

# Blood Group testing & Blood provision in NICU & SCN

Specimen	Test Requested	What the lab does	Purpose
Cord blood	"Blood Group & DAT"	<ul style="list-style-type: none"> <li>Blood Group (ABO &amp; RhD) and DAT</li> <li>Report issued</li> </ul>	Information only. For decision about possible Haemolytic Disease of the Newborn (HDN), or anti-D for mother
Baby blood (0.5ml EDTA)	"Blood Group & DAT"	<ul style="list-style-type: none"> <li>Blood Group (ABO &amp; RhD) and DAT</li> <li>Report issued</li> </ul>	Information only. For decision about possible HDN
Baby blood (0.5ml EDTA)  Maternal blood (10ml EDTA) Suitable from 72 hours prior to delivery until 7 days post delivery	<b>"Group and Hold"</b>	<ul style="list-style-type: none"> <li><b>Pre-transfusion testing</b></li> </ul> <p><b>Note</b> 1.5ml EDTA baby sample (in 2.7ml tube) required if:</p> <ul style="list-style-type: none"> <li>maternal sample unavailable</li> <li>baby &gt; 7 days old</li> </ul> <p>(2.7ml EDTA tubes available from blood bank)</p>	When blood products <b>may</b> be required  <b>Note:</b> If eligible, baby will be placed on <b>ASBT</b> – i.e. no further pre-transfusion testing required until baby reaches 4 months of age
	<b>"Crossmatch"</b>	<ul style="list-style-type: none"> <li>Pre-transfusion testing</li> </ul> <p style="text-align: center;"><b>+</b></p> <ul style="list-style-type: none"> <li>Red cell products issued (number of pedipaks allocated according to baby's weight)</li> </ul>	When blood products <b>are</b> required  <b>Note:</b> If eligible, baby will be placed on <b>ASBT</b> – i.e. no further pre-transfusion testing required until baby reaches 4 months of age

**ASBT**= Australian and New Zealand Society of Blood Transfusion protocol for pre-transfusion testing in the neonate. RWH neonates are automatically placed on the ASBT protocol if eligible.

**DAT**= Direct Antiglobulin Test (formerly known as the Coombs test, after the reagent used). Used to detect maternal antibodies coating the baby's red cells.

## Special Circumstances

<b>Babies ineligible for ASBT</b> (Blood bank will notify requesting doctor)	<b>Exchange transfusion</b>
Crossmatch required for each future transfusion episode	Early notification to blood bank of "possible exchange" (Blood Bank Xn:2036)
<b>0.5ml EDTA baby sample</b> is adequate for blood issue in most circumstances	Once decision to proceed is made, notify blood bank: <ul style="list-style-type: none"> <li>When blood is required</li> <li>Volume of blood required</li> </ul>
<b>A further baby sample</b> may be requested if antibody screening required	Blood bank orders specialised red cell product from ARCBS i.e. <b>red cells for emergency neonatal exchange transfusion with known haematocrit</b> and thaws 150mls of FFP
Lab will re assess baby's eligibility for ASBT at each crossmatch	Crossmatch samples as specified Note: if on ASBT no further sample required

## Blood Provision Guide

1. Routine - blood is available within 3 hours unless antibody detected/further samples required
2. Urgent (ie <1-2 hours) - ring the lab and indicate requirements
3. Emergency Blood Release
  - Immediate → O Rh (D) negative
  - 10-30 mins from receipt of sample in Lab → Group specific uncrossmatched blood

## ASBT Protocol

**What is the ASBT protocol?** The ASBT protocol enables us to omit repeated crossmatching prior to transfusion for infants during the first 4 months of life. This protocol recognises that the development of antibodies to red cell antigens is very uncommon in the first 4 months of life, and attempts to limit repeated sampling of blood for crossmatching.

**Who?** Any infant less than 4 months of age who is likely to require more than one transfusion. The laboratory will make an assessment of suitability according to established criteria:

- less than 4 months
- pre-transfusion ABO and Rh(D) group performed
- DAT negative
- no atypical red cell antibodies detected
- one continuous admission

If accepted, the laboratory will issue a report indicating that a further sample will not be required for crossmatch until a date when the baby is 4 months from birth. If an infant is discharged and readmitted, they must requalify for ASBT protocol.

**Exclusions?** Any infants with a positive DAT and/or significant maternal red cell antibody shall be excluded.

**How to request the ASBT protocol?** When a 'group and hold' or 'crossmatch' is requested for a neonate they will automatically be placed on ASBT if eligible.

### How to order blood for babies on ASBT protocol?

Once an infant is accepted on the ASBT Protocol, further samples are not required for pre-transfusion testing. Blood can be ordered by telephoning the blood bank (RWH ext 2036). Inform the laboratory of the baby's weight – 4 pedipaks will be reserved for babies weighing  $\leq 750\text{g}$ , 2 pedipaks will be reserved for babies  $>750\text{g}$ .

### Transfusion Support in Necrotising Enterocolitis (NEC)

Some infants with NEC and/or sepsis develop T activation of red cells. T activation occurs through the action of bacterial neuraminidases and results in exposure of crypt antigens on the red cell surface. T activation is detected in the lab by a lectin test. Infants with NEC and sepsis can develop haemolysis. There are some reports of transfusion exacerbating haemolysis in these very sick infants. Since all adult plasma contains anti-T which could potentially exacerbate haemolysis, some experts advocate special transfusion support for these infants. Practice in this area is varied because of the lack of definitive studies.

It is common practice within this unit to transfuse standard red cell products to infants with NEC. Some clinicians may prefer to request washed red cell products in order to avoid plasma exposure. Use of either product is reasonable given the lack of definitive evidence in this area. It is reasonable to avoid using FFP/platelet transfusion unless there is significant coagulopathy/thrombocytopenia in the presence of bleeding and/or need for an invasive procedure. Urgent transfusion should not be delayed while waiting for special blood products. Transfusion support should be discussed with the consultant on an individual basis.

### Laboratory Specimens and NETS transfers

Blood samples (maternal, cord) received with NETS transfers will be accepted by the RWH Core Laboratory where the following criteria are met:

- The specimen and request form have a minimum of two points of identification:
  1. Firstname and Surname (If first name not yet given, indicate 'Baby of ' & Surname
  2. UR or Date of birth
- The two points of identification on the sample and request form are identical
- The request form is signed by the requesting doctor
- The request form is signed by the person who collected the sample

**Note** that the request form should indicate the type of specimen i.e. maternal or cord sample. Forward samples to the laboratory immediately where they will be stored appropriately and used as required.