Appendix 5: Neonatal transfusion

The principles of transfusion detailed in the main NHS Borders Transfusion policy must be adhered to at all times for requesting, sampling, collection and bedside administration.

1. Informed Consent

Information regarding the transfusion should be provided to the parents or guardians and verbal consent for transfusion must be obtained. Provision of transfusion information and discussion must be clearly documented in the medical notes and ICP for neonatal transfusion. For issues relating to parents refusing a transfusion please discuss with Neonatal Consultant.

2. Indication for red cell transfusion in neonates

Clinical Situation	Transfuse at:
Acute blood loss*	Shock at delivery with history of acute blood loss
Oxygen dependency (not ventilated)	Hb <80 – 100g/L
Late anaemia, stable neonate (not oxygen dependent)	Hb < 70g/L

* Please refer to Major Haemorrhage Protocol for the management of a neonate in the event of a major haemorrhage

3. Pre-transfusion clinical management: testing for neonates within the first 4 post-term months

Please ensure baby has two identify bands in place which state:

- Baby's surname
- Baby's forename (or baby or Twin1/Twin2 etc)
- Date of Birth
- CHI number (for babies immediately post delivery, ID band must be updated as soon as CHI number is generated)

Both ID bands must be checked for positive patient identification.

Neonates (less than 4 months) rarely make antibodies in response to blood transfusion but may have red cell antibodies in their plasma that have been passively acquired from the mother. At the time of sending the first request, if possible, a maternal sample should also be sent. If a maternal sample is sent (7.5 ml red top TRANSFUSION) only 0.5 mls EDTA blood is required from the baby. If no maternal sample is available then we need a larger volume from the baby (1-1.5 mls). For subsequent requests maternal blood is not required and it may be possible to provide blood without further samples being sent from the baby (check with the lab).

Only sample neonates when absolutely necessary. This will help reduce blood loss and the requirement for possible top up red cell transfusion.

PLEASE NOTE: It is important to advise the laboratory of the mother's details at the time of sending the first sample from a child under 4 months of age as the laboratory may have relevant details of the mother's antibody status. If you know from the antenatal notes that the mother has a red cell antibody, state this on the request form.

If in doubt, contact Transfusion Laboratory for further advice.

Investigations on the maternal sample:

- ABO and D group
- Screen for the presence of atypical red cell antibodies

Investigations on the infant sample:

- ABO and D group
- Direct antiglobulin test (DAT)

In the absence of a maternal sample, the infant's plasma will be screened for atypical antibodies.

A positive DAT on the neonates red cells or an atypical red cell antibody in maternal or neonatal serum suggest possible haemolytic disease of the newborn (HDN)

4. Selection of Components

Issued components will be:

- Of the neonate's own ABO and D group, or an alternative compatible ABO and D group
- Compatible with any ABO and atypical red cell antibody presence in the maternal or neonatal sample
- Pedipaks will be issued whenever possible to reduce donor exposure and will be from accredited donors. Pedipaks will allow up to 4 transfusions over a period of 4 weeks from one donor unit.
- Please note: PediPaks are not routinely stock on site, so please allow time for these to be sourced from SNBTS.

Small volume transfusions can be given repeatedly within the first 4 months of life without further serological testing, provided that there are no atypical maternal red cell antibodies in the maternal/infant serum, and the infant's DAT is negative when first tested

If either the antibody screen and the DAT (or both) are positive, serological investigations or full compatibility testing will be necessary

After the post-term age of 4 months, compatibility testing and selection should be in accordance with NHS Borders Transfusion Policy

5. Special Requirements in Neonatal Transfusion

All components provided for neonates will be CMV negative.

Please refer to the NHS Borders Provision of Specific requirements of blood and components policy for further information on special requirement needs for neonates. If a neonate requires platelets, irradiated CMV negative components will be provided. If neonate requires FFP or Cryoprecipitate then neonatal FFP and Cryo units can be issued.

6. Indication for Platelet Transfusion

Thrombocytopenia ($<150 \times 10^9$/L) is present in 1-5% of newborns and severe thrombocytopenia ($<50 \times 10^9$/L) occurs in 0.1-0.5%. The incidence is higher in NICU populations (22-35%) and in up to 50% of babies requiring intensive care.

Transfusion Thresholds:

Platelet Count (x 10^9/L)	Indications for Transfusion
<100	Major bleeding
<50	Confirmed or suspected NAIT +/- bleeding Clinically unstable babies with: • Concurrent coagulopathy • Need for surgery or exchange • transfusion • Previous major bleeding
<30	All patients

Discuss with consultant Neonatologist/Haematologist if neonatal alloimmune thrombocytopenia (NAIT) is a possibility or confirmed. NAIT is potentially fatal and may require immediate intervention/early transfusion.

Give 20ml/kg of CMV negative platelets over 30 minutes (more quickly if very sick)

7. Prescription of blood and blood components for neonates

Please adhere to the Transfusion Record at all times. Blood is prescribed in volume as detailed below:

Component	Volume	Infusion rate
Top-up red cell transfusion	10 – 20ml/kg	5ml/kg/hr
Platelets	10 – 20ml/kg	10 – 20ml/kg/hr
FFP (pathogen reduced)	10 – 20 ml/kg	10 – 20ml/kg/hr
Cryoprecipitate	5 – 10ml/kg	10 – 20ml/kg/hr

8. Collection of blood

A blood collection slip at all times must be used to ensure positive patient identification. Please refer to section 4.14 of the main Transfusion policy for further information on the collection procedure.

9. Final bedside administration

In neonatal practice, single practitioner check does not apply. In view of this a **second independent check** is always required as part of the final bedside checking procedure. Parents or guardians can participate in confirming verbal positive baby identification if required.

10. Monitoring the transfused neonate

Monitoring of infants during transfusion is not fundamentally different from adult practice. The baseline and early checks must be undertaken. Restlessness, crying, or unexpected lethargy may all be signs of an early transfusion reaction. Neonates rarely develop simple non-haemolytic febrile transfusion reactions. If there is any doubt the transfusion must be stopped and the baby assessed.