Ashford and St. Peter's Hospitals
NHS Foundation Trust

Blood Product Prescriptions for Paediatric Oncology Patients

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Guideline History		
Date	**Comments**	**Approved By**
15/02/2021		Paediatric Guideline Committee

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Contents

Blood product prescriptions for oncology patients

This guidance has been designed to clarify the transfusion thresholds and blood product requirements for oncology patients. All information has been taken from the Paediatric Haematology and Oncology Supportive Care Protocol.

Red blood cell transfusion

For most the transfusion threshold is Hb 70g/L.
Some patients are symptomatic above this level and may have their own personal threshold
For patients undergoing radiotherapy maintain Hb >100g/L whilst on treatment.

To calculate the volume for transfusion:
Calculate the desired rise in Hb = target Hb (g/L) – actual Hb (g/L)
Calculate dose of red cells (mls) = desired rise in Hb (g/L) x 0.4 x weight (kg)

For example: A child weighing 24kg has a Hb of 63g/L. The target Hb is usually 100g/L.
Desired rise in Hb = 100 – 63
= 37g/L
Dose of red cells = 37 x 0.4 x 24
= 355mls

* Please note that if the volume is close to the volume of 1 unit of packed red cells (250-350mls) then only request 1 unit, rather than waste much of a second unit. But remember 20mls is lost in the giving set.

Administer over 3-4 hours as per normal blood transfusion guidelines.
There is no routine indication for diuretics to be prescribed with blood transfusions.

Platelet transfusion

Platelet level ($x10^9$/L)	
< 10	Give platelet transfusion
< 20	Give platelet transfusion if febrile/septic or if platelet count likely to drop <10 $x10^9$/L before next measurement. Give if they are under GOSH and due LP/bone marrow trephine
< 30	Give platelet transfusion if the child has a brain or spinal tumour/retinoblastoma, or is to undergo a bone marrow trephine at RMH/UCLH in the next 24 hours
< 50	Give platelet transfusion if bleeding, coagulopathy/on heparin, due lumbar puncture (RMH) or surgery (line insertion/removal)
< 100	Give platelet transfusion if life-threatening bleeding, bleeding at critical site (lungs/CNS) or due surgery to brain/spine/eyes

* Bone marrow trephine is different from bone marrow aspirate. The platelet level required for bone marrow aspirates is >10 $x10^9$/L.
* Platelets are prescribed at 10ml/kg over 30 mins.
* Only prescribe a maximum of 1 unit at a time.

Special requirements: Irradiated/CMV negative blood products

Only a few oncology patients require irradiated/CMV negative blood products. For those who don't by ordering irradiated/CMV negative blood products for them you may delay their care, and the care of others.

CMV negative blood products
All patients under the care of The Royal Marsden do not require CMV negative blood. (*See note below)

Patients under the care of GOSH and UCLH follow different guidance:
GOSH: use CMV negative blood products in all those about to undergo or have undergone BMT/PBSCT whose protocol requires this
UCLH: all patients under their care who are CMV negative or CMV status unknown if there is any possibility they will undergo BMT/PBSCT in the future

Our oncology team will endeavour to make this clear on the patient's notes and will usually have liaised with our haematology laboratory to clarify the patient's special requirements.


PAEDIATRIC ONCOLOGY NURSING ASSESSMENT

ADDRESSOGRAPH

Forename: Surname: Known as:
Address: Telephone No: Lives with:
Postcode:
Date of Birth: Religion: School / Nursery:
Next of kin: Address: Parental responsibility:
Medical information
Diagnosis and Date: Treatment centre: Ward:
Clinical nurse specialist:
Protocol: Address: Telephone No:
Fax No:
Children's Community Nursing team: Social Worker/safeguarding: GP Name and Address:
Telephone No: Telephone No: Telephone No:
Relevant past medical history:
Access device: Hickman line, Portacath, PICC
Part needle size: N/A, ¾ inch, 1 inch
Allergies / reactions:
1st line antibiotics:
Blood transfusion levels:
Blood group:
Requirements: CMV negative, Irradiated
Platelet transfusion levels:
Please note: prior to procedures these levels may be different.
Transfusion cover: Chlorphenicol maleate, Hydrocortisone, N/A
Chicken pox serology:
Any other information:

Please note: some patients undergoing a bone marrow transplant will change their blood group due to their transplant. This information will be passed on to our local haematology/transfusion laboratory by our oncology team.

* In March 2012, the Department of Health Advisory Committee on the Safety of Blood, Tissues and Organs (SaBTO) released a new position statement on Cytomegalovirus (CMV) testing of blood components. This concluded that leucodepletion of blood components (routine since 1999) offers sufficient protection against the risk of CMV transmission in most patient groups and that CMV negative components should no longer be considered necessary for CMV negative patients undergoing chemo/radiotherapy or requiring BMT/PBSCT. (www.dh.gov.uk/health/2012/03/sabto/).

Irradiated blood products

Below is a table to show which patients require irradiated blood products. Highlighted are the more common scenarios.

All patients with Hodgkin Lymphoma – continue indefinitely
All recipients of allogeneic bone marrow (BMT) or peripheral blood stem cell transplant (PBSCT) start from the initiation of conditioning chemo/radiotherapy continue for the duration of GvHD prophylaxis or until lymphocytes >1x109/l continue indefinitely if chronic GvHD present or on-going immunosuppression is required
All patients treated with regimens containing purine analogue drugs – continue indefinitely (fludarabine, cladribine (2-cda), deoxycoformycin, clofarabine, nelarabine & bendamustine)
All patients treated with anti-thymocyte globulin (ATG) – continue indefinitely
All patients treated with alemtuzumab (Campath) – continue indefinitely
All donors of bone marrow (BM) or peripheral blood stem cells (PBSC) - from 7 days prior to / during the harvest
All patients undergoing BM or PBSC harvesting for future autologous re-infusion from 7 days prior to / during the harvest
All patients undergoing autologous BMT or PBSCT start from the initiation of conditioning chemo/radiotherapy continue until 3 months post-transplant or 6 months post-transplant if total body irradiation (TBI) was used in conditioning
All cases where there may be a shared haplotype between the donor and the recipient donations from first or second-degree relatives HLA matched platelets
Neonates who have previously received blood components in utero (IUT) Continue until 6 months after the expected date of delivery
Children with severe T lymphocyte immunodeficiency syndromes, such as: Combined Immunodeficiency (CID) Severe Combined Immunodeficiency (SCID) 22q11 Deletion Syndrome (DiGeorge Syndrome / Velo-Cardio-Facial Syndrome) Wiskott-Aldrich Syndrome

In addition, granulocyte transfusions should always be irradiated.
It is **not** necessary to irradiate fresh frozen plasma or cryoprecipitate.

Supporting References:

1. The Paediatric Haematology and Oncology Supportive Care Protocol (available on Intranet – Paediatrics Guidelines – Oncology)
2. JPAC (Joint UK Blood Transfusion and Tissue Transplantation Services Professional Advisory Committee > Document library > Special Requirements.pdf)
3. Leaflets are available to order or download from the NHS Blood & Transplant (NHSBT) service for patients who have not received a transfusion previously and may want information.

2. Guideline Governance

a. Scope

This guideline is relevant to all staff caring for all children from 0-18 years old across the emergency department, inpatient ward and outpatient department.

b. Purpose

i. This guidelines aims to facilitate a common approach to the management of children. At times deviation from the guideline may be necessary, this should be documented and is the responsibility of the attending consultant.

ii. This guideline is subject to regular review to ensure ongoing evidence based practice.

c. Duties and Responsibilities

All healthcare professionals responsible for the care of all children 0-18years should be aware of practice according to this guideline.

d. Approval and Ratification

This guideline will be approved and ratified by the Paediatric Guidelines Group.

e. Dissemination and Implementation

i. This guideline will be uploaded to the trust intranet 'Paediatric Guidelines' page and thus available for common use.
ii. This guideline will be shared as part of ongoing education within the Paediatric Department for both medical and nursing staff.
iii. All members of staff are invited to attend and give comments on the guideline as part of the ratification process.

f. Review and Revision Arrangements

a. This policy will be reviewed on a 3 yearly basis by the appropriate persons.
b. If new information comes to light prior to the review date, an earlier review will be prompted.
c. Amendments to the document shall be clearly marked on the document control sheet and the updated version uploaded to the intranet. Minor amendments will be ratified through the Paediatric Guidelines Group. A minor amendment would consist of no major change in process, and includes but is not limited to, amendments to documents within the appendices.

g. Equality Impact Assessment

Background • Who was involved in the Equality Impact Assessment
Author and the supervising consultants.
Methodology • A brief account of how the likely effects of the policy was assessed (to include race and ethnic origin, disability, gender, culture, religion or belief, sexual orientation, age) • The data sources and any other information used • The consultation that was carried out (who, why and how?)
All groups of staff and patients were taken into consideration and there is no bias towards or against any particular group.
Key Findings • Describe the results of the assessment • Identify if there is adverse or a potentially adverse impacts for any equalities groups
There is no evidence of discrimination.
Conclusion • Provide a summary of the overall conclusions
There is no evidence of discrimination.
Recommendations • State recommended changes to the proposed policy as a result of the impact assessment • Where it has not been possible to amend the policy, provide the detail of any actions that have been identified • Describe the plans for reviewing the assessment
This guideline is appropriate for use.

h. Document Checklist

To be completed (electronically) and attached to any document which guides practice when submitted to the appropriate committee for approval or ratification.

Title of the document: Blood Product Prescriptions for Paediatric Oncology Patients

Policy (document) Author: Dr Claire Mitchell

Executive Director: N/A

		Yes/No/ Unsure/NA	Comments
1.	**Title**		
	Is the title clear and unambiguous?	**Yes**	
	Is it clear whether the document is a guideline, policy, protocol or standard?	**Yes**	
2.	**Scope/Purpose**		
	Is the target population clear and unambiguous?	**Yes**	
	Is the purpose of the document clear?	**Yes**	
	Are the intended outcomes described?	**Yes**	
	Are the statements clear and unambiguous?	**Yes**	
3.	**Development Process**		
	Is there evidence of engagement with stakeholders and users?	**Yes**	
	Who was engaged in a review of the document (list committees/ individuals)?		**Paediatric Guideline Group 15/02/21**
	Has the policy template been followed (i.e. is the format correct)?	**Yes**	
4.	**Evidence Base**		
	Is the type of evidence to support the document identified explicitly?	**Yes**	

		Yes/No/ Unsure/NA	Comments
	Are local/organisational supporting documents referenced?	**Yes**	
5.	**Approval**		
	Does the document identify which committee/group will approve/ratify it?	**Yes**	
	If appropriate, have the joint human resources/staff side committee (or equivalent) approved the document?	**N/A**	
6.	**Dissemination and Implementation**		
	Is there an outline/plan to identify how this will be done?	**Yes**	
	Does the plan include the necessary training/support to ensure compliance?	**Yes**	
7.	**Process for Monitoring Compliance**		
	Are there measurable standards or KPIs to support monitoring compliance of the document?	**Yes**	
8.	**Review Date**		
	Is the review date identified and is this acceptable?	**Yes**	
9.	**Overall Responsibility for the Document**		
	Is it clear who will be responsible for coordinating the dissemination, implementation and review of the documentation?	**Yes**	
10.	**Equality Impact Assessment (EIA)**		
	Has a suitable EIA been completed?	**Yes**	

Committee Approval (Paediatric Guidelines Group)			
If the committee is happy to approve this document, please complete the section below, date it and return it to the Policy (document) Owner			
Name of Chair	**Dr Claire Mitchell**	**Date**	**25/03/2021**
Ratification by Management Executive (if appropriate)			
If the Management Executive is happy to ratify this document, please complete the date of ratification below and advise the Policy (document) Owner			
Date: n/a			