

Integrating clinical guidelines and patient blood management principles into the transfusion process.

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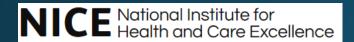




- 700 bed DGH
- Cancer Centre and JACIE accredited.
- Hyper-acute stroke, vascular and renal services (680,000 in catchment area)

Our Challenge of Implementing Guidance

 Patient Blood Management has brought greater focus on the need to implement evidence based practice resulting in increasing clinical guidance from multiple sources that needs disseminating throughout multiple specialties within the trust.



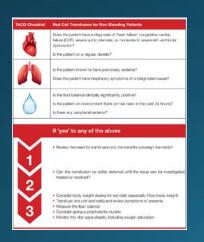




The Challenge of Haemovigilance

 Haemoviligance is continually identifying new safety concerns and re-assessing the prevalence of existing concerns that must be communicated trust wide.





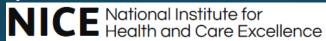


Recommendations from the expert advisory committee on the Safety of Blood, Tissues and Organs (SaBTO) on measures to protect patients from acquiring hepatitis E virus via transfusion or transplantation

These recommendations were approved by SaBTO on 1 Nov 2016.

The Challenge of communicating the message

• This is at a time where clinicians are in an environment that is rife with competing demands for their continual professional development (for example over **160** new NICE clinical guidelines in the past 10 years).













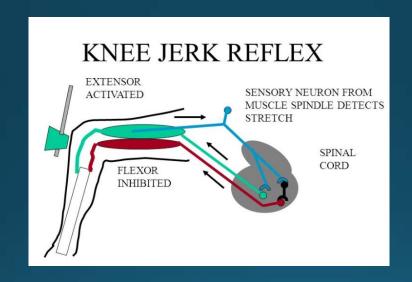






Move away from reflex prescribing without introducing delays.

• Hb 80











British Committee for Standards in Haematology Guidelines on the Identification and Management of Pre-Operative Anaemia



Guidelines for the use of platelet transfusions



A practical guideline for the haematological management of major haemorrhage



Guidelines on the management of anaemia and red cell transfusion in adult critically ill patients



Guideline on the investigation and management of acute transfusion reactions Prepared by the BCSH Blood Transfusion

Hard Tinegae" (Writing group leads, Jaset Birchall, ¹ Alexandra Gray, ² Richard Haggan, ² Edvin Hassey, ³ Derek Norfolk, ⁴ Debunk Pinchon, ² Carrock Sevell, ⁴ Augus Wells, ² and Shabha Allard⁴⁰

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Background and methods

UK based medical experts. With the assistance of the Oul

Systematic Reviews Initiative (SII), the following database

were searched for relevant publications in English: MEDCI

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each database. The initial worth and filtering mode

1000 systematic review and renderated controlled to (BCE) and CN observational studies, from which refer

publications were estracted by the members of the Weis

Criteria used to quote levels and grades of evidence

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then is confidence that the benefits either do or do not

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tion. The quality of evidence is graded as A (high qu

the Writing Group. The full version of the puideline, inclu-

rendomized clinical relds), renderete (R) or low (C).

Although acure non-harmolytic febrile or allergic reactions (ATIA) are a common complication of translation and other result in little or nor morbidity, prompt recognition and management are essential. The serious hazards of transfusion haemoriellane occanission (SWOT) morios. West renorm of anaphylactic reactions each year. Other serious complications of translation, such as acure barmolosis, bacterial contumination, transfession related mate lung injury (TRALI) or transferior-associated circulatory overload (TACO) may respect with similar offsical features to ATE.

This guideline describes the approach to a potient develconducted to believe man bar mercury waveled police including initial recognition, establishing a likely cause, treat-ment, investigations, planning future translation and report ing within the hospital and to harmovigilance organisations first line treatment of anaphylasis, and that translations should only by carried out where patients can be directly observed and where shall are trained in manging complications of baselusion, particularly anaphylanic. Management of ATEs is not dependent on Assolication but should be guided by symptoms and signs. Patients who have experienced as anaphylactic reaction should be discussed with an allergist or immunologist, in keeping with UK resusciation council guidelines.

NITHE Nescatio, Holland Drive, Nescastle upon Tree, NE2 4363.

2012 468 149-142

Purpose and objectives

where grade 2 recent

The purpose of this document is to provide clear guida

NICE National Institute for Health and Care Excellence



Guidance for the use of Blood Components

This guidance is based on the National Blood Transfusion Committee (NBTC) Indication Codes for Transfusion (Use 2016)

National Blood Transfusion Committee

Dose should be determined by the situation and thill. Local guidelines should be followed.

PCCI. Emergency reversal of VKA for severe bleeding or head injury with supported interpretability

PCC2. Emergency reversal of VKA pre emergency surgery

Dase - 2 pooled units, equivalent to 10 individual

CL Clinically significant bleeding and

CL Fibrinogen <1g/L and pre procedure

therapy

Platelet concentrates

Cl. Bleeding associated with thrombolytic

C4. Inherited hypofibrinogenaemia, fibrinogen concentrate not available

Dose - for peoplylain, do not routinely transfers more

than I adult therapeutic dose. Prior to invesive procedure

P1. Pft <10 x 10°/L reversible bone marrow failure Not indicated in chronic bone marrow failure

92. Ph 10 - 20 y 10 II sansichaemostatic abnormality

P3a Pft <20 x 101/L central venous line

To prevent bleeding associated with invasive procedures.

P3c Plt <50 x 10⁴/L pre liver biopsylmajor surgery
 P3d Plt <80 x 10⁴/L epidural anaesthesia

P3e Pft <100 x 10⁶/L pre critical site surgery e.g. CNS.

. Transfusion prior to bone marrow biopsy is not required.

apeutic use to treat bleeding (WHO bleeding grade 2 or above)

Pile Gritical site bleeding e.g. CNS/traumatic brain injury Plt <100 x 101/L

Pile Primary immune thrombocytopenia (emergency treatment pre-procedure/severe bleeding).

No Inherited platelet disorders directed by specialist in haemostasis

P3b Plt <40 x 101/L pre lumbar puncture/spinal anaesthesia

or to treat bleeding, consider the size of the patient, previous increments and the target count.

hylactic platelet transfusion

Prior to invasive procedure or surgery

Pås Major haemorrhage Plt <50 x 101/L

15a DIC pre procedure or if bleeding.

Specific clinical conditions

Platelet dysfunction

Påc Clinically significant bleeding Plt <30 x 10¹/L.

fibrinogen <1.5g/L (<2g/L in obstetric bleeding)

The indications for transfusion provided below are taken from national guidelines for the use of blood components in adults (see references). Amalgamation into the among we whose the water of the property o

Red cell concentrates

Dose – In the absence of active bleeding, use the minimum number of units required to achieve a target inb. Consider the size of the patient; around an increment of 10gst, per unit for an average 70kg adult.

Rt. Acute bleeding

Blood

NICE guide

Published:

nice.org.uk

Acute blood loss with harmodynamic instability. After normovolaemia has been achieved/ maintained, frequent measurement of Hb (including by man patient testing) should be used to guide the use of red cell translusion see supported thresholds below

Hb = 70g/L stable patient Acute ansemia. Use an His threshold of 70gH, and a target His of 70-90gH, to guide red cell translusion. Follow local/specific protocols for indications such as pool cardiac surgery, traumatic brain injury, acute cerebral

R3. Hb = 80g/L if cardiovascular disease Use an Hb threshold of 80gs, and a target Hb of 80-100gs.

M. Chronic transfusion dependent anaemia Transfuse to maintain an I-b which prevents symptoms. Suggest an I-b threshold of 80pt. Initially and adjust as required. Harmoglobinopathy patients require individualised I-b thresholds depending on age and

85. Radiotherapy maintain Hb >110g/L There is limited evidence for maintaining an Hb of 110gt in patient receiving radiotherapy for cervical and possibly other tumours.

86. Exchange transfusion

Fresh frozen plasma (FFP) Dase - I Smilky body weight, often equivalent to 4 units in adults.

Ft. Major haumorrhago

Early infusion of FFP is recommended in a ratio Early infusion of FFP is recommended in a ratio of 1 unit FFP1 unit red cells for trauma and at least 1 unit FFP2 units red cells in other major haemorhage settings. Once bleeding is under control, FFP use should be guided by timely tests for coagulation as indicated below.

PT Ratio INR > 1.5 with blooding Clinically significant bleeding without major haemont if coagulopathy. Aim for a PT and APTT ratio of ₄1.5.

FI. PT Ratio(NR > 1.5 and pre-procedure Prophylactic use when coagulation results are abnormal e.g. deserminate intravasoular coagulation and invasive procedure is planned with risk of clinically significant bleeding.

F4. Liver disease with PT Ratio/INR >2 and pre-procedure FFP should not be routinely administered to non-bleeding patients or before invasive procedures when the FT ratio/INR is ±2.

FS. TTP/plasma exchange

M. Replacement of single coagulation factor

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No Consider if critical bleeding on anti-platelet medication.

Blood, Tissues and Organs

POSITION STATEMENT

number of years, the literature has reported debate on th oviding cytomegalovirus (CMV) seronegative blood compo idepleted components. There has been only one randomi iden et al. 1995), and a number of non-randomised trials. ded in a meta-analysis of the results (Vamvakas, 2005;Dr). Leucodepletion has been in routine use for all blood or JK since 1999, and some countries do not test the CMV se adepleted components for certain at-risk patient groups.

TO considered whether there was sufficient evidence to su icement of CMV seronegative cellular blood components (I platelets) with leucodepleted blood components. The pote idual patient groups was considered, due to the possibility omes in some groups.

CKGROUND

megalovirus

megalovirus is a herpes virus that gives rise to chronic, per e most part, asymptomatic infection in a majority of adults severe disease may occur in certain groups, such as foet immunocompromised adults. Following primary infection to converts, and CMV specific immunoglobulin G (IgG) persis ther with cellular immune responses. A CMV seropositive both infected and potentially infectious for life.

CYTOMEGALOVIRUS TESTEL BLOOD COMPONENTS

Annual Repor



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ANNUAL SHOT REPORT 2016

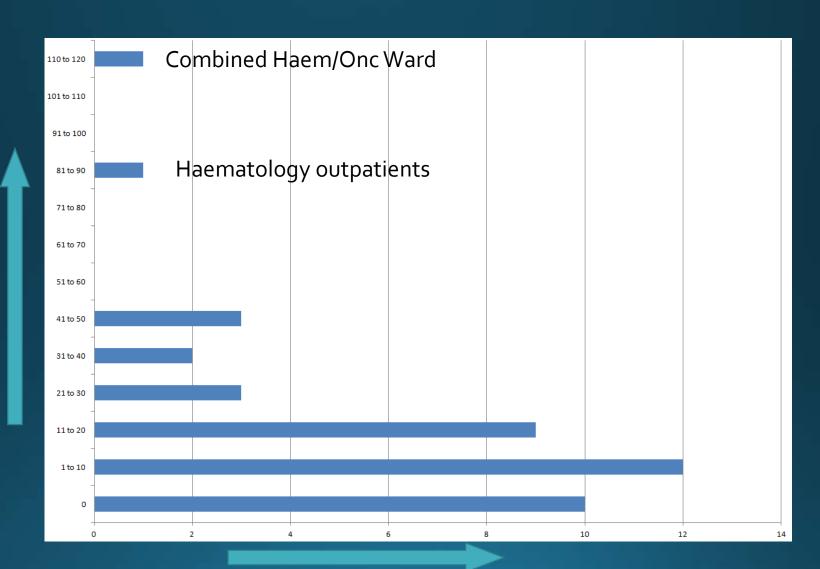


Islands of reduced transfusion activity

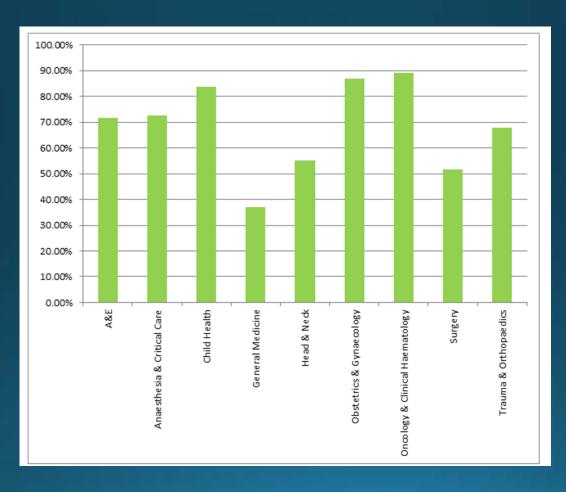


- This communication challenge is compounded by the trend towards sub-specialisation causing islands of reduced transfusion activity in hospitals.
- The top 5 highest use areas accounted for over half of all transfusions.
- This produces areas of reduced familiarity, perceived relevance and reduced engagement.

Numbers of transfusion performed in August 2017

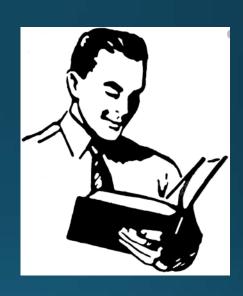


Transfusion Training Compliance



- The quality of transfusion practice within an NHS trust is fundamentally dependant on the front line staff involved in the transfusion process.
- The prescription of blood is largely done by junior doctors.
- Staff less frequently involved in transfusion will be harder to engage in the principles if Patient Blood Management.
- Our spread of transfusions is uneven across the trust but the spread of SHOT reports is even.

How to engage?



Available tools

- Trust Transfusion policy document
- 7777
- Transfusion guidelines on trust intranet
 - Engagement?????

- Transfusion training
 - Infrequent
 - Achieving 100% training compliance is very challenging particularly in areas of high staff turn over
- Transfusion talk as part of trust inductions

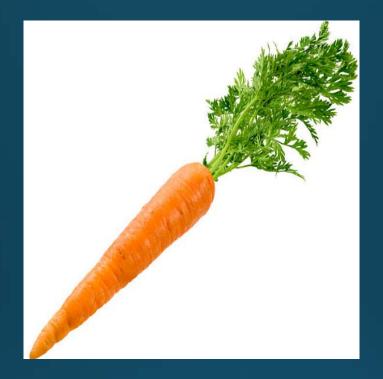
Available tools

- The blood product prescription and administration record
 - 100% of transfusions have to use this document
 - Clinicians attention and recognition of relevance to the current care of their patient is present
 - By integrating PBM principles into the process of prescribing a blood product the clinician using the document effectively updates their training every time they use it.

The right way without delay...





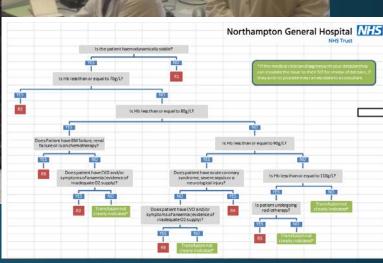


• Ensure the key information relevant to the clinician is clearly available at the time it is needed.



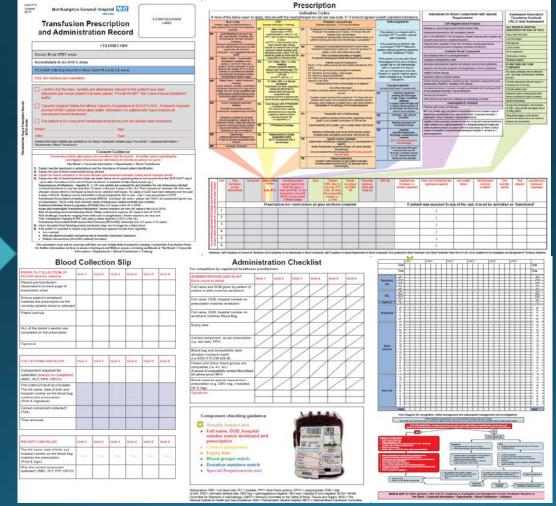
- Ensure the application of this information by redefining what a valid blood prescription must contain:
 - Consent and consideration of transfusion alternatives
 - Indication
 - Component type
 - TACO risk assessment to inform volume and rate
 - Special Requirements
 - Date to be administered
 - Review after each unit





- Nurses are **not** authorised to put up a blood product that has not got a fully completed prescription.
- The Lab has challenge algorithms based around the NBTC indication codes.

Integrate the relevant guidance into the process of prescribing and administrating blood products.





File behind the Drug & Prescription Records -BLUE divider ADDRESSOGRAPH LABEL

transfusior is to be

3

5

6

Transfusion Prescription and Administration Record

COLOUR CODE	
Doctors fill out GREY areas	
Nurse/Midwife fill out WHITE areas	
HCA/staff collecting blood from Blood Bank fill out BLUE areas	
RED text sections are mandatory	
I confirm that the risks, benefits and alternatives relevant to this patient have been discussed and verbal consent has been gained. Provide NHSBT 'Will I need a blood transl leaflet Capacity impaired (follow the Mental Capacity Act quidance in NGH-PO-303). If capacity releases	
provide NHSBT patient information leaflet 'Information for patients who have received an unexpected blood transfusion'	eyameu
This patient is on a long term transfusion programme and has already been consented	
PRINT: Sign:	
GMC: Date:	
Patient information leaflets are available on the Blood Transfusion Intranet page (The Street > Corporate Information : Departments > Blood Transfusion)	
Consent Guidance:	
Ensure any realistic alternatives are considered and discussed – for further advice regarding the	
investigation of anaemia and alternatives to transfusion please see go to:	
The Street > Corporate Information > Departments > Blood Transfusion	
 Explain how the transfusion is administered and the importance of correct patient identification. Explain the type of blood component(s) being advised. 	
 Explain the reason transfusion is felt to be indicated [see transfusion indication codes] and its expected benefit. Explain the risks of blood transfusion [risks are stated below are for general guidance and sourced from the 2015 S - up to date information on the risks of blood transfusion is available at http://www.shotuk.org/ 1 	HOT report
Transmission of infections: Hepatitis B, C, HIV and syphilis are screened for and therefore the risk of becoming via blood transfusion is very low (less than 10 cases in the past 5 years in the UK). There remains an unknown risk	from new/
unknown vectors which is minimized by blood donor selection techniques. No cases of vCJD have been detected or	over the past
8 years in the UK. Bacteria can be transmitted in blood components, this is rare - only 1 case was proven in 2015. Transfusion Associated circulatory overload [TACO]: Individual risk varies - please see TACO risk assessmen	t (areen box
on prescription). TACO is the most common cause of transfusion related morbidity and mortality.	r (green box
Tranfusion Related Acute Lung Injury [TRALI]: Rare (10 cases in the UK in 2015)	
Acute and Haemolytic Transfusion Reactions: Severe reactions are rare (86 cases in the UK in 2015)	
Risk of receiving incorrect blood product: Safety continues to improve (82 cases in the UK 2015) Risk of allergic reactions ranging from mild rash to anaphylaxis: Severe reactions are very rare.	
Post Transfusion Purpura (PTP): Very rare (2 cases reported in 2015 in the UK)	

This document must not be used by staff that are out of date with transfusion training. Contact the Transfusion Team for further information on how to access training on ext 5024 or access a training workbook at The Street > Corporate Information > Departments > Blood Transfusion > Training

ros. renaturation: rupting (r*ir; very rare (¿ cases reponee in ¿uri o m me u/k)
Transfusion Associated Graft-versus-slost Disease (TAG-VHD): Extremely rare (c5 cases in 15 years)

5. Inform the patient that following a blood transfusion they can no longer be a blood donor.

6. If the patient is expected to require long term transfusion support counsel them regarding:

It no overload

Red cell alloimmunisation (increasing risk of hemolytic transfusion reactions)
 Platelet refractoriness (HLA/HPA antibody formation)

Prescription

lf n	one of the below seem to a	nnlv			cation Codes	outwith:	standard indications	Indications for Blood Components with Special Requirements
	Red Cells		FFP	10103	Platelet concentrate		Anticoagulants	CMV Negative Blood Products
Consider single unit only transfusion in Standard Adult Dose - 15mis/kg stable patients if the cause of the anaemia is					Standard Adult Dose - 1ATD over 30 minutes			Neonates (i.e. up to 28 days post ESTINATED delivery date)
	reversible	F1	Major haemorrhage Early infusion of FFP is	P1	Prophylaxis in transient uncomplicated bone marrow failure. Transfuse if the platelet count is below 10×109 per litre with	If the pa	atient is on Heparin with a	Granulocyte components for CMV seronegative patients
21	Acute bleeding Acute blood loss with haemodynamic instability. After normovolaemia has been achieved/ maintained		recommended in a ratio of 1 unit FFP:1 unit red cells for trauma and at least 1		transient bone marrow failure "Not indicated for asymptomatic chronic bone marrow failure or in patients receiving low dose oral chemotherapy or azacytadine "		ed APTT consider reversal with Protamine	ADULT and PAEDIATRIC CMV seronegative allogeneic haematopoietic progenitor cell transplant (bone marrow or peripheral) recipients
	frequent measurement of Hb (including by near patient testing) should be used		unit FFP: 2 units red cells in other major haemorrhage settings. Activate the Massive Haemorrhage	P2	Prophylaxis in complicated transient bone marrow failure Transfuse if platelet count is below 20 x 109 in the presence of	a prolo	natient is on Warfarin with nged PT/APTT follow the	Pregnant women, regardless of their CMV serostatus, requiring repeat elective transfusions during the course of pregnancy (not labour and delivery)
	to guide the use of red cell transfusion – see succested thresholds		protocol if clinical Indicated. Once bleeding is under control, FFP use		sepsis or other haemostatic abnormality		eversal guideline (Appendix the Transfusion Policy)	Irradiated Blood Components
	below		should be guided by timely tests for	P3	Prior to invasive procedure of surgery		**	Blood transfusion from 1st or 2nd degree relatives
₹2	Stable Patient - Conservative transfusion candidate Acute		coagulation as Indicated below	-	To prevent bleeding associated with invasive procedures		tient is on any other Novel sulant (Oral direct inhibitor)	Congenital immunodeficiency states
	anaemia. Use Hb of <70g/L as a guide for red cell transfusion in acute	70g/Lasa bleeding ptt-20 v 10°94		Platelets should be transfused it:- Ptt<20 x 10*9/L central venous line (not routinely indicated for PICC	contact	t the on call haematology	Autologous haematopoietic progenitor cell transplant (bone marrow or peripheral)	
	anaemia with a target Hb of 70-90 g/L		Clinically significant bleeding lines]				or Consultant to discuss of Tranexamic Acid and	Allogeneic haematopoietic progenitor cell transplant (bone marrow or peripheral)
	provided no cardiovascular disease/ traumatic brain injury/acute cerebral		required if coagulopathy. Aim for a PT/INR		Pit <50x10°9/L pre liver blopsy / major surgery		or specific reversal agents	Hodgkin's Disease (ifelong)
	ischaemia/post cardiac surgery		and APTT ratio of < 1.5		Pit <80x10"9/L epidural anaesthesia Pit <100x10"9/L pre-critical site surgery eq CNS (including posterior	where available (e.g. Praxbind for Dabigatran)		Specified in particular treatment protocol
53	Stable Patient – Liberal transfusion candidate Acute anaemia. Consider a more liberal	F3	PT Ratio / INR >1.5 and pre- procedure	1	segment of the eyes) "" Transfusion prior to bone marrow biopsy is not required ""	(Cryoprecipitate	Patients receiving Fludarabine, Cladribine (2CDA), Pentostatin (2 deocycolomicycin), Bendamustine, CAMPATH, Clofarabine, ATG (lifelong)
	transfusion threshold of Hb 80g/L with a target Hb of 80-100 g/L for patients with		Prophylactic use when coagulation results are abnormal e.g. disseminated intravascular	Non-critical site surgery: Consider prophylactic platelet transfusion to raise the pit count above Standard Adult Dose = 2 pooled units for any subsequent			Intra-uterine transfusion of red cells or platelets and thereafter for 6 months post EDD for any subsequent exchange or top up transfusions	
	cardiovascular disease/traumatic brain injury/acute cerebral ischaemia/bost		coagulation and invasive procedure is planned with		50 x109	G1	bleeding and fibrinogen	Granulocytes transfusions
	cardlac surgery		risk of clinically significant bleeding		Consider a higher threshold (for example 50–75×109 per litre) for patients with a higher risk of bleeding either related to planned		<1.5g/L (<2g/L in obstetric bleeding)	Other indications will need to be confirmed with haematology consultant
24	Chronic Transfusion Dependent Anaemia	F4	Liver disease with PT Ratio/INR	1	procedure, falling trajectory of platelet count, other abnormalities in haemostasis or the aetiology of the thrombocytopaenia		in massive haemorrhages with a strong clinical suspicion of	Haemoglobin S -ve Blood
	*ENSURE all reversible causes of		> 2 and pre-procedure FFP should not be routinely		nacinosado o incacadagy o de anomacoyaquena		low fibrinogen lab results may	Patients with sickle cell disease
	anaemia are comprehensively excluded		administered to non-bleeding patients or before invasive	P4	Therapeutic use to treat bleeding		need to be pre-empted	NB: If any of these apply, the patient's consultant/registrar must complete a Special Requirement Lab Notification form, found at The Street > Corporate information >
	Transfuse to maintain an Hb which		procedures when the		Clinically significant bleeding (World Health Organization (WHO)	C2	Fibrinogen <1g/L and pre- procedure	Departments > Blood Transfusion > Special Requirements.
	prevents symptoms. Suggest an Hb threshold of 80g/L initially and adjust as		PT ratio/INR is < 2		grade 2) and a platelet count below 30×109 per litre	С3	Bleeding associated with	Hepatitis E will be universally screened for from the 1st May 2016 and will therefore no
	required. Haemoglobinopathy patients require individualised Hb thresholds	F5	TTP/Plasma Exchange		Severe bleeding (WHO grades 3 and 4) and pit below 100x109 per	03	thrombolytic therapy	longer continue to be a special requirement, It is anticipated during the change over some unscreened products may persist within the blood stocks so if there is clinical
	depending on age and diagnosis				Bleeding in critical sites, such as the central nervous system	C4	Inherited	concern or the patient is immunocompromised request Hepatitis E -ve blood as a
₹5	Radiotherapy	F6	Replacement of a single	1	(Including eyes) and platelet count below 100x109 per litre		hypofibrinogenaemia, fibrinogen concentrate not	special requirement.
	Limited evidence for maintaining Hb >110g/L for cervical and possibly other tumours		coagulation factor MUST be discussed with a haematologist	P5	Specific Clinical Conditions Disseminated intravascular Coagulopathy (DIC) pre-procedure or if bleeding		available [MUST be discussed with a haematologist]	
95	Exchange Transfusion				Acute Promyelocytic Leukaemia and pits <50 during induction		When requesting fibrinogen	
					chemotherapy Immune mediated thrombocytopaenia [MUST be discussed with		measurements use the fibrinogen (clottable) request	

\	na	emacoogus	P6	Acute Prom	nyelocytic Leukaemi chemot diated thrombocytop haemat Platelet Dy er if critical bleeding d platelet disorders haemat	ding a and ptts <50 du therapy asenia [MUST be tologist] ysfunction on anti-plalelet n [MUST be discuss	ring induction discussed with		haematologist) When requesting fibrinogen measurements use the fibrinogen (clottable) request on ICE. Derived fibrinogen results are less accurate						
	Indication Code (eg. R1)	Any blood prodi special requirem MUST be noted there are NONE, fi prescription to be NONE must be w in the box belo	ents I. If or the valid, ritten	Dose	Duration (RBC- Max 3.5 hrs) (Pits, FFP, Cryo- 30 mins) Never prescribe a range (i.e. 2-3 hrs)	on EPMA Y/N	Prescriber signature, name and bleep No	GMC No.	Autofated pre- transfusion i.e. 'arrived' (signature)	Given and checked by (two signatures required)	Unit number sticker	Administration checklist complete?	Time and date started	Time stopped	Autofated post transfusion (signature)
	Prescrip	tion not valid	unle	ess all gre	y sections	complete			If patier	nt was exposed to an	y of the unit	, it must be au	tofated as	s 'transfu	ised'
Τ										1					
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Т															

Transfusion Associated Circulatory Overload

(TACO) Risk Assessment

Consider appropriate rate and volume of transfusion (ie 3.5 hr rate)
Consider duretic cover
Assess for signs of overload and inform nurses to observe for signs of overload
Monitor fluid balance

4m/kg blood should give a Hb increment of 10g/L (10g/L rise per unit applies only to 70-80kg patient)

Prescribe for adults in units not mis round to the nearest unit (a unit volume is between 220 and 340mis)

TACO RISK FACTORS
Low body weight
>60 years old
Cardiac failure
Renal impairment
Fluid balance Positive
Peripheral cedema
IF ANY RISK FACTI
CONSIDER:

References: SalFTO guidance on Consent for Translusion. BCSH Guidelines on the Administration of Blood Components. SalFTO guidance on Special Requirements for Blood Components. NICE guidelines for Blood Translusion. NICH Blood Translusion. Policy NICH-PO-U4S. BCSH Guideline for the in-estigation and Management of Translusion Reactions

Blood Collection Slip

PRIOR TO COLLECTION OF BLOOD (tick for checks)	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Record pre-transfusion observations on back page of prescription chart						
Ensure patient's wristband matches this prescription so the correctly labelled blood is collected						
Patent cannula						
ALL of the doctor's section are completed on the prescription						
Signature						

COLLECTION CHECKLIST	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Component required for collection (nurse to complete) (RBC, PLT, FFP, CRYO)						
FOR COMPLETION AT BLOOD BANK: The full name, date of birth and hospital number on the blood bag matches this prescription: (Print & Signature)	Sign	Sign	Sign	Sign	Sign	Sign
Correct component collected? (Tick)						
Time removed:						

RECEIPT CHECKLIST	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
The full name, date of birth and hospital number on the blood bag matches the prescription: (Print & Sign)	Sign	Sign	Sign	Sign	Sign	Sign
Was the correct component collected? (RBC, PLT, FFP, CRYO)						

Administration Checklist

For completion by registered healthcare practitioners

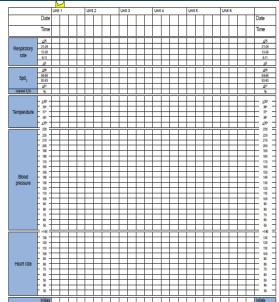
ADMINISTRATION CHECKLIST Each nurse to initial	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Full name and DOB given by patient (if patient is able) matches wristband						
Full name, DOB, hospital number on prescription matches wristband						
Full name, DOB, hospital number on wristband matches Blood Bag						
Expiry date						
Correct component as per prescription (i.e. red cells, FFP)						
Blood bag and compatibility label donation numbers match (i.e.G052 515 236 828 Ø)						
Patient and Donor blood groups are compatible (i.e. A+, A+) If unsure of compatibility contact Blood Bank for advice on ext 5413						
Blood matches special requirement prescription (e.g. CMV neg, Irradiated, Hb S neg)						
Signatures						

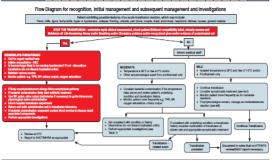
Component checking guidance

- Visually inspect unit
- Full name, DOB, hospital number match wristband and prescription
- Correct component
- Expiry date
- Blood groups match
- . Donation numbers match
- . Special Requirements met



Abbreviations: RBC = red blood cells. PLT = platelets. FFP = fresh frozen plasma. CRYO = cryoprecipitate. DOB = date of birth. EDD = estimated delivery date. CMV reg = cytomegalovirus regative. HEV reg = Hepatitis E virus regative. BCSH = British Committee for Standards in Haemstology, SaBTO = Advisory Committee on the Safety of Blood, Tissues and Organs. NCE = The National Institute for Health and Case Excellence. NGH = Northampton General Hospital. NBTC = National Blood Tirrardsusion Committee.





Medical staff: for further guidance, refer to BCSH Guidelines on investigation and Management of Acute Transfusion Reactions at The Street > Corporate Information > Departments > Blood Transfusion > Guidance

Self explanatory to use

NGV1771 Updated 03/17

Northampton General Hospital **WHS NHS Trust**



Transfusion Prescription and Administration Record ADDRESSOGRAPH LABEL

COLOUR CODE

Doctors fill out GREY areas

Nurse/Midwife fill out WHITE areas

HCA/staff collecting blood from Blood Bank fill out BLUE areas

RED text sections are mandatory

Consent

- Application of SABTO guidance and SHOT reports data on risk in a quick to use tick box format.
- Highlights the need to give out NHSBT information leaflets.
- Highlights the location on hospitals intranet of anaemia investigation algorithms, anticoagulant reversal and alternatives to transfusion such as IV iron.

I confirm that the risks, benefits and alternatives and discussed and verbal consent has been gained. I leaflet	·								
Capacity impaired (follow the Mental Capacity Act guidance in NGH-PO-303). If capacity regained provide NHSBT patient information leaflet 'Information for patients who have received an unexpected blood transfusion'									
This patient is on a long term transfusion programme and has already been consented									
PRINT:	Sign:								
GMC:	Date:								
Patient information leaflets are available on the Blood Transfusion Intranet page (The Street > Corporate Information > Departments > Blood Transfusion)									
0 10									

Consent Guidance:

Ensure any realistic alternatives are considered and discussed – for further advice regarding the investigation of anaemia and alternatives to transfusion please see go to:

The Street > Corporate Information > Departments > Blood Transfusion

- 1. Explain how the transfusion is administered and the importance of correct patient identification.
- 2. Explain the type of blood component(s) being advised.
- 3. Explain the reason transfusion is felt to be indicated [see transfusion indication codes] and its expected benefit.
- **4.** Explain the risks of blood transfusion [risks are stated below are for general guidance and sourced from the 2015 SHOT report up to date information on the risks of blood transfusion is available at http://www.shotuk.org/]

Transmission of infections: Hepatitis B, C, HIV and syphilis are screened for and therefore the risk of becoming infected via blood transfusion is very low (less than 10 cases in the past 5 years in the UK). There remains an unknown risk from new/ unknown vectors which is minimized by blood donor selection techniques. No cases of vCJD have been detected over the past 8 years in the UK. Bacteria can be transmitted in blood components, this is rare - only 1 case was proven in 2015.

Transfusion Associated circulatory overload [TACO]: Individual risk varies - please see TACO risk assessment (green box on prescription). TACO is the most common cause of transfusion related morbidity and mortality.

Tranfusion Related Acute Lung Injury [TRALI]: Rare (10 cases in the UK in 2015)

Acute and Haemolytic Transfusion Reactions: Severe reactions are rare (86 cases in the UK in 2015)

Risk of receiving incorrect blood product: Safety continues to improve (82 cases in the UK 2015)

Risk of allergic reactions ranging from mild rash to anaphylaxis: Severe reactions are very rare.

Post Transfusion Purpura (PTP): Very rare (2 cases reported in 2015 in the UK)

Transfusion Associated Graft-versus-Host Disease (TA-GvHD): Extremely rare (<5 cases in 15 years)

- 5. Inform the patient that following a blood transfusion they can no longer be a blood donor.
- 6. If the patient is expected to require long term transfusion support counsel them regarding:
 - Iron overload
 - · Red cell alloimmunisation (increasing risk of hemolytic transfusion reactions)
 - Platelet refractoriness (HLA/HPA antibody formation)

Doctors Prescription

In non-bleeding patients after EACH single-unit red cell transfusion clinically reasess and check Hb. Only give further blood if needed.	Unit	Date transfusion is to be administere		Indication Code (eg. R1)	Any blood product special requirements MUST be noted. If there are NONE, for the prescription to be valid, NONE must be written in the box below.	Dose	Duration (RBC- Max 3.5 hrs) (Plts, FFP, Cryo- 30 mins) Never prescribe a range (i.e. 2-3 hrs)	Diuretic prescribed on EPMA Y/N	Prescriber signature, name and bleep No	GMC No.						
gle-ur ive fur			Prescription not valid unless all grey sections complete													
CH sin Only g	1															
after EACH eck Hb. On	2															
atients a	3															
In non-bleeding patients clinically reasess and ch	4															
on-blee ically re	5															
ln n clin	6															

Prescription

Indication Codes If none of the below seem to apply, discuss with the haematologist on call and use code 'H' if product agreed outwith standard indications Platelet concentrate Red Cells Anticoagulants Consider single unit only transfusion in Standard Adult Dose = 15mls/kg Standard Adult Dose = 1ATD over 30 minutes stable patients if the cause of the anaemia is F1 Major haemorrhage Prophylaxis in transient uncomplicated bone marrow failure reversible Early infusion of FFP is Transfuse if the platelet count is below 10×109 per litre with If the patient is on Heparin with a Acute bleeding Acute blood loss recommended in a ratio of 1 unit transient bone marrow failure prolonged APTT consider reversal with haemodynamic instability. After FFP:1 unit red cells for trauma and ** Not indicated for asymptomatic chronic bone marrow failure or in with Protamine normovolaemia has been achieved/ at least 1 patients receiving low dose oral chemotherapy or azacytadine ** maintained. unit FFP: 2 units red cells in other frequent measurement of Hb (including If the patient is on Warfarin with major haemorrhage settings. Prophylaxis in complicated transient bone marrow failure by near patient testing) should be used Activate the Massive Haemorrhage a prolonged PT/APTT follow the Transfuse if platelet count is below 20 x 109 in the presence of to guide the use of red cell warfarin reversal guideline (Appendix protocol if clinical indicated. Once sepsis or other haemostatic abnormality transfusion - see suggested thresholds bleeding is under control. FFP use 18 of the Transfusion Policy) should be guided by timely tests for P3 Prior to invasive procedure of surgery Stable Patient - Conservative coagulation as indicated below To prevent bleeding associated with invasive procedures If the patient is on any other Novel transfusion candidate Acute APTT Ratio / INR > 1.5 with Anticoagulant (Oral direct inhibitor) Platelets should be transfused if:anaemia. Use Hb of <70g/L as a bleeding Clinically significant bleeding contact the on call haematology Plt<20 x 10*9/L central venous line [not routinely indicated for PICC quide for red cell transfusion in acute SpR or Consultant to discuss anaemia with a target Hb of 70-90 g/L without major haemorrhage, FFP Plt <40x10*9/L pre lumbar puncture/spinal anaesthesia the use of Tranexamic Acid and provided no cardiovascular disease required if coagulopathy. Aim for Plt <50x10*9/L pre liver biopsy / major surgery Octaplex or specific reversal agents traumatic brain injury/acute cerebral a PT/INR Plt <80x10*9/L epidural anaesthesia where available (e.g. Praxbind for ischaemia/post cardiac surgery and APTT ratio of < 1.5 Plt <100x10*9/L pre-critical site surgery eg CNS (including posterior Dabigatran) Stable Patient - Liberal transfusion PT Ratio / INR >1.5 and presegment of the eyes) candidate * Transfusion prior to bone marrow biopsy is not required ** procedure Cryoprecipitate Acute anaemia, Consider a more liberal Prophylactic use when coagulation Non-critical site surgery Standard Adult Dose = 2 pooled units transfusion threshold of Hb 80g/L with a results are abnormal e.g. Consider prophylactic platelet transfusion to raise the plt count above target Hb of 80-100 g/L for patients with disseminated intravascular Clinically significant 50 x109 cardiovascular disease/traumatic brain coagulation and bleeding and fibrinogen <1.5g/L (<2g/L in obstetric injury/acute cerebral ischaemia/post invasive procedure is planned with Consider a higher threshold (for example 50-75×109 per litre) for cardiac surgery risk of clinically significant bleeding patients with a higher risk of bleeding either related to planned bleeding) Chronic Transfusion Dependent procedure, falling trajectory of platelet count, other abnormalities in In massive haemorrhages with Liver disease with PT Ratio/INR Anaemia haemostasis or the aetiology of the thrombocytopaenia a strong clinical suspicion of > 2 and pre-procedure *ENSURE all reversible causes of low fibringgen lab results may FFP should not be routinely need to be pre-empted administered to non-bleeding anaemia are comprehensively excluded P4 Therapeutic use to treat bleeding patients or before invasive C2 Fibrinogen <1g/L and preprocedures when the Transfuse to maintain an Hb which procedure Clinically significant bleeding (World Health Organization [WHO] prevents symptoms. Suggest an Hb PT ratio/INR is < 2 grade 2) and a platelet count below 30×109 per litre СЗ threshold of 80g/L initially and adjust as Bleeding associated with TTP/Plasma Exchange Severe bleeding (WHO grades 3 and 4) and plt below 100x109 per thrombolytic therapy required. Haemoglobinopathy patients require individualised Hb thresholds C4 Inherited depending on age and diagnosis Bleeding in critical sites, such as the central nervous system hypofibrinogenaemia, R5 Radiotherapy Replacement of a single (including eyes) and platelet count below 100x109 per litre fibringgen concentrate not Limited evidence for maintaining Hb coagulation factor available [MUST be discussed with a Specific Clinical Conditions >110a/L for cervical and possibly othe MUST be discussed with a Disseminated Intravascular Coagulopathy (DIC) pre-procedure or if haematologist tumours haematologist] bleeding R6 Exchange Transfusion Acute Promyelocytic Leukaemia and plts <50 during induction When requesting fibrinogen chemotherapy

Immune mediated thrombocytopaenia [MUST be discussed with

Platelet Dysfunction Consider if critical bleeding on anti-platelet medication Inherited platelet disorders [MUST be discussed with a haematologist]

Indications for Blood Components with Special Requirements	Tra C (TA
CMV Negative Blood Products	(IA
Neonates (i.e. up to 28 days post ESTIMATED delivery date)	ALL P
Granulocyte components for CMV seronegative patients	TACO F
ADULT and PAEDIATRIC CMV seronegative allogeneic haematopoietic progenitor cell transplant (bone marrow or peripheral) recipients	Low box
Pregnant women, regardless of their CMV serostatus, requiring repeat elective transfusions during the course of pregnancy (not labour and delivery)	>60 yea
Irradiated Blood Components	Renal in
Blood transfusion from 1st or 2nd degree relatives	Fluid ba
Congenital immunodeficiency states	Periphe
Autologous haematopoietic progenitor cell transplant (bone marrow or peripheral)	IF AN
Allogeneic haematopoietic progenitor cell transplant (bone marrow or peripheral)	CONS
Hodgkin's Disease (lifelong)	Re-asse
Specified in particular treatment protocol	unit - us possible
Patients receiving Fludarabine, Cladribine (2CDA), Pentostatin (2 deocycoformcycin), Bendamustine, CAMPATH, Clofarabine, ATG (lifelong)	Conside
Intra-uterine transfusion of red cells or platelets and thereafter for 6 months post EDD for any subsequent exchange or top up transfusions	Conside
Granulocytes transfusions	Assess
Other indications will need to be confirmed with haematology consultant	Monitor
Haemoglobin S -ve Blood	4 In I

Requirement Lab Notification form, found at The Street > Corporate Information >

Hepatitis E will be universally screened for from the 1st May 2016 and will therefore no

longer continue to be a special requirement. It is anticipated during the change over

some unscreened products may persist within the blood stocks so if there is clinical

concern or the patient is immunocompromised request Hepatitis E-ve blood as a

Departments > Blood Transfusion > Special Requirements.

special requirement.

measurements use the

fibrinogen (clottable) request on ICE. Derived fibrinogen results are less accurate

Indications for Blood Components with Special Requirements	Transfusion Associated Circulatory Overload (TACO) Risk Assessment
CMV Negative Blood Products	(1ACO) KISK ASSESSITIETI
Neonates (i.e. up to 28 days post ESTIMATED delivery date)	ALL PATIENTS MUST BE ASSESSED FOR RISK OF TACO
Granulocyte components for CMV seronegative patients	TACO RISK FACTORS
ADULT and PAEDIATRIC CMV seronegative allogeneic haematopoietic progenitor cell transplant (bone marrow or peripheral) recipients	Low body weight
Pregnant women, regardless of their CMV serostatus, requiring repeat elective	>60 years old
transfusions during the course of pregnancy (not labour and delivery)	Cardiac failure
Irradiated Blood Components	Renal impairment
Blood transfusion from 1st or 2nd degree relatives	Fluid balance Positive
Congenital immunodeficiency states	Peripheral oedema
Autologous haematopoietic progenitor cell transplant (bone marrow or peripheral)	IF ANY RISK FACTORS
Allogeneic haematopoietic progenitor cell transplant (bone marrow or peripheral)	CONSIDER:
Hodgkin's Disease (lifelong)	Re-assess symptoms and Hb after each unit - use single unit transfusion wherever
Specified in particular treatment protocol	possible
Patients receiving Fludarabine, Cladribine (2CDA), Pentostatin (2 deocycoformcycin), Bendamustine, CAMPATH, Clofarabine, ATG (lifelong)	Consider appropriate rate and volume of transfusion (ie 3.5 hr rate)
Intra-uterine transfusion of red cells or platelets and thereafter for 6 months post EDD for any subsequent exchange or top up transfusions	Consider duretic cover
Granulocytes transfusions	Assess for signs of overload and inform
Other indications will need to be confirmed with haematology consultant	nurses to observe for signs of overload
Haemoglobin S -ve Blood	Monitor fluid balance
U	4ml/kg blood should give a Hb increment
Patients with sickle cell disease	of 10g/L (10g/L rise per unit applies only to
NB: If any of these apply, the patient's consultant/registrar must complete a Special	70-80kg patient)

Prescribe for adults in units not mls -

between 220 and 340mls)

round to the nearest unit (a unit volume is

In non-bleeding patients after EACH single-unit red cell transfusion, clinically ressess and check Hb. Only give further blood if needed.	Unit	Date transfusion is to be administered	Component	(ication Code g. R1)	Any blood product special requirements MUST be noted. If there are NONE, for the prescription to be valid, NONE must be written in the box below.	Dose	Duration (RBC- Max 3.5 hrs) (Plts, FFP, Cryo- 30 mins) Never prescribe a range (i.e. 2-3 hrs)	on EPMA Y/N	Prescriber signature, name and bleep No	GMC No.			
gle-ur		Prescription not valid unless all grey sections complete												
CH single-unit red Only give further	1			4										
ifter EA	2													
atients after EA and check Hb.	3													
ding pa	4													
In non-blee clinically re	5													
In n	6													

P6

Nursing Documentation

Autofated pre- transfusion i.e. 'arrived' (signature)	Given and checked by (two signatures required)	Unit number sticker	Administration checklist complete?	Time and date started	Time stopped	Autofated post transfusion (signature)				
If patient was exposed to any of the unit, it must be autofated as 'transfused'										
	1									
	1									
	1									
	1									
	1									
	1									

Checklists!



Pre blood collection check list

Blood Collection Slip											
PRIOR TO COLLECTION OF BLOOD (tick for checks)	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6					
Record pre-transfusion observations on back page of prescription chart											
Ensure patient's wristband matches this prescription so the correctly labelled blood is collected											
Patent cannula											
ALL of the doctor's section are completed on the prescription											
Signature											

Collection check List

COLLECTION CHECKLIST	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Component required for collection (nurse to complete) (RBC, PLT, FFP, CRYO)						
FOR COMPLETION AT BLOOD BANK: The full name, date of birth and hospital number on the blood bag matches this prescription: (Print & Signature)	Sign	Sign	Sign	Sign	Sign	Sign
Correct component collected? (Tick)						
Time removed:						

Receipt of Blood checklist

RECEIPT CHECKLIST	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
The full name, date of birth and hospital number on the blood bag matches the prescription: (Print & Sign)	Sign	Sign	Sign	Sign	Sign	Sign
Was the correct component collected? (RBC, PLT, FFP, CRYO)						

Administ checklist

Administration Checklist

For completion by registered healthcare practitioners

ADMINISTRATION CHECKLIST Each nurse to initial	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Full name and DOB given by patient (if patient is able) matches wristband						
Full name, DOB, hospital number on prescription matches wristband						
Full name, DOB, hospital number on wristband matches Blood Bag						
Expiry date						
Correct component as per prescription (i.e. red cells, FFP)						
Blood bag and compatibility label donation numbers match (i.e.G052 515 236 828 Ø)						
Patient and Donor blood groups are compatible (i.e. A+, A+) If unsure of compatibility contact Blood Bank for advice on ext 5413						
Blood matches special requirement prescription (e.g. CMV neg, Irradiated, Hb S neg)						
Signatures						

Component checking guidance

Visually inspect unit

Full name, DOB, hospital number match wristband and prescription

Correct component

Expiry date

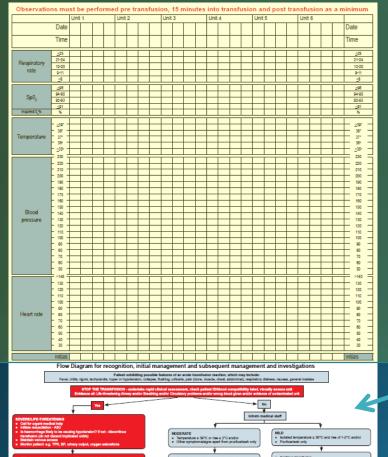
Blood groups match

Donation numbers match

Special Requirements met



Transfusion reaction guidance integrated into the blood observation chart

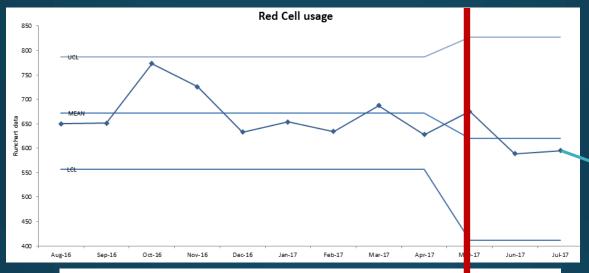


ledical staff: for further guidance, refer to BCSH Guidelines on Investigation and Management of Acute Transf The Street > Corporate Information > Departments > Blood Transfusion > Guidance Aids recognition and provides advice on when and how to report the hospital transfusion team and thereby to SHOT/MHRA.

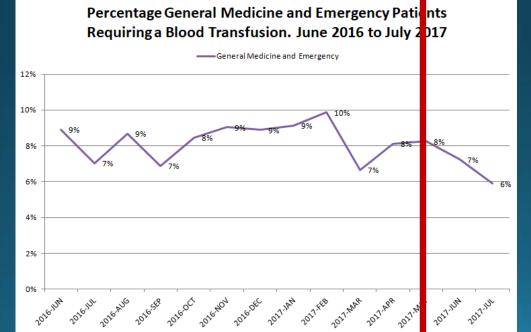
BSH algorithm

Link to BSH guideline

Current trust red cell use



Lowest monthly RBC use on record at 559 in August 2017.



Regular Document reviews

- To ensure the document stays relevant and up to date it is set with 6 monthly reviews, a pattern established by the initial pilots.
- This approach allows the document to effectively act as a messaging board for new developments in transfusion.

Thank you.

03/17	Northampton General Hospital									
	Transfusion Prescription and Administration Record	ADDRESSOGRAPH LABEL								
	COLOUR CODE									
	Doctors fill out GREY areas									
	Nurse/Midwife fill out WHITE areas									
	HCA/staff collecting blood from Blood Bank fill out BLUE areas									
	RED text sections are mandatory									
	I confirm that the risks, benefits and afternatives relevant to this patient have been discussed and verbal consent has been gained. Provide NHSBT 'Will I need a blood transfusion' leaflet									
File behind the Drug & Prescription Records - BLUE divider	Capacity impaired (follow the Mental Capacity Act guidance in NGH-PO-303). If capacity regalined provide NHSBT patient information leaflet 'information for patients who have received an unexpected blood transfusion'									
Mder	This patient is on a long term transfusion programme and has all	d has already been consented								
mg & i	PRINT: Sign:									
G eth b	GMC: Date: Patient information leaflets are available on the Blood Transfusion infranet page (The									
ig o	Departments > Blood Transfusion) Consent Guidance:									
Ē	Ensure any realistic alternatives are considered and discussed – fo									
	investigation of anaemia and alternatives to transfusion The Street > Corporate information > Departments > Bi									
	Explain how the transfusion is administered and the importance of correct patient is Explain the type of blood components) being advised.	dentification.								
	3. Explain the reason transfusion is felt to be indicated [see transfusion indication coo									
	4. Explain the risks of blood transfusion fitted are stated below are for general guidance and sourced from the 2015 SH-up to date information on the risks of blood transfusion is available at https://www.arbuku.org/] Transmission of Infloditions: Hespitills B, C, HiV and syphilis are screened for and therefore the risk of becoming in via blood transfusion is very low (see is min of cases in the part of years in the UKI, There remains an unknown risk in									
	unknown vectors which is minimized by blood donor selection techniques. No case 8 years in the UK. Bacteria can be transmitted in blood components, this is rare - o	inly 1 case was proven in 2015.								
Transfusion Associated circulatory overload [TACO]: Individual risk varies - please see TACO risk assessment on prescription). TACO is the most common cause of transfusion related morbidity and morfality.										
	Tranfusion Related Acute Lung Injury [TRALI]: Rare (10 cases in the UK in 201 Acute and Haemolytic Transfusion Reactions: Severe reactions are rare (86 ca	ses in the UK in 2015)								
	Risk of receiving incorrect blood product: Safety continues to improve (82 case Risk of allergic reactions ranging from mild rash to anaphylaxis: Severe reac	es in the UK 2015)								
	Post Transfusion Purpura (PTP): Very rare (2 cases reported in 2015 in the UK) Transfusion Associated Graff-versus-Host Disease (TA-GvHD): Extremely rare	-								
	Inform the patient that following a blood transfusion they can no longer be a blood									

If the patient is expected to require long term transfusion support course them regarding
 ton overload
 Red cell alialmmunisation (increasing risk of hemalytic transfusion reactions)
 Plateiet refractoriness (HLAHPA artibody formation)

This document must not be used by staff that are out of date with transfusion training. Contact the Transfusion Team for further information on how to access training on ext 6024 or access a training workbook at The Street > Corporate Information > Departments > Blood Transfusion > Training

NGV1771

Prescription

_	Troompton												
	Indication Codes If none of the below seem to apply, discuss with the haematologist on call and use code 'H' if product agreed outwith standard Indications Requirements												
1	Red Cells Consider single unit only transfusion in		FFP Standard Adult Dose = 15min/kg		Platelet concentrate Standard Adult Cose = 1ATD over 30 minutes		Antiooaguiants	CMV Negative Blood Products	(TACO) Risk Assessment				
1	stable patients if the cause of the anaemia is	F1	Major hasenorrhage	P1	Prophylagis in transient uncomplicated bone marrow failure			Neonates (i.e. up to 28 days post ESTIMATED delivery date)	ALL PATIENTS MUST BE				
H	INTERNAL	г.	Early infusion of FFP is	PI	Transfuse if the platalet count is below 10×109 per litre with		etient is on Heparin with a	Granulocota componente for CMV senone selve suberts	ASSESSED FOR RISK OF TACO				
ľ	with has modynamic instability. After		recommended in a ratio of 1 unit FFP:1 unit red cells for baums and		transient bone marrow fallure "Not indicated for asymptomatic chronic bone marrow fallure or in	prolong	ed APTT consider reversel with Proternine	ADULT and PARDATRIC CMV secongative alloganets has realogated; progration cell	TACO RISK FACTORS				
1	normovolaemia has been achieved/ maintained.		at least 1 unit FFP: 2 units red cells in other		patients receiving law dose oral chemotherapy or azacytadine **		WIET PTOZITETE	Insreplant (be no manow or peripheral) recipients	Low body weight				
1	frequent measurement of Hb (including		resjor haemorrhage settings.	P2	Proglydauls in complicated translert bone marrow failure		patient is on Warfarin with	Programt women, regardess of their CMV servetalus, sequiring separal elective	>89 years old				
1	by near patient testing) should be used to guide the use of red cell		Activate the Massive Haamonhage protocol if clinical indicated. Once	P2	Transfuse if platelet count is below 20 x 109 in the presence of	a prote warfario	inged PT/APTT follow the reversal guideline (Appendix	Institutions during the course of programmy (sol labour and delivery)	Cardiac failure				
1	bandusion – see suggested thresholds below		bleeding is under control, FFP use		sepals or other haemostalic abnormality	18 o	the Transfusion Policy)	Irradiated Blood Components	Renal Impairment				
Н	R2 Stable Patient - Conservative		should be guided by timely tests for coagulation as indicated below	P3	Prior to installed procedure of surgery To present bleeding associated with invasive procedures	Ethers	atient is on any other Novel	Blood transfusion from 1st or 2nd degree relatives	Fluid balance Positive				
ľ		F2	APTT Ratio / INR > 1.5 with	1	Platelets should be transfused th-	Anticon	gulant (Onal direct inhibitor)	Congenital immunodeficiency states	Periphenal cedema				
1	guide for red cell transfusion in agute		bleeding Clinically significant bleeding		PR+20 x 10*9/L central veccus line (not routinely indicated for PIDD		t the on call haemstology or Consultant to discuss	Autologous haematopoletic progenitor cell transplant (bone marrow or periphenal)	IF ANY RISK FACTORS CONSIDER:				
1	anaemia with a target Hb of 70-90 g/L. provided no cardiovascular disease/		without major has morrhage. FFP		lines] Pit <60x10°96, pre lumbar puncture/spinal anaesthesia		e of Transcomic Acid and	Alogeneic beamstapointic progenitor cell transplant (bone marrow or peripheral)	Re-essess symptoms and Hb after each				
1	insumatic brain injury/acute cerebral		required if coagulopathy. Aim for a PT/NR		Pt: -50x10°91, pre liver biopsy / resjor surgery Pt: -00x10°91, eoidural anaesthesis	Octapiex or specific reversal agents		Hodgkin's Disease (Molong)	unit - use single unit transfusion wherever				
Н	Isohaenia/post cardisc surgery RS Stable Patient – Liberal transition	_	and APTT rails of < 1.5	1	Pt: <100x10°64, pre-ortical site surgery eg CNS (including posterior	Where	evaluate (e.g. Presbind for Debloaten)	Specified in particular treatment protocol	passible				
ľ	Condidate Acute anaemia, Consider a more liberal	F3	PT Ratio / IMR >1.5 and pre- procedure Prophyladic use when conculation		segment of the eyes) "Transfusion prior to bone marrow blopsy is not required "	Cryoprecipitate		Patients receiving Fluderabine, Cladribine (CCDA), Perfectation (2 deceyor/temopole), Bendemuntine, CAMPATH, Clohenbine, ATG (Infring)	Consider appropriate rate and volume of transfusion (in 3.5 hr rate)				
1	transfasion threshold of Hb 00g/L with a		regults are abnormal e.g.		Non-ortical site surgery: Consider prophylactic platelet transfesion to raise the oil count above	Standard Aduk Dose = 2 pooled units		lette-aterine transfusion of red cells or platelets and thereafter for 6 months post EDO	Consider durellic cover				
1	target Hb of 00-100 gA, for patients with cardiovascular disease/traumatic brain		disseminated intravascular coapulation and		50 x109	C1	Clinically eignificant bleeding and fibringers	for any subsequent exchange or top up transfusions Cranulocotes transfusions	Assess for signs of overload and inform				
-	injury/acute cerebral isobsernia/post cardiac surgery		Invasive procedure is planted with risk of clinically significant bleeding		Consider a higher threshold (for example 50-75+109 per litre) for		41.5gL (42gL in obstattic	Other indications will need to be confirmed with hasmatology consultant	nurses to observe for signs of overload				
h		F4		-	patients with a higher risk of bleeding either related to planned procedure, falling trajectory of pistelet count, other abnormalities in		bleeding) In massive basmorthages with	Haemoglobin S -ve Blood	Monitor fluid balance				
	Araenia	F-4	Liver disease with PT RadoBNR > 2 and pre-procedure		haemostasis or the selfology of the thrombocytopaenia		a strong clinical suspiction of	Patients with sidde cell disease	4miles blood should give a H5 increment				
-	"ENSURE all reversible causes of assemia are comprehensively excluded		FFP should not be routinely administrated to non-bleeding				low fibringen lab results may need to be pre-empted	NR: If any of these apply, the patient's consultanting inter must complete a Special	of 10pt. (10pt. rise per unit applies only to 70-80to autenti				
1			patients or before invasive procedures when the	P4	Therapeutic use to treat bleeding	C2	Fibrinogen +1giL and pre-	Requirement Lab Notification form, found at The Street > Corporate Information >	Prescribe for adults in units not ret -				
1	Transfuse to maintain an H5 which prevents symptoms. Suppost an H5		PT mito/INR is < 2		Clinically significant bleeding (World Health Organization (WHO) grade 21 and a platelet count below 301109 per litre		procedure	Departments > Blood Transfusion > Special Regularments.	round to the nearest unit (a unit volume is				
1	threshold of BOgil, initially and adjust as negured. Has mogistion opathy patients		TTP/Plasma Exchange	-	Severe bleeding (WHO grades 3 and 4) and pik below 100x109 per	C3	Bleeding associated with thrombolytic therapy	Playation II will be universally someoned for from the 1st kiny 2015 and will therefore no longer continue to be a special requirement. It is anticipated during the change over	between 220 and 340mb()				
1	require individualised His thresholds	""			ite	C4	Inherited	some unacreened products may pends within the blood stacks so if there is clinical					
H	depending on age and diagnosis			4	Dieeding in ortical sites, such as the central nervous system	U-6	hypofibrinogeneemis,	concern or the patient is immunocompromised request Hepatite E -ve blood as a special requirement.					
ľ	RS Radiotherapy Limited evidence for maintaining Hb	FG	Replacement of a single coagulation factor		(including eyes) and platelet count below 100x109 per libre		fibrinogen concentrate nut available	4					
1	>110g/L for cervical and possibly other tumours		MUST be discussed with a haematriculat	P5	Specific Clinical Conditions Disseminated intravascular Coaguispality (DIC) pre-procedure or if		[MUST be discussed with a havenatologist]						
h	R6 Exchange Transfusion		***********		bleeding Acute Promyelocytic Leukaemia and pile +50 during induction								
-				1	chemotherapy		When requesting foringen measurements use the						
					Immune mediated thrombocytopaenia [MUST be discussed with has matologist]		Sbringen (cictable) request on IDE. Derived Sbringsen						
				P6	Plainlet Dysfunction		results are less accurate						
					Consider if critical bleeding on anti-platelet medication inherited platelet disorders (MUST be discussed with a								
					haematologiet]								

ik red ed Hamiliake ther bleed if needed.		trensfusion is to be administered	(eg. R1)	special requirements MUST be noted. If there are NONE, for the prescription to be valid, NONE must be written in the box below.		(RBO- Max 3.5 hrs) (Pts, FFP, Cryo- 30 mins) Never prescribe a range (i.e. 2-3 hrs)	on EPMA Y/N	signature, name and bleep No	transfusion (.e. 'emived' (signature)	signatures required)	sticker	checklet complete?	and date started	stopped	transfusion (signature)
122	1		Prescrip	tion not valid unle	as all gre	y sections o	omplete		If patient was exposed to any of the unit, it must be autofated as 'transfused'						
CHaingle	1									1					
der EA	2									1					
Monts o	3									1					
8	4									1					
on blee	5									1					
Inno	6									1					

Fernances: Sall TO guidance on Consent for Translation, BCSF Guidelines on the Administration of Slood Components, SSETO guidance on Special Requirements for Slood Components, NICE guidelines for Blood Translation, NIGH Slood Translation, Policy NIGH-PO-615, BCSF Guidelines for the Investigation and Management of Translation Reads