ANNP Authorisation of Blood Components

Practical and Safety Aspects of Neonatal Transfusion

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Dosage for transfusion

Introduction

- Look at suggested volumes for transfusion of:
- -blood: whole vs semi-packed cells (indication)
- -platelets
- -FFP

Blood

- Whole blood
- -Treatment of hypovolaemia 6xwt (in kg) x rise desired in Hb
- -Exchange transfusion 160-180ml/kg whole blood
- Semi packed cells (SAGM)
- -anaemia without hypovolaemia
- Weight(kg) x increment in Hb x 3/ donor Hct, (usually about 0.6)
- =weight x rise in Hb desired x 5
- (Each 10ml/kg given will increase Hb by 20g/l) 20ml/kg = 40g/l

Duration of blood transfusion

- Acute hypovolaemia
- -give over 30-60 mins
- Anaemia
- -give over 2-3 hours (furosemide??)
- Exchange transfusion
- -double volume, aim for 90-120 mins
- Pedipacks
- Divided transfusions and PDA

Platelet transfusion

- No particular formula
- -usually give 20ml/ kg over 60 minutes
- -look at platelet count after 4-6 hours ? Effect
- -no apparent effect
- -good effect

Fresh frozen plasma

- Particularly useful if coagulation studies show prolongation of APTT
- Fresh as possible
- Give 20ml/ kg over 60 minutes (? Faster if signs of hypovolaemia)

Reactions

- Thankfully incredibly rare in newborns
- Probably indication of their relative immunodeficiency
- Treatment: stop transfusion, steroids, antihistamines

Summary

- Indications for transfusions:
- -blood
- -platelets
- -fresh frozen plasma
- Suggested amounts and duration
- TALK TO THE LAB! Give them details such as gestation, weight, indication for transfusion, details of previous transfusions (especially in-utero) and maternal sample if required.

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SAFE ADMINISTRATION

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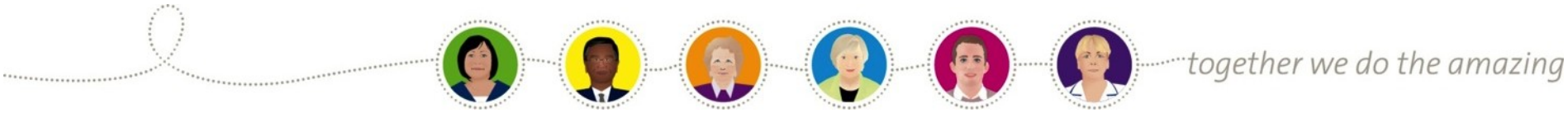
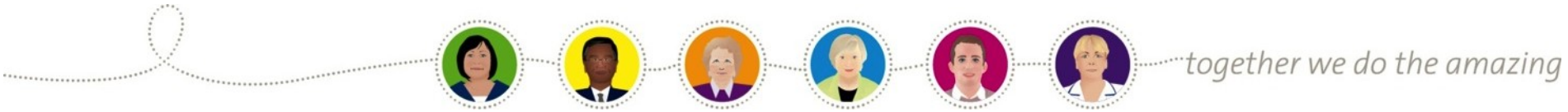


Sources of essential information

- British Committee for Standards in Haematology (BCSH) (bcshguidelines.com)
  - ‘Transfusion guidelines for neonates and older children’, 2004 (with amendments 2005,2007)
  - ‘Guideline on the Administration of Blood Components’, 2009
- **Local Trust Policy** (South Tees - G28)
- **NHS Blood and Transplant** (NHSBT)
  - Patient information booklets
  - nhsbt.nhs.uk
- **Serious Hazards of Transfusion (SHOT)** (shotuk.org)



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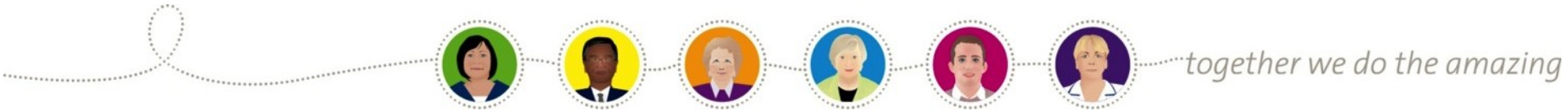
Safety - first and foremost

Remember, **sampling** is a vital part of the transfusion process - Errors in patient identification and not following procedures at this pre-transfusion stage can lead to catastrophic outcomes

- Positive identification - ask the patient - check the wristband - check the form
- Bleed one patient at a time
- Hand-write details on the tube immediately at the patient's bedside
- Sign the sample tube
- NEVER pre-label sample tubes or label a sample for anyone else



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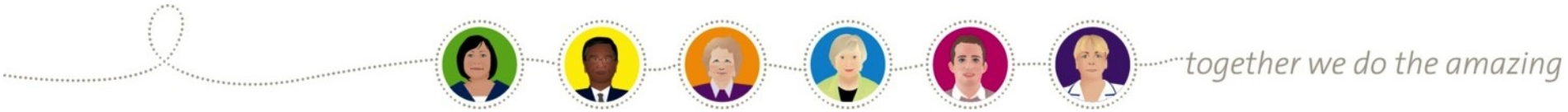
Safety - first and foremost

(See Serious Hazards of Transfusion for further details shotuk.org)

Particular issues that may place infants at higher risk of errors

- Confusion of maternal and baby (or placental) samples
- Multiple births
- Failure to apply wristbands
- Failure to communicate special transfusion needs during shared care

Therefore, **always** pay close attention to **correct identification** of the patient and **product details** at **ALL** stages of the transfusion



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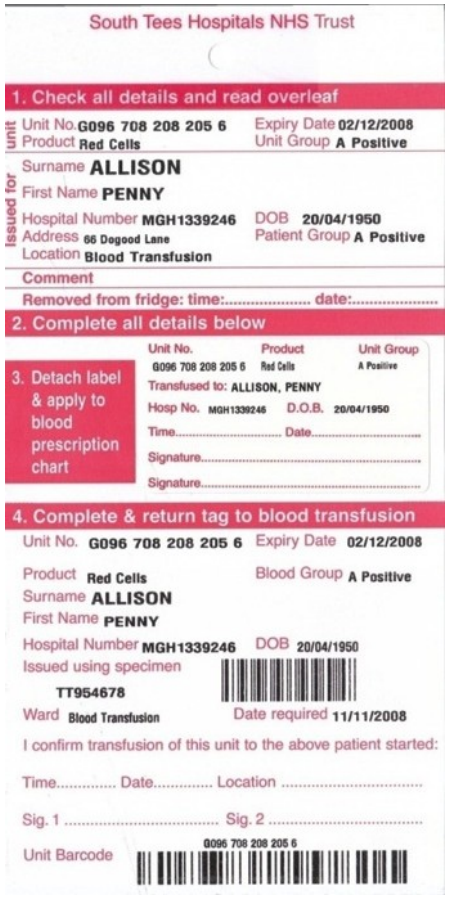
Pre-transfusion checks

Visual inspection of the unit for
- Appearance and leaks
- Correct component

Check against the WRISTBAND
(Warning - patient unable to verbally confirm details!)
- Full name
- Date of Birth
- Hospital number

Check BAG & COMPATABILITY TAG
- Unit number
- Blood Group
- Expiry Date

- **Check PRESCRIPTION**
- Special requirements
  - CMV neg
  - Irradiated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1. Check all details and read overleaf

Unit: Unit No. G096 708 208 205 6 Expiry Date 02/12/2008
Product Red Cells Unit Group A Positive

Issued for: Surname ALLISON
First Name PENNY
Hospital Number MGH1339246 DOB 20/04/1950
Address 66 Dogood Lane Patient Group A Positive
Location Blood Transfusion
Comment
Removed from fridge: time:..... date:.....

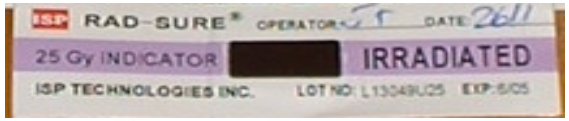
2. Complete all details below

3. Detach label & apply to blood prescription chart

Unit No. G096 708 208 205 6 Product Red Cells Unit Group A Positive
Transfused to: ALLISON, PENNY
Hosp No. MGH1339246 D.O.B. 20/04/1950
Time..... Date.....
Signature.....
Signature.....

4. Complete & return tag to blood transfusion

Unit No. G096 708 208 205 6 Expiry Date 02/12/2008
Product Red Cells Blood Group A Positive
Surname ALLISON
First Name PENNY
Hospital Number MGH1339246 DOB 20/04/1950
Issued using specimen TT954678
Ward Blood Transfusion Date required 11/11/2008
I confirm transfusion of this unit to the above patient started:
Time..... Date..... Location .....
Sig. 1 ..... Sig. 2 .....
Unit Barcode G096 708 208 205 6



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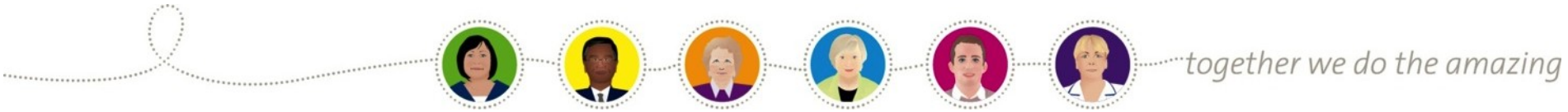
Administration

- No wristband = no transfusion
- If interrupted - **STOP**, start again.
- If there are any discrepancies -**DO NOT PROCEED** - contact the laboratory



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Administration

- Specific blood giving set must be used, or an alternative system incorporating the same filtration
- Do not prime or flush with saline
- Pumps must be compatible with blood components
- Ensure calculation of correct rate
- **Ensure blood component (with identity tag) remains attached at all times during the transfusion no matter what system is used**

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Let's talk about the '4 hour rule'

(Please refer to BCSH Guidelines on the Administration of Blood Components, 2009)

- There is a collectively accepted **recommendation** that transfusions should be completed within 4 hours following removal from cold storage.
- Although not based on any clear research-based evidence this limit is designed to **reduce the risk of bacterial growth** and transfusion-transmitted infection and is based on data relating to the 'lag phase' before bacteria begin to proliferate after removal from refrigeration.
- BCSH guideline writing group feel strongly that this should continue to be applied in clinical practice.
- it is recognised that on **neonatal units** the **transfusion itself may take 4 hours** if the maximal top-up red cell transfusion volume (20mls/kg) is given at recommended safe infusion rates.
- Therefore, an additional 30 minutes granted for collection, preparation of transfusion and bedside checks.
- **The actual transfusion time must not exceed 4 hours**.