained from a single donor by apheresis donation, in plasma

Apheresis and pooled platelets are functionally equivalent and can be used interchangeably unless the patient has had a previous history of an allergic response. Pooled platelets are less likely to cause an allergic response due to reduced plasma content compared to apheresis components.

Specific clinical indications[6]: The prevention and treatment of bleeding due to thrombocytopenia or platelet function defects.

Storage and Handling: Store at 22°C ± 2°C with constant gentle agitation in an approved incubator with a temperature recorder and alarm. If agitation is interrupted (e.g. due to equipment failure or prolonged transportation) the components are suitable for use, retaining the same shelf life, provided the interruptions are for no longer than a total of 24 hours and no single interruption lasts for more than eight hours[2].

When in transit (except immediately prior to transfusion), platelets should be kept in a validated and approved container and appropriate records kept in accordance with local procedures.

Platelet components must not be placed in a refrigerator.

Transfusion should ideally be commenced within 30 minutes of removal from the platelet storage incubator. No drugs should be added directly to the unit of platelets.

Shelf life: 7 days if bacteriologically screened, or 5 days if not bacteriologically screened. All platelets that have a 7-day shelf life have been bacteriologically screened in line with quality requirements and guidelines for bacterial screening.

Dosage: One standard adult therapeutic dose (ATD) is either one apheresis donation pack or one pool derived from four buffy coats from whole blood donations. Larger doses may be required in acute bleeding, non-immune refractoriness, Disseminated Intravascular Coagulation (DIC) and Autoimmune thrombocytopenia (AITP.

Compatibility: Platelets of all blood groups (including AB) are manufactured and stocked thus ABO and RhD identical units should be used where possible. ABO identical platelet transfusions lead to higher platelet count increments than ABO mismatched transfusions.

Due to the low frequency of blood group AB within the population, platelet supply is limited and should be requested for AB group patients or patients having ABO mismatched stem cell transplants who still have detectable antibodies against the donor blood group. The EBMT handbook recommends group AB platelets for these transplant patients as first choice.
To protect the blood supply chain, where possible, Group A negative platelets should not be stored as emergency stock. In an emergency where possible transfuse with group specific platelets if available or group A positive platelets if group specific unit(s) are not available, and administer anti-D if the patient is of childbearing potential"

ABO non-identical units may be given, especially at times of shortage or in emergency situations, where no ABO identical platelets are immediately available or when HLA matched platelets are required.
High Titre (HT) negative units are available to reduce the risk of haemolysis from the use of minor ABO mismatched units.

Platelet selection for ABO group

Recipient's group	O	A	B	AB
1st choice	O	A	B	AB*
2nd choice	A or B	AB*	AB*	A or B
3rd choice	AB*	B or O	A or O	O

*Due to low frequency within donor population, supply of AB may be limited.

D negative platelet concentrates should be given to D negative patients where possible, particularly to D negative females of childbearing potential. When D incompatible platelets are required, guidance on anti-D administration can be found in BSH guidelines[7]

Special Requirements

Platelet concentrates should be irradiated prior to transfusion into recipients at risk of transfusion-associated graft versus host disease (TA-GvHD).

Platelet concentrates which are CMV seronegative should be given to recipients at highest risk of CMV disease.. Blood components that are leucodepleted are deemed by many experts to be CMV safe. However, units from donors found to be seronegative for CMV are available.

2) Apheresis Platelets Suspended in Additive Solution

Apheresis Platelets from which most of the plasma has been removed and replaced by platelet additive solution (PAS). Contains platelets (one adult therapeutic dose), minimal plasma and 200 mL platelet additive solution (see Appendix 2). The initial request must be made through a NHSBT consultant. Please allow adequate time for the order to be completed and delivered from Filton, Colindale, and Manchester to the requesting centre.

Specific clinical indications: thrombocytopenic bleeding or prophylaxis in a patient who has a history of recurrent severe allergic reactions to plasma-containing components.

Storage and handling: As in general information except that shelf life is reduced to 24 hours from time of resuspension.

3) HLA and HPA Selected Platelets

These can be selected from platelets in stock or donors may be asked to donate platelets for an individual case following discussion with a H&I consultant in NHSBT.
HLA/HPA selected platelets require 24hrs notice where possible. HPA only platelets are stocked in Filton, Colindale, Tooting, Barnsley, and Manchester and require 24hrs notice where possible.

Specific clinical indication: For prophylaxis or treatment of bleeding in thrombocytopenic patients who are refractory to random platelets due to HLA or HPA alloimmunisation.

N.B. HLA selected platelet concentrates will be irradiated by NHSBT prior to issue.

NHSBT requires feedback on patient platelet increments (using the form issued with the selected platelets) to assess how well the platelets have been matched and inform future selection for the patient.

Specification sheets for PLATELETS

Platelets, Apheresis, LD

Component name	Platelets, Apheresis, LD

Red Book reference	Section 7.4.2

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	217	150-380	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	0.27	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	275	≥240	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	N/A	
pH at expiry	7.0	>6.4	

Anticoagulant(s)	ACD
Suspension medium	Suspended in donor plasma
Shelf Life	7 days
Availability	Stock
Storage	22°C ± 2°C with agitation
Transport	22°C ± 2°C
CMV status	Negative on request
Phenotype	HLA/HPA selected on request
Additional testing requirement	Bacterial screened
Donor Specification	Requirements for apheresis donors
Additional notes	

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
0451	a0	54289	3b	Pack 1
0452	a0	54290	3b	Pack 2
0453	a0	54291	3b	Pack 3
0459	a0	54288	3b	(Single unit)

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Platelets, Apheresis, LD, Irradiated

Component name	Platelets, Apheresis, LD, Irradiated

Red Book reference	Section 7.4.2

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	217	150-380	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	0.27	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	275	≥240	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	N/A	
pH at expiry	7.0	>6.4	

Anticoagulant(s)	ACD
Suspension medium	Suspended in donor plasma
Shelf Life	7 days
Availability	Stock
Storage	22°C ± 2°C with agitation
Transport	22°C ± 2°C
CMV status	Negative on request
Phenotype	HLA/HPA selected on request
Additional testing requirement	Bacterial screened
Donor Specification	Requirements for apheresis donors
Additional notes	

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
G451	a0	54293	3b	Pack 1
G452	a0	54294	3b	Pack 2
G453	a0	54295	3b	Pack 3
G459	a0	54292	3b	(Single unit)

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Platelets Pooled in Additive Solution and Plasma LD

Component name	Platelets Pooled in Additive Solution and Plasma LD

Red Book reference	Section 7.4.3

Parameter	NHSBT mean	NHSBT/UK Specification	Note
Volume (mL)	294	150-380	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	0.38	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	312	≥240	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb (g/unit)	N/A	N/A	
pH at expiry	7.2	>6.4	

Anticoagulant(s)	CPD
Suspension medium	65-70% Platelet Additive Solution / 35 - 30 % plasma
Shelf Life	7 days
Availability	Stock
Storage	22°C ± 2°C with agitation
Transport	22°C ± 2°C
CMV status	Negative on request
Red cell phenotype	N/A
Additional testing requirement	
Donor Specification	Previous donation within last two years
Additional notes	

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
0E83	a0	54477	3b	

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Platelets Pooled in Additive Solution and Plasma, LD, Irradiated

Component name	Platelets Pooled in Additive Solution and Plasma, LD, Irradiated

Red Book reference	Section 7.4.3

Parameter	NHSBT mean	NHSBT/UK Specification	Note
Volume (mL)	294	150-380	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	0.38	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	312	≥240	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb (g/unit)	N/A	N/A	
pH at expiry	7.2	>6.4	

Anticoagulant(s)	CPD
Suspension medium	65-70% Platelet Additive Solution / 30-35 % plasma
Shelf Life	7 days
Availability	Stock
Storage	22°C ± 2°C with agitation
Transport	22°C ± 2°C
CMV status	Negative on request
Red cell phenotype	N/A
Additional testing requirement	
Donor Specification	Previous donation within last two years
Additional notes	

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
GE83	a0	54478	3b	

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Platelets Apheresis in Additive Solution LD

Component name	Platelets Apheresis in Additive Solution LD

Red Book reference	Section 7.4.4

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	207	150-350	mL/Unit
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	0.27	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	254	>200	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	N/A	
pH at expiry	7.0	>6.4	

Anticoagulant(s)	ACD
Suspension medium	Platelet Additive Solution
Shelf Life	24 hours from time of preparation
Availability	By special order only. 24 hours' notice preferred for planned procedures, shorter time for urgent requests. Please see Appendix 7, "Availability of Non-Stock and Special Components", for further information including availability for urgent requests.
Storage	22°C ± 2°C with agitation
Transport	22°C ± 2°C
CMV status	Negative on request
Phenotype	HLA/HPA selected on request
Additional testing requirement	
Donor Specification	Requirements for apheresis donors
Additional notes	This component is re-suspended in platelet additive solution and commonly referred to as 'washed platelets'.

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
0421	a0	54243	3b	Pack 1
0422	a0	54244	3b	Pack 2
0423	a0	54245	3b	Pack 3
0429	a0	54246	3b	(Single unit)

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Platelets Apheresis in Additive Solution LD, Irradiated

Component name	Platelets Apheresis in Additive Solution LD, Irradiated

Red Book reference	Section 7.4.4

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	207	150-350	mL/Unit
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	0.27	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	254	>200	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	N/A	
pH at expiry	7.0	>6.4	

Anticoagulant(s)	ACD
Suspension medium	Platelet Additive Solution
Shelf Life	24 hours from time of preparation
Availability	By special order only. 24 hours' notice preferred for planned procedures, shorter time for urgent requests. Please see Appendix 7, "Availability of Non-Stock and Special Components", for further information including availability for urgent requests.
Storage	22°C ± 2°C with agitation
Transport	22°C ± 2°C
CMV status	Negative on request
Phenotype	HLA/HPA selected on request
Additional testing requirement	
Donor Specification	Requirements for apheresis donors
Additional notes	This component is re-suspended in platelet additive solution and commonly referred to as 'washed platelets'.

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
G421	a0	54233	3b	Pack 1
G422	a0	54234	3b	Pack 2
G423	a0	54235	3b	Pack 3
G429	a0	54236	3b	(Single unit)

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4. PLASMA COMPONENTS - GENERAL INFORMATION

1) Fresh Frozen Plasma (FFP)
2) Fresh Frozen plasma, IgA Deficient
3) Cryoprecipitate

1) Fresh Frozen Plasma (FFP)

UK Plasma is obtained from whole blood or apheresis from male donors and frozen to maintain activity of labile coagulation factors.

2) Fresh Frozen Plasma, IgA deficient

UK Plasma that has been screened for IgA deficiency and then prepared in the same way as ordinary FFP. This plasma is only available in two centres in the UK (Colindale and Barnsley) and adequate time must be given to transport it to the required location. It is used for patients who have IgA antibodies and have had severe transfusion reactions in the past.

Clinical Indications[8]

Administration

Once thawed the unit should be transfused within 4 hours if stored at ambient temperature. If thawed and not required immediately, units of standard FFP may be stored at 4°C ± 2°C up to a maximum of 120 hours depending on indication. For indications other than unexpected major haemorrhage, the component should be used within 24 hours of thawing, in accordance with BSH guidelines.[6]

No drugs should be added directly to the unit of FFP.

Storage and Handling of Frozen Plasma Components

Store at or below core temperature of –25° C for up to 36 months.
Handle frozen packs with care, as plastic is brittle at storage temperature.

Thawing: Frozen plasma components should be thawed under controlled conditions which have been fully validated. This may vary from 33-37ºC depending on the thawing device.

It is recommended that one of the following methods is used:
- Water baths at 37ºC with an integral barrier between the water and the FFP unit.
- Dry ovens specifically designed for thawing frozen plasma components.
- Microwave ovens specifically designed for thawing frozen plasma components.
- Any other technology that has been fully validated for this purpose.

Standard water baths may be used but it is recommended that the vacuum-sealed overwrap is kept in position and not removed prior to thawing. The water bath should be used solely for thawing plasma and the water changed daily with clean laboratory grade water.

After thawing the component pack should be examined carefully for leaks or damage, unusual colour, turbidity or clumping of the contents. Thawed plasma components must **not** be re-frozen.

Compatibility

FFP of the same ABO group as the recipient should be used as far as possible. If ABO identical FFP is not available, then FFP of another group can be given if hight titre negative as directed in the table below.

Group AB FFP is routinely stocked but due to low frequency of group AB in the population, supply is limited. Group A, HT neg FFP should be considered as suitable for use in Adult MHP (Major Haemorrhage Protocols), pre hospital care and for hospital trauma cases where the patient blood group is yet to be established.

FFP selection for ABO group

Recipient's group	**O**	**A**	**B**	**AB**
High titre (HT) positive, or HT untested units*				
1st choice	O	A	B	AB
2nd choice	A	AB	AB	A†
3rd choice	B	B†	A†	B†
4th choice	AB	-	-	-
HT negative*				
1st choice	O	A	B	AB
2nd choice	A	B	A	A
3rd choice	B	AB	AB	B
4th choice	AB	-	-	-

* Group O must only be given to group O recipients

† Only suitable for emergency use in adults

Ref: Table 3 Green L et. Al. British Journal of Haematology, 2018,181,54–67

FFP D Compatibility

FFP does NOT need to be D status matched. D positive plasma components may be given to any D negative individual and no anti-D prophylaxis needs be given in this situation[7]. The EU Blood Directive currently requires that the D status is stated on the label.

Special Requirements

There have been no case reports of FFP transfusion-associated graft versus host disease (TA-GvHD). FFP does NOT need to be irradiated.

FFP is not known to have transmitted CMV or HTLV.

Cryoprecipitate

Cryoprecipitate consists of the cryoglobulin fraction of plasma containing the major portion of Factor VIII and fibrinogen. It is obtained by thawing a single donation of FFP at 4°C ± 2°C resulting in the formation of the cryoprecipitate. Following centrifugation, the supernatant plasma is removed, and the cryoprecipitate is then rapidly frozen to ≤-25°C. It is available pools of 5.

Clinical Indications

Bleeding associated with hypofibrinogenemia (<1g/litre) and congenital or acquired dysfibrinogenaemia.

Dose

A single unit contains approximately 400 - 460mg fibrinogen. The adult therapeutic dose is two pools of five, dependent on the degree of fibrinogen deficiency.

Response should be monitored by repeat coagulation tests.

Administration

Once thawed, the component should be used immediately. If delay is unavoidable, the component should be stored at ambient temperature and used within four hours. Thawed plasma components must **not** be re-frozen.

The transfusion must be completed as soon as possible and within 4 hrs of thawing.
No drugs should be added directly to the unit of cryoprecipitate.

Compatibility

Should be ABO compatible. Group AB cryo may be available but is not routinely stocked due to low frequency of group AB in the population. Group A or B, HT neg cryo should be considered a suitable alternative.

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Cryo selection for ABO group

Recipient's group	**O**	**A**	**B**	**AB**
1st choice	O	A	B	**AB
2nd choice	A	*B	*A	*A
3rd choice	B	**AB	**AB	*B

*Only suitable for emergency use in adults if unit is tested and found to negative for high titre ABO antibodies. **Group AB cryo may be available but is not routinely stocked due to low frequency of group AB in the population. Group A or B, HT neg cryo should be considered a suitable alternative. NB. these group selections are for standard cryo. Group O cryo *MUST* only be given to O recipients.

Cryoprecipitate D Compatibility

Cryoprecipitate does NOT need to be D status matched. D positive plasma components may be given to any D negative individual and no anti-D prophylaxis needs be given in this situation[7]. The EU Blood Directive currently requires that the D status is stated on the label.[7]

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Specification sheets for FROZEN PLASMA COMPONENTS

Fresh Frozen Plasma, LD

Component name	Fresh Frozen Plasma, LD

Red Book reference	Section 7.5.1

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	264	200-340	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	0.25	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	N/A	N/A	
Factor VIIIc (IU/mL)	0.89	≥0.7	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	N/A	
pH at expiry	N/A	N/A	

Anticoagulant(s)	CPD or ACD
Suspension medium	N/A
Shelf Life	36 months. Once thawed use up to a maximum of 120 hours if stored at 4°C ± 2°C depending on the indication
Availability	Stock
Storage	< -25 °C
Transport	< -25 °C
CMV status	N/A
Red cell phenotype	N/A
Additional testing requirement	
Donor Specification	From male donors only
Additional notes	Do not re-freeze

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
LF15	a0	18300	3b	(Whole blood)
L553	a0	18320	3b	(Single unit)
L554	a0	18321	3b	Pack 1
L555	a0	18322	3b	Pack 2

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Cryoprecipitate Pooled, LD

Component name	Cryoprecipitate Pooled, LD

Red Book reference	Section 7.5.4

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	229	100-250	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	N/A	<1	Primary process monitored
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	N/A	N/A	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	467	>350	
Fibrinogen (mg/unit)	1549	>700	
Supernatant Hb	N/A	N/A	
pH at expiry	N/A	N/A	

Anticoagulant(s)	CPD or ACD
Suspension medium	N/A
Shelf Life	36 months. Once thawed use within 4hrs.
Availability	Stock. Group AB available on a named patient basis only
Storage	< -25 °C
Transport	< -25 °C
CMV status	N/A
Red cell phenotype	N/A
Additional testing requirement	
Donor Specification	From male donors only
Additional notes	Pooled from 5 donations Once thawed do not refrigerate Do not re-freeze

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
L571	a0	10190	3b	

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5. COMPONENTS FOR INTRAUTERINE, NEONATAL, AND INFANT USE <1 YEAR- GENERAL INFORMATION

1) Red cells for Intrauterine Transfusion (known as IUT)
2) Red Cells for Neonatal Exchange Transfusion
3) Red Cells in Additive Solution for Neonatal and Infant Use (small volume split units)
4) Red cells in Additive Solution for Neonates and Infants (large volume units, known as LVT)
5) Platelets Hyperconcentrated for Intrauterine Transfusion
6) Platelets in Plasma and Additive Solution for Neonatal and Infant Use
7) Fresh Frozen Plasma / Cryoprecipitate for Neonatal and Infant Use

General principles

Suitable for neonates and infants less than one year of age. The term 'neonate' applies to an infant up to 28 days of postnatal age.

NOTE: due to space constraints on printed blood component labels, the word 'neonate' on the labels is used to refer to neonates and infants less than one year of age

Components for transfusion *in utero* or to infants under one year of age are prepared from blood donated by previously tested donors who have given at least one previous donation within the past two years, which was negative for all mandatory microbiological markers.[2]

NHSBT provides neonates and infants with components of lower volume (small volume split units) by dividing standard sized components into aliquots. This reduces wastage and provides the potential to limit donor exposure. Each aliquot is uniquely identified to help ensure traceability.

Large volume units with neonatal/infant specification may be used for large volume transfusions to neonates and infants or for top-up transfusions for larger infants[9]

All components provided for fetal, neonatal, and infant transfusion up to one year are free from clinically significant irregular blood group antibodies including high titre anti-A and B, CMV negative, HEV negative, K-negative (for red cells, unless maternal anti-k (cellano) is present, when k-negative must be provided), leucodepleted and may need to be irradiated. See relevant section below.

For further information on transfusion of fetal and neonatal recipients see the BCSH guidelines[9].

Component Availability

Standard neonatal/infant components are routinely stocked in Hospital Services (HS) departments, but ABO and D availability will vary with demand in each area.

For intrauterine transfusion (IUT), 24 hours' notice is preferred for planned procedures (for urgent requests 4 hours' notice is required, or 6 hours outside of normal working hours). For neonatal exchange units, O rr or O R1R1 are a limited stock item (requiring some minimal processing and irradiation prior to issue) but extended phenotyped units require a minimum of 24 hours' notice. As much notice as possible is appreciated to source units of other phenotypes, including allowing time for them to be transported from another centre if not available at the centre that normally serves the hospital. Where specified, certain components should be used within a specified timeframe, e.g. 'before the end of day 5' - the collection day being day 0.

Red cell components for IUT, neonatal exchange transfusion, and neonatal/infant large volume transfusion are made from blood donations that are processed on day 0 (i.e. not stored at ambient temperature up to 24 hours before processing as for other red cells).

Large volume transfusion (LVT) units are stocked according to demand, currently at Birmingham, Tooting, Colindale, Manchester, Barnsley, Liverpool, Southampton, and Newcastle. LVT units should be used before the end of day 5 if used for large volume transfusion, whereas if LVT units are used for top-up transfusions for larger infants within hospital settings, the shelf-life is 35 days.

Any questions or queries regarding orders, please contact your HS manager or department. For any other problems contact your Customer Services manager.

In emergency cases, please discuss your requirements with HS to inform them of the urgency of your requirement and obtain an estimated delivery time. HS can connect you to a NHSBT consultant for further advice if required.

1. Red Cells for Intrauterine Transfusion (IUT)

This procedure is carried out in specialised centres only, and the requirements for blood components are agreed in close consultation between the Fetal Medicine Unit, Consultant Haematologist and Blood Centre.

Red cells for IUT are:
- Preferably but not solely, from a male donor
- Group O or ABO identical with the foetus, and D negative in most cases; negative for the relevant antigen(s) determined by maternal antibody status, and indirect antiglobulin technique (IAT) crossmatch compatible with maternal serum
- K negative except if the infant is suffering from HDN due to anti-k
- In CPD-anticoagulated plasma, with no SAG-M additive solution
- Used within five days of donation i.e. before the end of day 5
- Free from clinically significant red cell antibodies (tested by IAT) and HT negative
- CMV antibody negative
- HbS negative
- Irradiated (and must be used within 24 hours of irradiation)
- Leucocyte depleted

The haematocrit should be agreed with the Foetal Medicine Consultant, but 0.70 - 0.85 L/L is recommended.

2. Red Cells for Neonatal Exchange Transfusion

Red cells for exchange transfusion are:
- From a male donor
- Group O (or ABO compatible with maternal and neonatal plasma), D negative (or D identical with neonate); negative for red cell antigens to which the mother has antibodies; IAT crossmatch compatible with maternal plasma
- K negative except if the infant is suffering from HDN due to anti-k
- In CPD-anticoagulated plasma, with no SAG-M additive solution
- NHSBT Hct 0.50 – 0.55
- Used within five days of donation i.e. before the end of day 5
- Free from clinically significant red cell antibodies (tested by IAT) and HT negative
- CMV antibody negative
- HbS negative
- Irradiated on issue (and must be used within 24 hours of irradiation)
- Leucocyte depleted

3. Red Cells in Additive Solution for Neonates and Infants Suitable for Large Volume Transfusions other than Exchange Transfusions (Commonly Known as 'LVT's)

Large volume red cell transfusion (LVT) may be required by neonates and infants undergoing cardiac surgery, extracorporeal membrane oxygenation (ECMO), and other surgeries such as craniofacial surgery. 'Large volume transfusion' is typically equivalent to at least a single circulating blood volume (approx. 80mL/kg for neonates) over 24 hours or 50% of the circulating volume within 3 hours[9]. These components may also be used for small volume top-up transfusion for larger infants.

Red cells for non-exchange large-volume transfusion should be:

- From a male donor where possible
- Provided in all blood groups
- ABO and D compatible with the neonate/infant (and with maternal ABO and D-group for neonates and infants less than 4 months of age)
- K negative except if the infant is suffering from HDN due to anti-k
- In 105 mL SAG-M additive solution (containing only a small volume of plasma, approx. 20ml)
- Hct approx. 0.5 – 0.7
- Used in accordance with BSH guidelines[10] if the intended use is for large volume transfusion of neonates and infants (i.e. used before the end of day 5, collection date classed as being day 0)
- Free from clinically significant red cell antibodies (tested by IAT) and HT negative
- CMV antibody negative
- HbS negative
- If irradiated and intended use is for large volume transfusion of neonates and infants, must be used within 24 hours of irradiation
- If used for small volume top-up transfusion for larger infants, may be used up to end of 35-day shelf-life (14 days post irradiation)

4. Neonatal Top-up Transfusions for Foetal and Neonatal Infants

Red cells are provided as small volume split units for top-up transfusions for neonates and smaller infants and are of neonatal/infant specification, processed as for adult transfusion in SAGM (additive solution) after overnight hold, and may be used at any time up to their 35-day expiry for a top-up transfusion. They are provided in small volume aliquots each identified by a unique number.

5. Platelet Transfusion

The specification for neonatal and infant platelets was revised in January 2020 to improve component quality. Please review the new specification on page 44 and 45.

Platelets for fetal, neonatal, and infant use are free from clinically significant irregular blood group antibodies including high titre anti-A and B and are CMV and HEV negative. They should be ABO and D identical or compatible with recipient. They are prepared by splitting a full-sized apheresis unit into smaller units. Each unit typically contains 60 – 70 x 10^9 platelets in 50 mL plasma.

The required blood group should be specified when ordering, allowing at least 6 hours processing and transit time. All Hospital Services departments routinely stock A rr or O rr (HT negative) for immediate use, and some stock other groups determined by demand pattern.

Neonates with neonatal alloimmune thrombocytopenia (NAIT), should have platelets negative for HPA–1a and –5b. These are available on request, from national stock.

All platelets that have a 7-day shelf life have been bacteriologically screened.

6. Platelets for Intrauterine Transfusion (IUT)

A hyperconcentrated apheresis platelet component is provided for intra-uterine transfusion of fetuses at risk of thrombocytopenic bleeding, usually due to maternal alloimmunisation to Human Platelet Antigens. Platelets are supplied from HPA-1a, -5b neg donors (or as indicated) as a hyperconcentrate to minimise volume load and maximise platelet content.

Request is by special order following discussion with the consultant in H&I, requiring several days' notice, usually 7 days in advance, to enable the right donor to be contacted and bled.

7. Fresh Frozen Plasma / Cryoprecipitate for Neonatal Use

FFP and cryoprecipitate for neonatal and infant use are UK-sourced components with specifications suitable for neonates and infants under one year of age: manufactured from known donors, paediatric antibody specification (PANTS) tested and High Titre (anti A and anti B) antibody negative. These specifications are described in JPAC's 'Guidelines for the Blood Transfusion Services'. The component labels say 'for neonatal use' due to space constraints. Recipients over one year old should receive standard UK FFP and cryoprecipitate.

Specification sheets for FOETAL/NEONATAL BLOOD COMPONENTS

Red Cells for Intra-uterine Transfusion, LD, Irradiated

Component name	Red Cells for Intra-uterine Transfusion, LD, Irradiated

Red Book reference	Section 7.7.1

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	251	150-320	
Haemoglobin (g/unit)	62.2	>40	
Haematocrit (L/L)	0.76	0.70 - 0.85	
WBC count ($x10^6$/unit)	0.32	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	N/A	N/A	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	<0.8%	Of red cell mass
pH at expiry	N/A	N/A	

Anticoagulant(s)	CPD
Suspension medium	N/A
Shelf Life	24 hours from time of irradiation and within 5 days of donation.
Availability	24 hours' notice preferred for planned procedures, shorter time for urgent requests. Please see Appendix 7, "Availability of Non-Stock and Special Components", for further information including availability for urgent requests.
Storage	4°C ± 2°C.
Transport	The component surface temperature must be maintained between 2°C and 10°C during transportation.
CMV status	Negative
Red cell phenotype	K antigen negative. Other antigen profiles by request including k (cellano) negative.
Additional testing requirement	The component should be free from clinically significant irregular blood group antibodies including high titre anti-A and anti-B. An additional indirect antiglobulin test is used to screen for clinically significant antibodies in the provision of foetal/neonatal/infant specification units (PANTS negative). CMV and HbS negative.
Donor Specification	Previous donation within the last two years. Ideally male donor.
Additional notes	**Blood for IUT must be irradiated**

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
GY35	a0	40018	3b	(CPD)

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Red Cells in Additive Solution, LD For Neonatal and Infant Use (small volume split units)

Component name	Red Cells in Additive Solution, LD For Neonatal Use

Red Book reference	Section 7.7.5

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	47	36-66	
Haemoglobin (g/unit)	9.0	>7	
Haematocrit (L/L)	0.58	0.50-0.70	
WBC count ($x10^6$/unit)	< 0.1	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	N/A	N/A	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	<0.8%	Of red cell mass
pH at expiry	N/A	N/A	

Anticoagulant(s)	CPD
Suspension medium	SAG-M
Shelf Life	35 days
Availability	Group O neg stock item. Please see Appendix 7, “Availability of Non-Stock and Special Components”, for further information including availability for urgent requests.
Storage	4°C±2°C.
Transport	The component surface temperature must be maintained between 2°C and 10°C during transportation.
CMV status	Negative
Red cell phenotype	K antigen negative Other antigen profiles by request including k (cellano) negative
Additional testing requirement	The component should be free from clinically significant irregular blood group antibodies including high titre anti-A and anti-B. An additional indirect antiglobulin test is used to screen for clinically significant antibodies in the provision of neonatal/infant specification units (PANTS negative). CMV and HbS negative.
Donor Specification	Previous donation within the last two years
Additional notes	Contact Hospital Services to obtain the exact volume of the split units to help with ordering the required amount for transfusion.

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
0B21	a0	56830	3b	Pack 1
0B22	a0	56831	3b	Pack 2
0B23	a0	56832	3b	Pack 3
0B24	a0	56833	3b	Pack 4
0B25	a0	56834	3b	Pack 5
0B26	a0	56835	3b	Pack 6

Red Cells in Additive Solution, LD Irradiated, For Neonatal and Infant Use (small volume split units)

Component name	Red Cells in Additive Solution, LD Irradiated, For Neonatal Use

Red Book reference	Section 7.7.5

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	47	36-66	
Haemoglobin (g/unit)	9.0	>7	
Haematocrit (L/L)	0.58	0.50-0.70	
WBC count ($x10^6$/unit)	< 0.1	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	N/A	N/A	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	<0.8%	Of red cell mass
pH at expiry	N/A	N/A	

Anticoagulant(s)	CPD
Suspension medium	SAG-M
Shelf Life	14 days from time of irradiation
Availability	Group O neg stock item. Please see Appendix 7, “Availability of Non-Stock and Special Components”, for further information and availability for urgent requests.
Storage	4°C±2°C.
Transport	The component surface temperature must be maintained between 2°C and 10°C during transportation.
CMV status	Negative
Red cell phenotype	K antigen negative Other antigen profiles by request including k (cellano) negative
Additional testing requirement	The component should be free from clinically significant irregular blood group antibodies including high titre anti-A and anti-B. An additional indirect antiglobulin test is used to screen for clinically significant antibodies in the provision of neonatal/infant specification units (PANTS negative). CMV and HbS negative.
Donor Specification	Previous donation within the last two years.
Additional notes	Contact Hospital Services to obtain the exact volume of the split units to help with ordering the required amount for transfusion.

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
GB21	a0	46830	3b	Pack 1
GB22	a0	46831	3b	Pack 2
GB23	a0	46832	3b	Pack 3
GB24	a0	46833	3b	Pack 4
GB25	a0	46834	3b	Pack 5
GB26	a0	46835	3b	Pack 6

Red Cells (CPD), LD, Irradiated for Neonatal Exchange Transfusion

Component name	Red Cells (CPD), LD, Irradiated for Neonatal Exchange Transfusion

Red Book reference	Section 7.7.3

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	362	220-395	
Haemoglobin (g/unit)	63.4	>40	
Haematocrit (L/L)	0.52	0.50 – 0.55	
WBC count ($x10^6$/unit)	0.43	< 1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	N/A	N/A	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	<0.8%	Of red cell mass
pH at expiry	N/A	N/A	

Anticoagulant(s)	CPD
Suspension medium	N/A
Shelf Life	24 hours from time of irradiation and before the end of day 5.
Availability	Limited stock item (group O rr and O R1R1). Up to 24 hours' notice preferred for other phenotypes. Please see Appendix 7, "Availability of Non-Stock and Special Components", for further information including availability for urgent requests.
Storage	4°C±2°C.
Transport	The component surface temperature must be maintained between 2°C and 10°C during transportation.
CMV status	Negative
Red cell phenotype	K antigen negative Other antigen profiles by request including k (cellano) negative.
Additional testing requirement	The component should be free from clinically significant irregular blood group antibodies including high titre anti-A and anti-B. An additional indirect antiglobulin test is used to screen for clinically significant antibodies in the provision of foetal/neonatal/infant specification units (PANTS negative). CMV and HbS negative.
Donor Specification	Previous donation within the last two years. Male donor
Additional notes	

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
GX22	a0	40350	3b	(CPD)

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Red Cells in Additive Solution, LD for Neonates and Infants (large volume 'LVT' units)

Component name	Red Cells in Additive Solution, LD for Neonates, and Infants

Red Book reference	Section 7.7.5

Parameter	NHSBT mean	NHSBT/UK Specification	Note
Volume (mL)	289	220-340	
Haemoglobin (g/unit)	55.0	>40	
Haematocrit (L/L)	0.57	0.50-0.70	
WBC count ($x10^6$/unit)	0.32	< 1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	N/A	N/A	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	<0.8%	Of red cell mass
pH at expiry	N/A	N/A	

Anticoagulant(s)	CPD
Suspension medium	SAG-M
Shelf Life	35 days. Users are referred to BCSH guidelines on transfusion for fetuses, neonates, and older children (2016)[10] if the intended use is for large volume transfusion to neonates and infants: for this situation use before the end of day 5.
Availability	Stock at certain sites. Please see Appendix 7, "Availability of Non-Stock and Special Components", for further information including availability for urgent requests.
Storage	4°C±2°C.
Transport	The component surface temperature must be maintained between 2°C and 10°C during transportation.
CMV status	Negative
Red cell phenotype	K antigen negative. Other phenotypes may require 24 hours' notice.
Additional testing requirement	The component should be free from clinically significant irregular blood group antibodies including high titre anti-A and anti-B. An additional indirect antiglobulin test is used to screen for clinically significant alloantibodies in the provision of neonatal/infant specification units (PANTS negative). CMV and HbS negative
Donor Specification	Previous donation within the last 2 years. Male donor where possible.
Additional notes	Commonly known as LVTs (Large Volume Transfusion) units.

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
0X25	a0	54481	3b	

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Red Cells in Additive Solution, LD for Neonates and Infants (large volume 'LVT' units), Irradiated

Component name	Red Cells in Additive Solution, LD for Neonates, and Infants, Irradiated

Red Book reference	Section 7.7.5

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	289	220-340	
Haemoglobin (g/unit)	55.0	>40	
Haematocrit (L/L)	0.57	0.50-0.70	
WBC count ($x10^6$/unit)	0.32	< 1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	N/A	N/A	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	<0.8%	Of red cell mass
pH at expiry	N/A	N/A	

Anticoagulant(s)	CPD
Suspension medium	SAG-M
Shelf Life	14 days. Users are referred to BCSH guidelines on transfusion for fetuses, neonates, and older children (2016)[9] if the intended use is for large volume transfusion to neonates and infants: for this situation use before the end of day 5 and within 24 hours from time of irradiation.
Availability	Stock at certain sites. Please see Appendix 7, "Availability of Non-Stock and Special Components", for further information including availability for urgent requests.
Storage	4°C±2°C.
Transport	The component surface temperature must be maintained between 2°C and 10°C during transportation.
CMV status	Negative
Red cell phenotype	K antigen negative. Other phenotypes may require 24 hours' notice
Additional testing requirement	The component should be free from clinically significant irregular blood group antibodies including high titre anti-A and anti-B. An additional indirect antiglobulin test is used to screen for clinically significant alloantibodies in the provision of neonatal/infant specification units (PANTS negative). CMV and HbS negative.
Donor Specification	Previous donation within the last two years. Male donor where possible
Additional notes	Commonly known as LVTs (Large Volume Transfusion) units.

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
GX25	a0	54482	3b	

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Platelets, Hyperconcentrated, LD for Intra-uterine Transfusion Irradiated

Component name	Platelets, Hyperconcentrated, LD for Intra-uterine Transfusion, Irradiated

Red Book reference	Section 7.7.6

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	96	50-100	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	0.17	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	2821	2000 –4000	
Platelet yield ($x10^9$/unit)	N/A	N/A	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	N/A	
pH at expiry	N/A	>6.4	

Anticoagulant(s)	ACD
Suspension medium	N/A
Shelf Life	24 hours from time of preparation
Availability	By special order only following discussion with NHSBT Consultant. Up to 7 days' notice required. Please see Appendix 7, "Availability of Non-Stock and Special Components", for further information including availability for urgent requests.
Storage	22°C ± 2°C with agitation
Transport	22°C ± 2°C
CMV status	Negative
Red cell phenotype	N/A
Additional testing requirement	The component should be free from clinically significant irregular blood group antibodies including high titre anti-A and anti-B. CMV negative.
Donor Specification	Previous donation within the last two years.
Additional notes	These will be from donors who are HPA 1a, 5b negative. This component is irradiated.

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
GN81	a0	42964	3b	

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Platelets in Plasma and Additive Solution, LD for Neonatal and Infant Use

Component name	Platelets in Plasma and Additive Solution, LD for Neonatal Use

Red Book reference	Section 7.7.8

Parameter	NHSBT mean	NHSBT/UK Specification	Note
Volume (mL)	63	45-95	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	< 0.1	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet conc. ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	62	>40	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb (g/unit)	N/A	N/A	
pH at expiry	7.2	>6.4	

Anticoagulant(s)	ACD
Suspension medium	Plasma and 20% additive solution (SSP+)
Shelf Life	7 days
Availability	Arr (or Orr) HT neg available as stock. Other groups are available, please see appendix 7 'Availability of Non-Stock and Special Components'.
Storage	22°C ± 2°C with agitation
Transport	22°C ± 2°C
CMV status	Negative
Red cell phenotype	N/A
Additional testing requirement	The component should be free from clinically significant irregular blood group antibodies including high titre anti-A and anti-B. Bacteriologically screened. CMV negative.
Donor Specification	Previous donation within the last two years. Ideally male donor. From apheresis donations.
Additional notes	

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
0S11	a0	30031	3b	Pack 1
0S12	a0	30032	3b	Pack 2
0S13	a0	30033	3b	Pack 3
0S14	a0	30034	3b	Pack 4
0S15	a0	30035	3b	Pack 5
0S16	a0	30036	3b	Pack 6
0S17	a0	30037	3b	Pack 7
0S18	a0	30038	3b	Pack 8

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Platelets in Plasma and Additive Solution, LD Irradiated for Neonatal and Infant Use

Component name	Platelets in Plasma and Additive Solution, LD Irradiated, for Neonatal Use

Red Book reference	Section 7.7.8

Parameter	NHSBT mean	NHSBT/UK Specification	Note
Volume (mL)	63	45-95	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	< 0.1	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet conc. ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	62	>40	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb (g/unit)	N/A	N/A	
pH at expiry	7.2	>6.4	

Anticoagulant(s)	ACD
Suspension medium	Plasma and 20% additive solution (SSP+)
Shelf Life	7 days
Availability	Arr (or Orr) HT neg available as stock. Other groups are available, please see appendix 7 'Availability of Non-Stock and Special Components'.
Storage	22°C ± 2°C with agitation
Transport	22°C ± 2°C
CMV status	Negative
Red cell phenotype	N/A
Additional testing requirement	The component should be free from clinically significant irregular blood group antibodies including high titre anti-A and anti-B. Bacteriologically screened. CMV negative.
Donor Specification	Previous donation within the last two years. Ideally male donor. From apheresis donations.
Additional notes	

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
GS11	a0	30051	3b	Pack 1
GS12	a0	30052	3b	Pack 2
GS13	a0	30053	3b	Pack 3
GS14	a0	30054	3b	Pack 4
GS15	a0	30055	3b	Pack 5
GS16	a0	30056	3b	Pack 6
GS17	a0	30057	3b	Pack 7
GS18	a0	30058	3b	Pack 8

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Fresh Frozen Plasma, LD for Neonatal Use

Component name	Fresh Frozen Plasma, LD for Neonatal and Infant Use

Red Book reference	Section 7.7.9

Parameter	NHSBT mean	NHSBT/UK Specification	Note
Volume (mL)	65	50-75	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	N/A	N/A	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet conc. ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	N/A	N/A	
Factor VIIIc (IU/mL)	0.95	≥ 0.70	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb (g/unit)	N/A	N/A	
pH at expiry	N/A	N/A	

Anticoagulant(s)	CPD or ACD
Suspension medium	N/A
Shelf Life	36 months. Once thawed use within 4 hours if held within 20-24°C or 24 hours if held within 2-6 +/-2 °C.
Availability	Stock
Storage	< -25 °C
Transport	< -25 °C
CMV status	N/A
Red cell phenotype	N/A
Additional testing requirement	The component should be free from clinically significant irregular blood group antibodies including high titre anti-A and anti-B.
Donor Specification	Previous donation within the last two years. From male donors only
Additional notes	Do not re-freeze

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
LP81	a0	69601	3b	Pack 1
LP82	a0	69602	3b	Pack 2
LP83	a0	69603	3b	Pack 3
LP84	a0	69604	3b	Pack 4
LP85	a0	59711	3b	Pack 5
LP86	a0	59712	3b	Pack 6
LP87	a0	59713	3b	Pack 7
LP88	a0	59714	3b	Pack 8
LP89	a0	59715	3b	Pack 9
LP91	a0	59716	3b	Pack 10
LP92	a0	59717	3b	Pack 11
LP93	a0	59718	3b	Pack 12

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Cryoprecipitate, LD for Neonatal Use

Component name	Cryoprecipitate, LD for Neonatal and Infant Use

Red Book reference	Section 7.5.3

Parameter	NHSBT mean	NHSBT/UK Specification	Note
Volume (mL)	53	20-60	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	N/A	N/A	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet conc. ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	N/A	N/A	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	126	70	
Fibrinogen (mg/unit)	414	140	
Supernatant Hb (g/unit)	N/A	N/A	
pH at expiry	N/A	N/A	

Anticoagulant(s)	CPD or ACD
Suspension medium	N/A
Shelf Life	36 months. Once thawed use immediately. If delay is unavoidable the component should be stored at ambient temperature and used within 4 hours.
Availability	Stock
Storage	< -25 °C
Transport	< -25 °C
CMV status	N/A
Red cell phenotype	N/A
Additional testing requirement	The component should be free from clinically significant irregular blood group antibodies including high titre anti-A and anti-B.
Donor Specification	Previous donation within the last two years. From male donors only
Additional notes	Do not re-freeze

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
L534	a0	29981	3b	

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6. GRANULOCYTE COMPONENTS – GENERAL INFORMATION

Granulocyte transfusions can be used as supportive therapy in patients with (or who are at high risk of developing) life-threatening bacterial or fungal infection secondary to neutropenia caused by bone marrow failure or neutrophil dysfunction. Their use is not without the risk of significant adverse effects. Careful assessment of the relative risks versus benefits should therefore be undertaken before prescribing these components. **Requests must be discussed with a NHSBT consultant.**

As there are 20 donations per adult dose of granulocytes and often given for repeated doses over weeks, the chance of one donor being infected with parvovirus during high incidence seasons is reasonably high. The risks of infection in those who are heavily immune suppressed are red cell aplasia, rash and fever although atypical infection such as myelitis can occur. Treating consultants take this into consideration when initiating a patient on granulocytes.

Granulocytes are supplied by NHSBT:

Pooled Granulocytes are derived from the buffy coat layer of whole blood donations. They are manufactured by pooling 10 packs of 'Leucocytes, Buffy Coat' removing red cells and plasma, resuspending in SSP+ (platelet additive solution) and the plasma from one of the male donors. These have advantages of having a smaller volume, less red cell contamination than buffy coats and being similar to an apheresis granulocyte collection.

A standard adult dose is two pools (derived from 20 donations), providing a dose of around 2 x 10^{10} which is considered to be an effective daily dose.
Children should receive 10-20mL/kg (usually 1 pool).

Storage and handling

Granulocytes are irradiated prior to issue and expire at midnight following the day of donation. Storage is at 22 ± 2 ºC without agitation.

Compatibility, Special Requirements and Granulocyte Selection

See INF276 Clinical Guidelines for the use of Granulocyte Transfusions which is available under clinical guidelines on the NHSBT Hospitals and Science website.

Pooled Granulocytes can only be supplied Tuesday to Saturday **during normal working weeks**.
They are not routinely available on Sundays, Mondays, Bank Holidays, and the day after a Bank Holiday, however a limited supply of Pooled Granulocytes are available on Mondays. If a Bank Holiday follows a standard working day (for example Good Friday) or follows a day with a high intake of blood donations, NHSBT may be able to manufacture a pooled granulocyte. Production cannot be guaranteed, and availability will be advised on a case-by-case basis.
In the event of any supply issues or urgent emergency requirements, NHSBT may need to provide single buffy coats as a contingency. This would require NHSBT consultant approval.

Further information is available in 'Clinical guidelines for the use of granulocyte transfusions' and in the JPAC position statement/change notification[10].

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Specification sheet for GRANULOCYTES

Granulocytes, Pooled in Additive Solution / Plasma Mix, Irradiated

Component name	Granulocytes, Pooled in Additive Solution / Plasma Mix, Irradiated

Red Book reference	Section 7.6.1

Parameter	NHSBT mean	NHSBT/UK Specification	Note
Volume (mL)	222 (± 6)	175-250	± 6 SD
Haemoglobin (g/unit)	16	N/A	
Red Cells(10^{12}/U)	0.57	N/A	Red Cells not routinely measured, figure from validation data.
Haematocrit (L/L)	0.23	N/A	
WBC count (x10^6/unit)	NA	NA	
Granulocytes (x 10^9/unit)	9	>5	
Platelet concentration (x10^9/L)	2282		See below
Platelet yield (x10^9/unit)	507 (± 83 SD)		Platelet transfusion requirements will be significantly reduced in the recipients of pooled buffy coats (Approximately 2.5 adult transfusion doses of platelets per pack)
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb (g/unit)	N/A	N/A	
pH at expiry	7.06	NA	pH at expiry not routinely measured.

Anticoagulant(s)	Citrate from whole blood donation			
Suspension medium	Platelet additive solution (200ml SSP+ added during manufacture) and male donor plasma (70ml added at resuspension)			
Shelf Life	Until midnight on day 1 (day after donation)			
Availability	Limited availability at least 24hrs notice required by special request with NHSBT Consultant authorisation. Not available in Group B or AB. Please see “Availability of Non-Stock and Special Components” appendix 7, for emergencies or further information.			
Storage	**22 ± 2º C. Do not agitate** (must not be put in a fridge)			
Transport	22 ± 2º C			
CMV status	CMV negative on request			
Red cell phenotype	**On request but limited**			
Additional testing requirement	Must be irradiated prior to transfusion.			
Donor Specification	70ml of plasma from Male donor			
Additional notes	**Like red cells, this component should be ABO compatible with the recipient**. If not group specific (e.g. O for a B recipient), they should be high titre anti-AB negative (HT negative). **Red cell transfusion requirements may be modestly reduced in the recipients of pooled buffy coats**.			
NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
G355	A0	54395	3b	

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7. References and Useful Websites

1. The Blood Safety and Quality Regulations (BSQR). 2005 No. 50. 2005 and as amended.
2. Guidelines for the Blood Transfusion Services in the United Kingdom (Red Book).
3. Guidelines on the use of irradiated blood components. Br J Haematol. 2020 Dec;191(5):704-724. doi: 10.1111/bjh.17015. Epub 2020 Aug 18. PMID: 32808674.
4. Guidelines for the administration of blood components. BCSH Blood Transfusion 2009. Addendum Nov 2017
5. Guidelines for Pre-transfusion Compatibility procedures in Blood Transfusion Laboratories Transfusion Medicine 2013; 23 (1):3-35.
6. Guidelines for the use of platelet transfusions. Br J Haematol 2017; 176(3):365-394
7. BCSH Guidelines for the use of Prophylactic Anti-D Immunoglobulin for the prevention of Haemolytic Disease of the Foetus and Newborn. Amendment 4.8.2014.
8. Guidelines for the use of fresh-frozen plasma, cryoprecipitate and cryosupernatant. Br J Haematol 2004.
9. Guidelines on Transfusion of Fetuses, Neonates and older children. New HV, Stanworth SJ, Gottstein R, Cantwell C, Berryman J, Chalmers EA, Bolton-Maggs PHB; BSH Guidelines Transfusion Task Force. British Society for Haematology Guidelines on transfusion for fetuses, neonates and older children (Br J Haematol. 2016;175:784-828). Addendum August 2020. Br J Haematol. 2020;191:725-727
10. Clinical Guidelines for the use of Granulocyte Transfusions. Revised by S Morton & S Stanworth (2021)
11. Advisory Committee on the Safety of Blood, Tissues and Organs (SaBTO) position statement (http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_133086.pdf)

Useful Websites

- Guidelines for the Blood Transfusion Services: http://www.transfusionguidelines.org.uk/index.asp?Publication=RB
- British Committee for Standards in Haematology http://www.b-s-h.org.uk/
- British Blood Transfusion Society: www.bbts.org.uk
- NHSBT Hospitals Website: https://hospital.blood.co.uk/
- Serious Hazards of Transfusion (SHOT): www.shotuk.org
- Medicines and Healthcare Regulatory Agency (MHRA): www.mhra.gov.uk
- Quality information books: www.book.coe.int
- European society for Blood and Marrow Transplantation: https://www.ebmt.org/education/ebmt-handbook

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8. APPENDICIES

Appendix 1 - Glossary of Blood Transfusion Abbreviations and Acronyms

Acronym or Abbreviation	Represents	Description
ABO	**The ABO system**	The major blood group classification system. Blood may belong to group O, A, B or AB. See also D (Rh system).
ACD	**Acid Citrate Dextrose**	This is an anticoagulant used in the production of platelet rich plasma in extracorpeal blood processing systems. e.g. apheresis
AITP	**Autoimmune Thrombocytopenic Purpura**	An immune platelet disorder in which autoantibodies are directed against platelet antigens resulting in platelet destruction.
ATD	**Adult Therapeutic Dose**	Usually used in reference to platelets to describe the number of cells which would normally be transfused to an adult in a single transfusion episode.
APH	**Apheresis**	A medical technology in which the blood of a donor is separated into its component parts, the desired component is removed, and the remaining components are returned to the donor.
BC	**Buffy Coat**	The layer of material which separates plasma from red cells when blood is spun hard in a centrifuge. Rich in platelets and leucocytes, is used to manufacture platelet concentrates and granulocyte pools.
BSE	**Bovine Spongiform Encephalopathy**	Commonly known as 'mad-cow disease', a fatal, neurodegenerative disease in cattle that causes a spongy degeneration in the brain and spinal cord.
BSH	**British Committee for Standards in Haematology**	A group within the British Society for Haematology which produces national guidelines in the field of blood transfusion and blood disorders. http://www.bcshguidelines.com/
BSQR	**Blood Safety and Quality Regulations**	Regulations that came into force in 2005 which blood establishments and hospital blood banks are inspected against by MHRA.
CMV	**Cytomegalovirus**	A common herpes virus, causing no symptoms for most adults but potentially more serious for some groups. CMV negative blood components are provided for intra-uterine transfusions and neonates.
CD	**Component Donation**	Another term for apheresis (see above)
CPA	**Clinical Pathology Accreditation**	An external agency that assesses the quality of performance in medical laboratory against ISO standards.
CPD	**Citrate Phosphate Dextrose**	This is an anticoagulant used in blood packs for the preservation of whole blood or red blood cells.
CRYO	**Cryoprecipitate**	The cryoglobulin fraction of plasma obtained by thawing a single donation of fresh frozen plasma at 4°C±2°C. The component represents a source of concentrated factor VIII, von Willebrand factor, fibrinogen, Factor XIII and fibronectin from a unit of fresh frozen plasma. It is mainly used as a source of fibrinogen.
D	**The D antigen belonging to the Rh system**	The D antigen is the most clinically significant antigen in the Rh system. The D antigen present on red blood cells determines whether a person is either D negative or D positive. See also ABO.

Acronym or Abbreviation	Represents	Description
DAT	**Direct Antiglobulin Test**	A sensitive method for detection of antibodies attached to red blood cells.
DIC	**Disseminated Intravascular Coagulation**	An acquired syndrome characterized by the intravascular activation of coagulation with loss of localization arising from different causes. It can originate from and cause damage to the microvasculature and can present with bleeding or microthrombi.
FFP	**Fresh Frozen Plasma**	A frozen blood component derived by separating the acellular liquid from blood and rapidly freezing it. Used as a source of clotting factors.
GMP	**Good Manufacturing Practice**	Guidelines designed to ensure that pharmaceutical products and components are safe and effective. The UK guidelines are published in an orange covered book sometimes known as “The Orange Guide”.
TA-GvHD	**Transfusion Associated Graft Versus Host Disease**	A syndrome caused by the attack made on a patient’s body by a transfused blood component. Can be fatal. Prevented by gamma irradiation of blood components for vulnerable patients.
H&I	**Histocompatibility and Immunogenetics**	A scientific discipline concerned with the matching of donors to recipients.
Hb	**Haemoglobin**	Molecule within red blood cells which provides the red pigmentation and binds reversibly to allow oxygen to be transported around the human body.
HbS	**Haemoglobin S**	Type of haemoglobin found in patients with sickle cell disease.
HBV	**Hepatitis B Virus**	Infectious virus which causes Hepatitis and which can be transmitted by infected blood.
HCV	**Hepatitis C Virus**	Infectious virus which causes Hepatitis and which can be transmitted by infected blood.
HEV	**Hepatitis E Virus**	Infectious virus which causes Hepatitis and which can be transmitted by infected blood
HDN (or HDFN)	**Haemolytic Disease of the Foetus/New-born**	Disease of foetus/neonate caused by incompatibility of mother and baby’s red cell blood groups.
HIV	**Human Immunodeficiency Virus**	Infectious virus which causes AIDS and which can be transmitted by infected blood.
HLA	**Human Leucocyte Antigen**	The major histocompatibility complex in humans, containing many genes relating to immunity. Important in disease defence; and an immune response to a donor’s HLA is the major cause of organ transplant rejection.
HPA	**Human Platelet Antigen**	Differences in the HPAs of the donor and recipient of a platelet transfusion may cause an adverse immune response to the transfusion. Commonly 1a/5b.
HT	**High Titre**	Generally refers to a titre of Anti-A and/or anti-B being >1/128 or equivalent that has a greater potential of causing a haemolytic transfusion reaction.
HTLV	**Human T-cell Leukaemia/lymphoma Virus**	A virus which causes leukaemia and which may be transmitted by infected blood.
IAT	**Indirect Antiglobulin Test**	A sensitive method for the detection of blood group antibodies.
IUT	**Intra Uterine Transfusion**	Transfusions given to a foetus while in the womb, usually of platelets or red cells.

Acronym or Abbreviation	Represents	Description
JPAC	**Joint United Kingdom Blood Transfusion and Tissue Transplantation Services Professional Advisory Committee**	Includes representation from the 4 UK blood services and from the MHRA. Responsible for producing Guidelines for the UK Transfusion Services (the 'Red Book'). http://www.transfusionguidelines.org.uk/
LD	**Leucocyte depletion (or leucodepletion / leucoreduction)**	The process of removing white blood cells (leucocytes) from blood donations. or components
MHRA	**Medicines and Healthcare products Regulatory Authority**	An executive agency of the Department of Health that enhances and safeguards the health of the public by ensuring that medicines and medical devices work and are acceptably safe. http://www.mhra.gov.uk/
NAT	**Nucleic acid Amplification Technology**	A technology which uses the PCR reaction to amplify viral nucleic acid to levels at which it is possible to detect very small quantities of infectious material.
NFBB	**National Frozen Blood Bank**	A department within NHSBT which freezes, stores and subsequently makes available for transfusion certain very rare blood units.
NHSBT	**NHS Blood and Transplant**	NHSBT was established as a Special Health Authority in October 2005. Its remit is to provide a reliable, efficient supply of blood, organs, stem cells and tissues, and associated services, to the NHS. It comprises the National Blood Service and Organ Donation and Transplantation. http://www.nhsbt.nhs.uk/
PAS	**Platelet Additive Solution**	Examples: InterSol and SSP+
PC	**Platelet Concentrate or 'platelets'**	A blood component containing platelets, either produced from buffy coats from whole blood donations or collected by apheresis.
PI	**Pathogen Inactivation**	A technology that targets nucleic acid using ultraviolet light illumination with or without a photosensitiser to improve the safety of blood components (e.g. plasma or platelets) with regard to bacterial contamination and new pathogens.
SaBTO	**Advisory Committee on the Safety of Blood, Tissues and Organs**	Advises Health Ministers in England, Wales, Scotland and Northern Ireland; the UK Health Departments; the UK Blood services and Transplant services, and the NHS more widely on the most appropriate ways to ensure the safety of blood, cells, tissues and organs for transfusion / transplantation. Its remit includes providing advice on the microbiological safety of gametes, in liaison with the Human Fertilisation and Embryology Authority (HFEA). https://www.gov.uk/government/policy-advisory-groups/advisory-committee-on-the-safety-of-blood-tissues-and-organs
SAGM	**Saline Adenine Glucose Mannitol**	An additive solution used for the collection and storage of red cells in vitro.
SD	**Standard Deviation**	Standard deviation is a number used to tell how measurements for a group are spread out from the average (mean or expected value).
SHOT	**Serious Hazards of Transfusion**	UK wide reporting system designed to capture and analyse adverse transfusion events/near misses. Findings are published annually. http://www.shotuk.org/home/
SSP+		Platelet additive solution to improve storage stability of buffy coat and apheresis platelet concentrates for up to seven

Acronym or Abbreviation	Represents	Description
	Proprietary Platelet Additive Solution	days with a maximum ratio of up to 80% SSP+ / 20% plasma.
vCJD	**Variant Creutzfeldt-Jakob Disease**	Fatal disease of the brain/central nervous system which is a variation of classical CJD and which is believed to have derived in the UK from BSE in cattle. Can be transmitted by infected blood.

Appendix 2 - Anticoagulants and additive solutions

CPD pH 5.3 to 5.9 consists of: - Trisodium Citrate (Dihydrate) 26.3 g/L Citric Acid (Monohydrate) 3.27 g/L Sodium Dihydrogen Phosphate (Dihydrate) 2.51g/L Dextrose / Glucose (Monohydrate) 25.5 g/L Water for Injection 1000mL.	**CPD A1** pH 5.3 to 5.9 consists of: - Citric acid.H_2O 3.11- 3.43g/L Sodium Citrate.$2H_2O$ 24.9 - 27.6 g/L Sodium dihydrogen ortho phosphate 2.38 – 2.63 g/L Dextrose. H_2O 30.3 – 33.5 g/L Adenine 331 – 366 mg/L
ACD pH 4.7 to 5.3 consists of: - Sodium Citrate 22.00 g/L Glucose Monohydrate 24.5 g/L Citric Acid (Monohydrate) 8.00 g/L Water for Injection 1000mL	**SAG-M** pH 4.8 to 5.4 consists of: - Sodium Chloride 8.77 g/L Dextrose / Glucose Monohydrate 9.00 g/L Adenine 0.169 g/L Mannitol 5.25 g/L Water for Injection 1000mL.
Platelet Additive Solution (1) INTERSOL pH 7.2 consists of: Disodium phosphate anhydrous 3.05g/L Sodium dihydrogen phosphate dihydrate 1.05g/L Sodium citrate 3.18g/L Sodium chloride 4.52g/L Sodium acetate trihydrate 4.42g/L Water for Injection	**Additive Solution (2) SSP+ for Pooled Granulocytes and Platelets in Additive Solution and Plasma** pH 7.2 consists of: - Sodium Chloride 69.3 mmol/L Sodium Acetate Trihydrate 10.8 mmol/L Sodium Acetate 32.5 mmol/L Sodium Phosphate 28.2 mmol/L Potassium Chloride 5 mmol/L Magnesium Chloride/sulphate 1.5 mmol/L
4% Sodium Citrate pH 6.4 to 7.5 Consists of: Trisodium citrate dihydrate Ph. Eur. 40 g/L Trisodium citrate 136 mmol/L Citric acid monohydrate Ph. Eur. pH adjustment Water for injection Ph. Eur. ad 1000 ml	

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Appendix 3 - Material Safety Data Sheet for Blood Components

1. Identification of the substance/preparation and company

Blood components may include whole blood, red cells, platelets, and plasma.

NHSBT Head Office, 500 North Bristol Park, Northway, Filton, Bristol, BS34 7QH
Telephone: 0117 921 7200
Emergency Contact Number: 0192 336 6800

2. Composition/information on ingredients

All packs in current use are free from latex. All or part of this medical device is made of PVC plasticized with DEHP. According to some studies, DEHP could potentially be harmful to the reproductive system of male foetuses. The prescriber is solely responsible for choosing to use this device on women who are either pregnant or breast feeding, or on young male infants. Nevertheless, DEHP plasticised PVC is compliant with the European Pharmacopeia.

Packs used for routine whole blood collections contain CPD anticoagulant, with SAG-M additive solution in the required elements of the collection system. All packs are required to comply with the requirements of EN ISO 3826 parts 1, 2 & 3, along with normative references that are defined in the Eurobloodpack Specification Document "Technical specification for standardised whole blood collection systems".

Please see component sheets for specific detail.

3. Hazards identification

Not sterilised; capable of transmitting any biological agent that has not been detected by routine screening.

4. First-aid measures

Eye contamination: Immediate and prolonged irrigation with copious amounts of water. Seek medical advice.
Skin contamination: Wash thoroughly with copious amounts of soap and water. If skin is broken seek medical advice.
Ingestion: Wash mouth with copious amounts of water and seek medical advice
Inhalation: N/A
Injection: remove sharp object if possible and wash with clean running water. Encourage bleeding. Seek medical advice immediately.

5. Fire-fighting measures

Product non-combustible, blood bag may burn. If involved in fire, use extinguishing media appropriate to the surrounding conditions.

Accidental release measures

Major: Wear appropriate disposal protective gloves, spray/cover spillage with appropriate germicidal powder and absorb, leave for 30 minutes, sweep debris into suitable container e.g. plastic bag, or box using disposable cloth or paper towels or a strong piece of card. Do not use dust pans or brushes unless these can be sterilised appropriately. Place all debris and materials in appropriate clinical waste container for disposal. Swab area with appropriate locally defined cleaning agents.

Minor: Mop up with absorbent material e.g. paper towel. Rinse area thoroughly with cold water. Swab area with appropriate locally defined cleaning agents.

7. Handling and storage

Avoid spillage. Take care with disposal of contaminated sharps. Before handling, cover exposed wounds with waterproof dressing and where necessary, cover abraded skin lesions on hands with appropriate disposal gloves. Handle with care and transport in suitable packing to avoid damage and to maintain appropriate temperature. Where risk of blood splashes, wear appropriate eye protection.

Storage – please see component sheets for specific detail.

8. Exposure controls/personal protection

Appropriate gloves: Nitrile medical examination gloves.
Where risk of blood splashes, wear appropriate eye protection.

9. Physical and chemical properties

Data not available

10. Stability and reactivity - Please see component sheets for specific detail.

11. Toxicological information - Data not available

Ecological Information – Data not available

13. Disposal Considerations

Dispose of in accordance with the Hazardous Waste (England and Wales) Regulations 2005 and other legislation in force at the time. Under the Hazardous Waste (England and Wales) Regulations 2005, blood products are classified as “EWC Code 18 01 02 – Body Parts, organs and blood” and are “non-hazardous” and should be disposed of by incineration.

14. Transport Information

Not classified as a Dangerous Good under current road rail and air transport regulations.
Packaging complies with regulations in Chemicals (Hazard Information and Packaging for Supply) Regulations 2002 (CHIP 3).

Regulatory Information

Health and Safety at Work etc. Act 1974
Control of Substances Hazardous to Health Regulations 2002 as amended
Chemicals (Hazard Information and Packaging for Supply) Regulations 2002 (CHIP 3)
Environmental Protection Act 1990
The Hazardous Waste (England and Wales) Regulations 2005

Other information

The information in this safety data sheet does not replace the user’s own assessment of workplace risk as required by other health and safety legislation.

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Appendix 4 - NHSBT Component Barcodes

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These barcodes must only be used to update the Reference Tables on your host laboratory computer with the generic bar codes. **They must not be used to enter an individual component onto the system i.e. when entering a component, the barcode scanned in must come directly from the component label.**

It is recommended that a laser printer is used to print this list.

Barcode No.	Barcode No.	Component Name	Pack Divisions
 a 0 0 4 3 3 3 3 b	04333	RED CELLS IN ADDITIVE SOLUTION LD	
 a 0 4 4 3 3 3 3 b	44333	RED CELLS IN ADDITIVE SOLUTION LD, IRRADIATED	
 a 0 0 6 4 6 0 3 b	06460	RED CELLS THAWED AND WASHED LD	
 a 0 5 4 2 6 3 3 b	54263	RED CELLS THAWED AND WASHED LD CLOSED SYSTEM PREPARATION	
 a 0 4 6 5 3 1 3 b	46531	RED CELLS WASHED, LD. MANUAL WASH IN SAGM	
 a 0 4 6 5 3 2 3 b	46532	RED CELLS WASHED, LD, IRRADIATED. MANUAL WASH IN SAGM	
 a 0 5 4 2 8 8 3 b	54288	PLATELETS, APHERESIS, LD	
 a 0 5 4 2 8 9 3 b	54289	PLATELETS, APHERESIS, LD	PACK 1
 a 0 5 4 2 9 0 3 b	54290	PLATELETS, APHERESIS, LD	PACK 2
 a 0 5 4 2 9 1 3 b	54291	PLATELETS, APHERESIS, LD	PACK 3
 a 0 5 4 2 9 2 3 b	54292	PLATELETS, APHERESIS, LD, IRRADIATED	

	54293	PLATELETS, APHERESIS, LD, IRRADIATED	PACK 1
	54294	PLATELETS, APHERESIS, LD, IRRADIATED	PACK 2
	54295	PLATELETS, APHERESIS, LD, IRRADIATED	PACK 3
	54243	PLATELETS APHERESIS IN ADDITIVE SOLUTION PACK 1 LD	PACK 1
	54244	PLATELETS APHERESIS IN ADDITIVE SOLUTION PACK 2 LD	PACK 2
	54245	PLATELETS APHERESIS IN ADDITIVE SOLUTION PACK 3 LD	PACK 3
	54246	PLATELETS APHERESIS IN ADDITIVE SOLUTION LD	
	54233	PLATELETS APHERESIS IN ADDITIVE SOLUTION, IRRADIATED, PACK 1 LD	PACK 1
	54234	PLATELETS APHERESIS IN ADDITIVE SOLUTION, IRRADIATED, PACK 2 LD	PACK 2
	54235	PLATELETS APHERESIS IN ADDITIVE SOLUTION, IRRADIATED, PACK 3 LD	PACK 3
	54236	PLATELETS APHERESIS IN ADDITIVE SOLUTION, IRRADIATED, LD	
	54477	PLATELETS POOLED IN ADDITIVE SOLUTION AND PLASMA, LD	
	54478	PLATELETS POOLED IN ADDITIVE SOLUTION AND PLASMA, IRRADIATED, LD	
	18300	FRESH FROZEN PLASMA, LD	WHOLE BLOOD

	18320	FRESH FROZEN PLASMA, LD	SINGLE UNIT
	18321	FRESH FROZEN PLASMA, LD	PACK 1
	18322	FRESH FROZEN PLASMA, LD	PACK 2
	10190	CRYOPRECIPITATE, POOLED, LD	
	40018	RED CELLS, CPD, LD, IRRADIATED, FOR INTRAUTERINE TRANSFUSION	
	56830	RED CELLS IN ADDITIVE SOLUTION LD FOR NEONATAL USE	PACK 1
	56831	RED CELLS IN ADDITIVE SOLUTION LD FOR NEONATAL USE	PACK 2
	56832	RED CELLS IN ADDITIVE SOLUTION LD FOR NEONATAL USE	PACK 3
	56833	RED CELLS IN ADDITIVE SOLUTION LD FOR NEONATAL USE	PACK 4
	56834	RED CELLS IN ADDITIVE SOLUTION LD FOR NEONATAL USE	PACK 5
	56835	RED CELLS IN ADDITIVE SOLUTION LD FOR NEONATAL USE	PACK 6
	46830	RED CELLS IN ADDITIVE SOLUTION LD, IRRADIATED FOR NEONATAL USE	PACK 1
	46831	RED CELLS IN ADDITIVE SOLUTION LD, IRRADIATED FOR NEONATAL USE	PACK 2
	46832	RED CELLS IN ADDITIVE SOLUTION LD, IRRADIATED FOR NEONATAL USE	PACK 3

	46833	RED CELLS IN ADDITIVE SOLUTION LD, IRRADIATED FOR NEONATAL USE	PACK 4
	46834	RED CELLS IN ADDITIVE SOLUTION LD, IRRADIATED FOR NEONATAL USE	PACK 5
	46835	RED CELLS IN ADDITIVE SOLUTION LD, IRRADIATED FOR NEONATAL USE	PACK 6
	40350	RED CELLS (CPD), LD, IRRADIATED FOR EXCHANGE TRANSFUSION	
	54481	RED CELLS IN ADDITIVE SOLUTION, LD FOR NEONATES AND INFANTS	
	54482	RED CELLS IN ADDITIVE SOLUTION, LD, IRRADIATED FOR NEONATES AND INFANTS	
	42964	PLATELETS, HYPERCONCENTRATED, IRRADIATED, FOR NEONATAL USE	
	30031	PLATELETS IN PLASMA AND ADDITIVE SOLUTION, LD FOR NEONATAL USE	PACK 1
	30032	PLATELETS IN PLASMA AND ADDITIVE SOLUTION, LD FOR NEONATAL USE	PACK 2
	30033	PLATELETS IN PLASMA AND ADDITIVE SOLUTION, LD FOR NEONATAL USE	PACK 3
	30034	PLATELETS IN PLASMA AND ADDITIVE SOLUTION, LD FOR NEONATAL USE	PACK 4
	30035	PLATELETS IN PLASMA AND ADDITIVE SOLUTION, LD FOR NEONATAL USE	PACK 5
	30036	PLATELETS IN PLASMA AND ADDITIVE SOLUTION, LD FOR NEONATAL USE	PACK 6
	30037	PLATELETS IN PLASMA AND ADDITIVE SOLUTION, LD FOR NEONATAL USE	PACK 7

	30038	PLATELETS IN PLASMA AND ADDITIVE SOLUTION, LD FOR NEONATAL USE	PACK 8
	30051	PLATELETS IN PLASMA AND ADDITIVE SOLUTION, LD IRRADIATED FOR NEONATAL USE	PACK 1
	30052	PLATELETS IN PLASMA AND ADDITIVE SOLUTION, LD IRRADIATED FOR NEONATAL USE	PACK 2
	30053	PLATELETS IN PLASMA AND ADDITIVE SOLUTION, LD IRRADIATED FOR NEONATAL USE	PACK 3
	30054	PLATELETS IN PLASMA AND ADDITIVE SOLUTION, LD IRRADIATED FOR NEONATAL USE	PACK 4
	30055	PLATELETS IN PLASMA AND ADDITIVE SOLUTION, LD IRRADIATED FOR NEONATAL USE	PACK 5
	30056	PLATELETS IN PLASMA AND ADDITIVE SOLUTION, LD IRRADIATED FOR NEONATAL USE	PACK 6
	30057	PLATELETS IN PLASMA AND ADDITIVE SOLUTION, LD IRRADIATED FOR NEONATAL USE	PACK 7
	30058	PLATELETS IN PLASMA AND ADDITIVE SOLUTION, LD IRRADIATED FOR NEONATAL USE	PACK 8
	69601	FRESH FROZEN PLASMA, LD FOR NEONATAL USE	PACK 1
	69602	FRESH FROZEN PLASMA, LD FOR NEONATAL USE	PACK 2
	69603	FRESH FROZEN PLASMA, LD FOR NEONATAL USE	PACK 3
	69604	FRESH FROZEN PLASMA, LD FOR NEONATAL USE	PACK 4
	59711	FRESH FROZEN PLASMA, LD FOR NEONATAL USE	PACK 5

	59712	FRESH FROZEN PLASMA, LD FOR NEONATAL USE	PACK 6
	59713	FRESH FROZEN PLASMA, LD FOR NEONATAL USE	PACK 7
	59714	FRESH FROZEN PLASMA, LD FOR NEONATAL USE	PACK 8
	59715	FRESH FROZEN PLASMA, LD FOR NEONATAL USE	PACK 9
	59716	FRESH FROZEN PLASMA, LD FOR NEONATAL USE	PACK 10
	59717	FRESH FROZEN PLASMA, LD FOR NEONATAL USE	PACK 11
	59718	FRESH FROZEN PLASMA, LD FOR NEONATAL USE	PACK 12
	29981	CRYOPRECIPITATE, LD FOR NEONATAL USE	
	54395	GRANULOCYTES, POOLED, IN ADDITIVE SOLUTION/PLASMA MIX, IRRADIATED	

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Return to Neonatal components

Return to Granulocytes

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Appendix 5 - Blood Component Development

Convalescent plasma, COVID-19, FFP, Leucocyte Depleted

Fresh frozen plasma taken from donors who have recently recovered from COVID-19, and in whom adequate antibody levels have been demonstrated, is available for use in clinical trials. Apart from the presence of antibodies to SARS-CoV-2 the specification is the same as standard FFP, with an exception that female donations are also collected.

Plasma that has been obtained from whole blood or by apheresis from donors who have recovered from COVID-19 infection, for treatment of patients with COVID-19. The plasma contains less than 1×10^6 leucocytes per component and has been rapidly frozen to a temperature that will maintain the activity of labile coagulation factors.

Convalescent Plasma (COVID-19), FFP, Leucocyte Depleted

Component name	Convalescent Plasma (COVID-19)

Red Book reference	Annex 3 (A3.7)

Parameter	NHSBT mean	NHSBT/UK Specification	Note
Volume (mL)	275	200-340	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	0.28	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet conc. ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	N/A	N/A	
Factor VIIIc (IU/mL)	1.05	≥0.7	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb (g/unit)	N/A	N/A	
pH at expiry	N/A	N/A	

Anticoagulant(s)	CPD or ACD
Suspension medium	N/A
Shelf Life	36 months.
Availability	STOCK UNDER CLINICAL TRIAL GOVERNANCE
Storage	The component should be stored at a core temperature of –25°C or below
Transport	Every effort should be made to maintain the core storage temperature during transportation. Unless the component is to be thawed and used straightaway it should be transferred immediately to storage at the recommended temperature.
CMV status	N/A
Red cell phenotype	N/A
Additional testing requirement	In addition to the mandatory and other tests required for blood donations described in Chapter 9, and leucocyte counting (see sections 6.3 and 7.1 and Table A3.7), a minimum of 75% of those components tested for the parameters shown in Table A3.7 shall meet the specified values with the exception of FVIII:C.
Donor Specification	Plasma can be selected from male or female donors. Female donors must be screened and negative for HLA/HNA antibodies, as a TRALI risk reduction measure. Plasma should only be selected as CP for treatment of patients with COVID-19 if it is validated to contain a minimum concentration of SARS-CoV-2 antibody levels according to national clinical guidelines.
Additional notes	Once thawed, the component must not be refrozen and should be transfused as soon as possible. If delay is unavoidable, the component may be stored and should be used within 4 hours if maintained at 22 ±2°C or up to a maximum of 24 hours if stored at 4 ±2°C.

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
				Codes to be issued to relevant trial participating hospitals

Appendix 6 - Non-Routine Blood Components

Any component that NHSBT used to manufacture and now is not routinely made but may need to be available as contingency can be found in this section. An example of this is 5-day expiry platelets which may need to be used should any bacterial testing issues occur. Other components are listed below.

The Component Specification sheets and barcodes have been moved from the main document to this appendix to make routine component sheets easier to find.

Contingency Platelet

Contingency platelets such as reduced dose platelets, 5-day expiry or plasma suspended will be activated in the event of manufacturing related issues. Further information and guidance will be provided in the event of activation.

Leucocytes, Buffy Coat, Irradiated

Contingency leucocytes that may be issued if there is a failure to supply pooled granulocyte component.

Autologous blood

The collection of autologous blood prior to elective surgery should only be considered in exceptional circumstances, e.g. rare red cell antibodies. Any requests should be discussed with a NHSBT consultant. The Component Specification sheet for this and barcode are available below.

The provision of autologous blood is not generally available and should be discussed with an NHSBT consultant if required.

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Component name	**Platelets, Apheresis, LD, 5-Day Expiry**

Red Book reference	Section 7.4.2

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	199	Locally defined	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	0.41	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	292	≥ 240	165 – 510x 10^9/unit
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	N/A	
pH at expiry	7.1	>6.4	

Anticoagulant(s)	ACD
Suspension medium	Suspended in donor plasma
Shelf Life	5 days
Availability	Not routinely available
Storage	22°C ± 2°C with agitation
Transport	22°C ± 2°C
CMV status	negative on request
Phenotype	HLA/HPA selected on request
Additional testing requirement	N/A
Donor Specification	Requirements for apheresis donors
Additional notes	

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
0371	a0	58340	3b	Pack 1
0372	a0	58341	3b	Pack 2
0373	a0	58342	3b	Pack 3
0379	a0	12030	3b	(Single unit)

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Component name	**Platelets, Apheresis, LD, Irradiated, 5 day expiry**

Red Book reference	Section 7.4.2

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	199	Locally defined	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count (x10^6/unit)	0.41	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration (x10^9/L)	N/A	N/A	
Platelet yield (x10^9/unit)	292	≥ 240	165 – 510x 10^9/unit
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	N/A	
pH at expiry	7.1	>6.4	

Anticoagulant(s)	ACD
Suspension medium	Suspended in donor plasma
Shelf Life	5 days
Availability	Not routinely available
Storage	22°C ± 2°C with agitation
Transport	22°C ± 2°C
CMV status	negative on request
Phenotype	HLA/HPA selected on request
Additional testing requirement	N/A
Donor Specification	Requirements for apheresis donors
Additional notes	

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
G371	a0	48340	3b	Pack 1
G372	a0	48341	3b	Pack 2
G373	a0	48342	3b	Pack 3
G379	a0	42030	3b	(Single unit)

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Component name	**Platelets, Apheresis, LD, Reduced Dose**

Red Book reference	Section A5.2

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	199	Locally defined	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count (x10^6/unit)	0.41	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration (x10^9/L)	N/A	N/A	
Platelet yield (x10^9/unit)	292	≥ 240	165 – 510x 10^9/unit
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	N/A	
pH at expiry	7.1	>6.4	

Anticoagulant(s)	ACD
Suspension medium	Suspended in donor plasma
Shelf Life	7 days
Availability	Not routinely available
Storage	22°C ± 2°C with agitation
Transport	22°C ± 2°C
CMV status	negative on request
Phenotype	HLA/HPA selected on request
Additional testing requirement	N/A
Donor Specification	Requirements for apheresis donors
Additional notes	

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
0471	a0	30075	3b	Pack 1
0472	a0	30076	3b	Pack 2
0473	a0	30077	3b	Pack 3
0474	a0	30078	3b	Pack 4

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Component name	**Platelets, Apheresis, LD, Reduced Dose, Irradiated**

Red Book reference	Section A5.2

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	199	Locally defined	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count (x10^6/unit)	0.41	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration (x10^9/L)	N/A	N/A	
Platelet yield (x10^9/unit)	292	≥ 240	165 – 510x 10^9/unit
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	N/A	
pH at expiry	7.1	>6.4	

Anticoagulant(s)	ACD
Suspension medium	Suspended in donor plasma
Shelf Life	7 days
Availability	Not routinely available
Storage	22°C ± 2°C with agitation
Transport	22°C ± 2°C
CMV status	negative on request
Phenotype	HLA/HPA selected on request
Additional testing requirement	N/A
Donor Specification	Requirements for apheresis donors
Additional notes	

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
G471	a0	30071	3b	Pack 1
G472	a0	30072	3b	Pack 2
G473	a0	30073	3b	Pack 3
G474	a0	30074	3b	Pack 4

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Component name	**Platelets, Pooled in Plasma, LD, Extended Life**

Red Book reference	Section 7.4.1

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	298	locally defined	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count (x10^6/unit)	0.31	<5	EU Directive spec of <1
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration (x10^9/L)	N/A	N/A	
Platelet yield (x10^9/unit)	317	≥240	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	N/A	
pH at expiry	7.3	>6.4	

Anticoagulant(s)	CPD
Suspension medium	Male donors are used as source of suspending plasma.
Shelf Life	7 days
Availability	Not routinely available
Storage	22°C ± 2°C with agitation
Transport	22°C ± 2°C
CMV status	negative on request
Red cell phenotype	N/A
Additional testing requirement	Bacteriological screen
Donor Specification	Previous donation within last two years
Additional notes	Pooled platelets in plasma. Male donors are used as source of suspending plasma. Pools are of 4 buffy coats

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
L376	a0	12789	3b	

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Component name	

Platelets, Pooled in Plasma, LD, Extended Life, Irradiated

Red Book reference	Section 7.4.1

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	298	locally defined	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	0.31	<5	EU Directive spec of <1
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	317	≥240	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	N/A	
pH at expiry	7.3	>6.4	

Anticoagulant(s)	CPD
Suspension medium	Male donors are used as source of suspending plasma.
Shelf Life	7 days
Availability	Usually available at times potential national platelet shortages
Storage	22°C ± 2°C with agitation
Transport	22°C ± 2°C
CMV status	negative on request
Red cell phenotype	N/A
Additional testing requirement	Bacteriological screen
Donor Specification	Previous donation within last two years
Additional notes	Pooled platelets in plasma. Male donors are used as source of suspending plasma. Pools are of 4 buffy coats

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
G376	a0	54296	3b	

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Component name	Platelets Pooled in Additive Solution and Plasma, LD, Irradiated, 5-Day Expiry.

Red Book reference	Section 7.4.3

Parameter	NHSBT mean	NHSBT/UK Specification	Note
Volume (mL)	294	150-380	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	0.38	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	312	≥240	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb (g/unit)	N/A	N/A	
pH at expiry	7.2	>6.4	

Anticoagulant(s)	CPD
Suspension medium	65-70% Platelet Additive Solution / 30-35 % plasma
Shelf Life	5 days
Availability	Stock
Storage	22°C ± 2°C with agitation
Transport	22°C ± 2°C
CMV status	Negative on request
Red cell phenotype	N/A
Additional testing requirement	
Donor Specification	Previous donation within last two years
Additional notes	

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
G384	a0	54242	3b	

Component name	**Platelets, Pooled, LD, 5-Day Expiry**

Red Book reference	Section 7.4.1

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	298	Locally defined	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count (x10^6/unit)	0.34	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration (x10^9/L)	N/A	N/A	
Platelet yield (x10^9/unit)	317	≥240	165-500 x 10^9/unit
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	N/A	
pH at expiry	7.3	>6.4	

Anticoagulant(s)	CPD
Suspension medium	Male donors are used as source of suspending plasma.
Shelf Life	5 days
Availability	Not routinely available
Storage	22°C ± 2°C with agitation
Transport	22°C ± 2°C
CMV status	negative on request
Red cell phenotype	N/A
Additional testing requirement	N/A
Donor Specification	Previous donation within last two years
Additional notes	Pooled platelets in plasma. Male donors are used as source of suspending plasma. Pools are of 4 buffy coats

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
0378	a0	12769	3b	

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Component name	**Platelets, Pooled, LD, Irradiated, 5-Day Expiry**

Red Book reference	Section 7.4.1

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	298	Locally defined	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	0.34	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	317	≥240	165 – 500 x 10^9/unit
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	N/A	
pH at expiry	7.3	>6.4	

Anticoagulant(s)	CPD
Suspension medium	Male donors are used as source of suspending plasma.
Shelf Life	5 days
Availability	Not routinely available
Storage	22°C ± 2°C with agitation
Transport	22°C ± 2°C
CMV status	negative on request
Red cell phenotype	N/A
Additional testing requirement	N/A
Donor Specification	Previous donation within last two years
Additional notes	Pooled platelets in plasma. Pools are of 4 buffy coats

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
G378	a0	42769	3b	

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Component name	

Platelets, Apheresis, LD For Neonatal and Infant Use, 5-Day Expiry

Red Book reference	Section 7.4.1

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	50	Locally defined	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	0.1	< 1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	73	>40	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	N/A	
pH at expiry	N/A	>6.4	

Anticoagulant(s)	ACD
Suspension medium	Suspended in donor plasma
Shelf Life	5 days
Availability	Not routinely available
Storage	22°C ± 2°C with agitation
Transport	22°C ± 2°C
CMV status	Negative
Red cell phenotype	N/A
Additional testing requirement	The component should be free from clinically significant irregular blood group antibodies including high titre anti-A and anti-B. CMV negative.
Donor Specification	Previous donation within the last two years. Ideally male donor
Additional notes	

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
0U11	a0	58231	3b	Pack 1
0U12	a0	58232	3b	Pack 2
0U13	a0	58233	3b	Pack 3
0U14	a0	58234	3b	Pack 4
0U15	a0	58235	3b	Pack 5
0U16	a0	58236	3b	Pack 6
0U17	a0	58237	3b	Pack 7
0U18	a0	58238	3b	Pack 8
0U19	a0	50778	3b	Pack 9
0U21	a0	50779	3b	Pack 10
0U22	a0	50780	3b	Pack 11
0U23	a0	50781	3b	Pack 12

Component name	Platelets in Plasma and Additive Solution, LD for Neonatal and Infant Use, 5-Day Expiry

Red Book reference	Section 7.7.8

Parameter	NHSBT mean	NHSBT/UK Specification	Note
Volume (mL)	63	45-95	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	< 0.1	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet conc. ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	62	>40	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb (g/unit)	N/A	N/A	
pH at expiry	7.2	>6.4	

Anticoagulant(s)	ACD
Suspension medium	Plasma and 20% additive solution (SSP+)
Shelf Life	5 days
Availability	Arr (or Orr) HT neg available as stock. Other groups are available, please see appendix 7 ‘Availability of Non-Stock and Special Components’.
Storage	22°C ± 2°C with agitation
Transport	22°C ± 2°C
CMV status	Negative
Red cell phenotype	N/A
Additional testing requirement	The component should be free from clinically significant irregular blood group antibodies including high titre anti-A and anti-B. Bacteriologically screened. CMV negative.
Donor Specification	Previous donation within the last two years. Ideally male donor. From apheresis donations.
Additional notes	

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
0S31	a0	30091	3b	Pack 1
0S32	a0	30092	3b	Pack 2
0S33	a0	30093	3b	Pack 3
0S34	a0	30094	3b	Pack 4
0S35	a0	30095	3b	Pack 5
0S36	a0	30096	3b	Pack 6
0S37	a0	30097	3b	Pack 7

0S38	a0	30098	3b	Pack 8

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Component name	**Platelets, Apheresis, LD Irradiated For Neonatal and Infant Use, 5-Day Expiry**

Red Book reference	Section 7.7.7

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	50	Locally defined	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count (x10^6/unit)	0.1	< 1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration (x10^9/L)	N/A	N/A	
Platelet yield (x10^9/unit)	73	>40	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	N/A	
pH at expiry	N/A	>6.4	

Anticoagulant(s)	ACD
Suspension medium	Suspended in donor plasma
Shelf Life	5 days
Availability	Not routinely available
Storage	22°C ± 2°C with agitation
Transport	22°C ± 2°C
CMV status	Negative
`Red cell phenotype	N/A
Additional testing requirement	The component should be free from clinically significant irregular blood group antibodies including high titre anti-A and anti-B. CMV negative
Donor Specification	Previous donation within the last two years. Ideally male donor
Additional notes	

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
GU11	a0	48231	3b	Pack 1
GU12	a0	48232	3b	Pack 2
GU13	a0	48233	3b	Pack 3
GU14	a0	48234	3b	Pack 4
GU15	a0	48235	3b	Pack 5
GU16	a0	48236	3b	Pack 6
GU17	a0	48237	3b	Pack 7
GU18	a0	48238	3b	Pack 8
GU19	a0	40778	3b	Pack 9

GU21	a0	40779	3b	Pack 10
GU22	a0	40780	3b	Pack 11
GU23	a0	40781	3b	Pack 12

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Component name	Platelets in Plasma and Additive Solution, LD Irradiated, for Neonatal and Infants Use

Red Book reference	Section 7.7.8

Parameter	NHSBT mean	NHSBT/UK Specification	Note
Volume (mL)	63	45-95	
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	N/A	N/A	
WBC count ($x10^6$/unit)	< 0.1	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet conc. ($x10^9$/L)	N/A	N/A	
Platelet yield ($x10^9$/unit)	62	>40	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb (g/unit)	N/A	N/A	
pH at expiry	7.2	>6.4	

Anticoagulant(s)	ACD
Suspension medium	Plasma and 20% additive solution (SSP+)
Shelf Life	5 days
Availability	Arr (or Orr) HT neg available as stock. Other groups are available, please see appendix 7 ‘Availability of Non-Stock and Special Components’.
Storage	22°C ± 2°C with agitation
Transport	22°C ± 2°C
CMV status	Negative
Red cell phenotype	N/A
Additional testing requirement	The component should be free from clinically significant irregular blood group antibodies including high titre anti-A and anti-B. Bacteriologically screened. CMV negative
Donor Specification	Previous donation within the last two years. Ideally male donor. From apheresis donations.
Additional notes	

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
GS31	a0	30081	3b	Pack 1
GS32	a0	30082	3b	Pack 2
GS33	a0	30083	3b	Pack 3
GS34	a0	30084	3b	Pack 4
GS35	a0	30085	3b	Pack 5

GS36	a0	30086	3b	Pack 6
GS37	a0	30087	3b	Pack 7
GS38	a0	30088	3b	Pack 8

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Component name	**Leucocytes, Buffy Coat, Irradiated**

Red Book reference	None

Parameter	NHSBT mean	NHSBT Specification	Note
Volume (mL)	56	36-78	Locally defined
Haemoglobin (g/unit)	N/A	N/A	
Haematocrit (L/L)	0.40	N/A	
WBC count (x10^6/unit)	N/A	N/A	
Granulocytes (x 10^9/unit)	1.0		
Platelet concentration (x10^9/L)	N/A	N/A	
Platelet yield (x10^9/unit)	105	N/A	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	N/A	
pH at expiry	N/A	N/A	

Anticoagulant(s)	CPD
Suspension medium	N/A
Shelf Life	Midnight on day 1
Availability	Not routinely available
Storage	22°C ± 2°C
Transport	22°C ± 2°C
CMV status	Negative on request
Red cell phenotype	N/A
Additional testing requirement	N/A
Donor Specification	N/A
Additional notes	**Do not agitate**.

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
G351	a0	46460	3b	

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Component name	**Whole Blood (CPDA1) Autologous**

Red Book reference	None

Parameter	NHSBT mean	NHSBT/UK Specification	Note
Volume (mL)	451	405 – 495	
Haemoglobin (g/unit)	62	>40	
Haematocrit (L/L)	N/A	N/A	
WBC count (x10^6/unit)	0.50	<1	
Granulocytes (x 10^9/unit)	N/A	N/A	
Platelet concentration (x10^9/L)	N/A	N/A	
Platelet yield (x10^9/unit)	N/A	N/A	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	<0.8%	Of red cell mass at the end of shelf life
pH at expiry	N/A	N/A	

Anticoagulant(s)	CPDA1
Suspension medium	N/A
Shelf Life	35 days
Availability	Discuss with NHSBT consultant
Storage	4°C±2°C.
Transport	The component surface temperature must be maintained between 2°C and 10°C during transportation.
CMV status	N/A
Red cell phenotype	N/A
Additional testing requirement	N/A
Donor Specification	Standard
Additional notes	

NHSBT Pulse Code	Start Code	Barcode No.	Stop Code	Additional
0Y51	a0	30002	3b	

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Barcodes for Non-Routine Products

These barcodes must only be used to update the Reference Tables on your host laboratory computer with the generic bar codes if you are receiving any product as part of a trial or emergency. **They must not be used to enter an individual component onto the system i.e. when entering a component, the barcode scanned in must come directly from the component label.**
It is recommended that a laser printer is used to print this list.

Barcode No.	Barcode No.	Component Name	Pack Divisions
	12030	PLATELETS APHERESIS LD	
	58340	PLATELETS, APHERESIS LD	PACK 1
	58341	PLATELETS, APHERESIS LD	PACK 2
	58342	PLATELETS, APHERESIS LD	PACK 3
	42030	PLATELETS, APHERESIS LD, IRRADIATED	
	48340	PLATELETS, APHERESIS LD IRRADIATED	PACK 1
	48341	PLATELETS, APHERESIS LD IRRADIATED	PACK 2
	48342	PLATELETS, APHERESIS LD IRRADIATED	PACK 3
	30075	Platelets, Apheresis, Leucocyte Depleted, Reduced Dose	PACK 1
	30076	Platelets, Apheresis, Leucocyte Depleted, Reduced Dose	PACK 2
	30077	Platelets, Apheresis, Leucocyte Depleted, Reduced Dose	PACK 3

	30078	Platelets, Apheresis, Leucocyte Depleted, Reduced Dose	PACK 4
	30071	Platelets, Apheresis, Leucocyte Depleted, Reduced Dose **Irradiated**	PACK 1
	30072	Platelets, Apheresis, Leucocyte Depleted, Reduced Dose **Irradiated**	PACK 2
	30073	Platelets, Apheresis, Leucocyte Depleted, Reduced Dose **Irradiated**	PACK 3
	30074	Platelets, Apheresis, Leucocyte Depleted, Reduced Dose **Irradiated**	PACK 4
	54232	PLATELETS POOLED IN PLASMA/ADDITIVE MIXTURE	
	54242	PLATELETS POOLED IN PLASMA/ADDITIVE MIX, IRRADIATED	
	12769	PLATELETS POOLED, LD	
	12789	PLATELETS POOLED, LD	
	54296	PLATELETS, POOLED, LD, IRRADIATED	
	54247	PLATELETS POOLED IN ADDITIVE SOLUTION	
	54237	PLATELETS POOLED, IN ADDITIVE SOLUTION, IRRADIATED	
	42769	PLATELETS, POOLED LD, IRRADIATED	
	58231	PLATELETS, APHERESIS, PACK 01 LD FOR NEONATAL USE	PACK 1

	58232	PLATELETS. APHERESIS, PACK 02 LD FOR NEONATAL USE	PACK 2
	58233	PLATELETS, APHERESIS, PACK 03 LD FOR NEONATAL USE	PACK 3
	58234	PLATELETS, APHERESIS, PACK 04 LD FOR NEONATAL USE	PACK 4
	58235	PLATELETS, APHERESIS, PACK 05 LD FOR NEONATAL USE	PACK 5
	58236	PLATELETS, APHERESIS, PACK 06 LD FOR NEONATAL USE	PACK 6
	58237	PLATELETS. APHERESIS, PACK 07 LD FOR NEONATAL USE	PACK 7
	58238	PLATELETS, APHERESIS, PACK 08 LD FOR NEONATAL USE	PACK 8
	50778	PLATELETS, APHERESIS, PACK 09 LD FOR NEONATAL USE	PACK 9
	50779	PLATELETS, APHERESIS, PACK 10 LD FOR NEONATAL USE	PACK 10
	50780	PLATELETS. APHERESIS, PACK 11 LD FOR NEONATAL USE	PACK 11
	50781	PLATELETS, APHERESIS, PACK 12 LD FOR NEONATAL USE	PACK 12
	48231	PLATELETS, APHERESIS, PACK 1 LD, IRRADIATED FOR NEONATAL USE	PACK 1
	48232	PLATELETS, APHERESIS, PACK 02 LD, IRRADIATED FOR NEONATAL USE	PACK 2
	48233	PLATELETS, APHERESIS, PACK 03 LD, IRRADIATED FOR NEONATAL USE	PACK 3

	48234	PLATELETS, APHERESIS, PACK 04 LD, IRRADIATED FOR NEONATAL USE	PACK 4
	48235	PLATELETS, APHERESIS, PACK 05 LD, IRRADIATED FOR NEONATAL USE	PACK 5
	48236	PLATELETS, APHERESIS, PACK 06 LD, IRRADIATED FOR NEONATAL USE	PACK 6
	48237	PLATELETS, APHERESIS, PACK 07 LD, IRRADIATED FOR NEONATAL USE	PACK 7
	48238	PLATELETS, APHERESIS, PACK 08 LD, IRRADIATED FOR NEONATAL USE	PACK 8
	40778	PLATELETS, APHERESIS, PACK 09 LD, IRRADIATED FOR NEONATAL USE	PACK 9
	40779	PLATELETS, APHERESIS, PACK 10 LEUCODEPLETED, IRRADIATED FOR NEONATAL USE	PACK 10
	40780	PLATELETS, APHERESIS, PACK 11 LD, IRRADIATED FOR NEONATAL USE	PACK 11
	40781	PLATELETS, APHERESIS, PACK 12 LD, IRRADIATED FOR NEONATAL USE	PACK 12
	30091	Platelets in Plasma and Additive Solution, LD, for Neonatal Use	PACK 1
	30092	Platelets in Plasma and Additive Solution, LD, for Neonatal Use	PACK 2
	30093	Platelets in Plasma and Additive Solution, LD, for Neonatal Use	PACK 3
	30094	Platelets in Plasma and Additive Solution, LD, for Neonatal Use	PACK 4
	30095	Platelets in Plasma and Additive Solution, LD, for Neonatal Use	PACK 5

	30096	Platelets in Plasma and Additive Solution, LD, for Neonatal Use	PACK 6
	30097	Platelets in Plasma and Additive Solution, LD, for Neonatal Use	PACK 7
	30098	Platelets in Plasma and Additive Solution, LD, for Neonatal Use	PACK 8
	30081	Platelets in Plasma and Additive Solution, LD Irradiated, for Neonatal Use	PACK 1
	30082	Platelets in Plasma and Additive Solution, LD Irradiated, for Neonatal Use	PACK 2
	30083	Platelets in Plasma and Additive Solution, LD Irradiated, for Neonatal Use	PACK 3
	30084	Platelets in Plasma and Additive Solution, LD Irradiated, for Neonatal Use	PACK 4
	30085	Platelets in Plasma and Additive Solution, LD Irradiated, for Neonatal Use	PACK 5
	30086	Platelets in Plasma and Additive Solution, LD Irradiated, for Neonatal Use	PACK 6
	30087	Platelets in Plasma and Additive Solution, LD Irradiated, for Neonatal Use	PACK 7
	30088	Platelets in Plasma and Additive Solution, LD Irradiated, for Neonatal Use	PACK 8
	46460	LEUCOCYTES, BUFFY COAT, IRRADIATED	
	30002	WHOLE BLOOD (CPDA1) AUTOLOGOUS	

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Appendix 7 - Availability of non-stock and special components, including those required for urgent requests.

Normal Working hours are (except for the National Frozen Blood Bank):
Monday – Friday: 0800 – 2200
Saturday: 0800 - 1200

Unless otherwise stated, delivery times are included in the stated time required. However, these may vary depending upon distance to hospital, time of day, road conditions, etc and cannot be guaranteed.

An NHSBT consultant is always available to discuss the appropriate choice of component and the clinical urgency of the request. In situations where the request cannot be met by NHSBT in the clinically required timeframe, the consultant will be able to discuss a suitable alternative. Items not identified as stock require specific NHSBT consultant approval for the first request.

Special components often need to be sourced from a location other than the stock holding unit that routinely serves your hospital, which may lead to a delay. Secondary processing may also be necessary to enable us to fulfil your ordering requirement, also leading to a delay.

Please inform your local Hospital Services Department immediately by telephone, if you no longer require a specialist component you have ordered. You will still need to cancel the order on OBOS. This will ensure effective management of our components and keep wastage to a minimum.

Component	Availability
Red Cells, Thawed and Washed (Manual Preparation) **Red Cells, Thawed and Washed, (Closed System Preparation)**	For planned procedures please provide 24 hours' notice. For urgent requests 4 hours' processing time is required for the first two units (6 hours outside normal working hours) plus 2 hours for every additional two units. Any components that require further processing post thaw and wash will incur an additional delay. This component is only supplied from Liverpool; therefore, delivery time from Liverpool should be added. For red cells, thawed and washed, normal working hours are: Monday – Friday, 0900 – 1700.

Component	Availability
Red Cells, Washed LD (Manual Preparation)	Limited stock item only (14-day expiry), held at the following stock holding unit: • Colindale (2 units of group O negative, weekend only)

	Please note: extended phenotype (antigen negative) units are not held as stock. If a transfer from another stock holding unit is required, there will be an additional delay. For planned procedures please provide 24 hours' notice. For urgent requests in excess of available stock, 4 hours' notice is required (8 hours outside normal working hours).
Platelets, Apheresis, in Additive Solution LD **Platelets, Apheresis, in Additive Solution LD, Irradiated**	Please provide 24 hours' notice. In extenuating circumstances if 24 hours' notice cannot be given, please allow a minimum of 8.5 hours for production lead time plus transportation time.
Red Cells for Intrauterine Transfusion (IUT), LD	All units suitable for IUT are irradiated. For planned procedures please provide 24 hours' notice. For phenotypes other than O rr & O R1R1, up to 24 hours' notice is required. For urgent requests 4 hours' notice is required (6 hours outside normal working hours).
Red Cells in additive solution for Neonatal and Infant Use (small volume split units) **Red Cells in additive solution for Neonatal and Infant Use (small volume split units) Irradiated**	Limited stock item only held at the following stock holding units: • All sites – Group O D neg, plus: • Birmingham, Cambridge, Colindale – Group O D pos • Manchester – Group A D pos, Group O D pos • Liverpool – A neg Units unavailable from stock will require 4 hours' notice (6 hrs outside normal working hours). If a transfer from another stock holding unit is required, there will be an additional delay
Red cells in Additive Solution for Neonates and Infants (large volume units, known as LVT) **Red cells in Additive Solution for Neonates and Infants (large volume units, known as LVT) Irradiated**	Limited stock item only held at the following stock holding units: • Birmingham – Group O D pos, A D pos and O D neg • Southampton – Group O D pos, A D pos, O D neg and A D neg • Filton and Barnsley – Group O D pos, A D pos, B D pos, O D neg and A D neg • Tooting, Colindale, and Manchester – Group O D pos, A D pos, B D pos, O D neg, A D neg and B D neg • Liverpool – Group O D pos, A D pos, O D neg, A D neg and B D neg • Newcastle – Group O D pos and O D neg

	If a transfer from another stock holding unit is required, there will be an additional delay.
Component	**Availability**
Red Cells (CPD), LD, Irradiated For Neonatal Exchange Transfusion	Limited stock item (group O rr and O R1R1), only held at the following stock holding units: • Birmingham, Cambridge, Filton, Manchester, Newcastle, Oxford, Barnsley, and Tooting – Group O R1R1 and O rr • Plymouth and Southampton – Group O rr only Units held in stock require additional processing and irradiation prior to issue and will therefore incur a short delay before dispatch to your hospital. Please note; extended phenotype (antigen negative) units are not held as stock For planned procedures please provide 24 hours' notice.
Platelets Apheresis for Neonatal and Infant Use **Platelets Apheresis for Neonatal and Infant Use Irradiated**	Limited stock item only (HT neg) held at the following stock holding units: • Birmingham and Colindale– Group A D pos and neg, and Group O D neg • Barnsley and Tooting – Group A D neg and Group O D neg • Cambridge, Filton, Liverpool, Manchester, Newcastle Oxford, Plymouth, and Southampton – Group A D neg only Please request by patient's ABO group and provide planned transfusion time. If a transfer from another stock holding unit is required, there will be an additional delay.
Platelets for Intrauterine Transfusion (IUT) – hyperconcentrated	By special order only following discussion with NHSBT Consultant. Up to 7days notice required. If required sooner, please contact NHSBT consultant.
Granulocytes, Pooled, Buffy Coat derived, in Platelet Additive Solution and Plasma, Irradiated	Not held as stock, produced to order on a named patient basis. 24 hours' notice is normally required for planned procedures. If required sooner, please contact NHSBT consultant. Not routinely available Sunday, Monday and the day following a bank holiday except in specific circumstances where sufficient donations are available to manufacture this component on a case-by-case basis.

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Appendix 8 – LIMS Codes

NHSBT CENTRE CODES

NHSBT-Birmingham	9909H1
NHSBT-Cambridge	9908J2
NHSBT-Manchester	9914M1
NHSBT-Lancaster	9913M2
NHSBT-Liverpool	9912M4
NHSBT-Newcastle	9915N1
NHSBT-Tooting	9916P1
NHSBT-Southampton	9919S1
NHSBT-Filton	9920T7
NHSBT-Colindale	9922W1
NHSBT-Barnsley	9959D2
NHSBT-Oxford	9907T3
NHSBT-Plymouth	9937T2
NHSBT-Basildon	9977J1

FACILITY IDENTIFICATION NUMBERS

Colindale	G0010, G0040, G0070, G0724, G0735
Manchester	G0020, G0090, G0956
Bristol	G0030, G0080, G0525

There may be a small amount of very long life frozen and thawed red cell components issued from FINs below

Newcastle	G0967
Birmingham	G0536
Cambridge	G0735 (Reassigned to Colindale when Cambridge production ceased)
Tooting	G0746

OTHER UK BLOOD SERVICE FACILITY IDENTIFICATION NUMBERS

Edinburgh SNBTS	G1016
Belfast NIBTS	G1618
Welsh Blood Service	G1517

For more information on ISBT 128 barcodes please visit the iccbba.org web page
https://www.iccbba.org/uploads/82/cb/82cb32f848cf9206ac5fb4684d55e8f7/IN-003-ISBT-128-for-Blood-Components-An-Introduction-v8.pdf

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