TRANSFUSION MEDICINE PROTOCOLS

Blood Products: Pre Transfusion Testing Adults and Neonates

This document should be read in conjunction with the Disclaimer

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Aim

Describe the process and requirements pre transfusion testing. Defining the role of a group and hold, (also known as a group and save) and the sample timings and labelling requirements that are important for pre transfusion testing. Define the difference in pre transfusion testing for neonates.

Introduction

Prior to the issue of blood products an adult patient must have a sample drawn for Group and Hold (G&H). This consists of an ABO and Rh D type and an antibody screen for detection of atypical antibodies.

Neonatal testing consists of an ABO and Rh D type and a Direct Antiglobulin Test or 'DAT' (also known as Coombs' test) to identify bound antibody on the baby's red blood cells, which is performed on a peripheral venous sample. In addition a G&H is performed on the mother. Samples for transfusion testing must comply with strict labelling and timing criteria as defined within this document.

The Role of the Group and Hold Request

In order to prevent unnecessary delays, it is important that clinicians ensure that an in-date G&H sample is available in Transfusion Medicine Unit (TMU) for all patients at risk of requiring a blood transfusion. If an in-date G&H sample is available, the TMU can issue fully compatible blood within 10 minutes. In contrast, an urgent G&H and crossmatch on a new sample will take a minimum of 35 minutes from the time of sample receipt provided the antibody screen is negative.
N.B. If atypical antibodies are detected it may take several hours/ days to provide compatible blood depending on the specificity. *See WNHS Fact Sheets:*

Pre Admission Samples for Transfusion Medicine Testing
FAQ about Group & Hold and Crossmatch

Requests for routine pre-transfusion testing for elective surgery should be received by TMU by 1530 hours the previous working day. The clinician should check blood availability before taking the patient to theatre. Prompt notification of all cancelled or rescheduled operations is requested so blood may be allocated to other patients.

Minimum Sample Volumes and Sample Expiry

3 years to adult	6mL EDTA
4 months to 3 years old	3mL EDTA
Neonate (up to 4 months)	0.5mL EDTA* (*also maternal 6mL EDTA sample required for neonatal crossmatch*)

Sample expiry depends on an accurate transfusion and obstetric history being available. It is the responsibility of the requestor to ensure this information is obtained and documented on the request form. G&H sample expiry is as follows:

Criteria	***Sample Expiry***
Patient's history excludes transfusion or pregnancy in the last 3 months	**14 days** from collection date
Patient has been pregnant in the last 3 months but not transfused	**7 days** from collection date
Patient has been transfused in the last 3 months	**72 hours** from collection date

Crossmatch expiry

Where units are required to be reserved for a specific patient a crossmatch is requested. Crossmatched blood will be held for at least 24 hours from the required time or until sample expiry, whichever is the soonest. Upon request, it may be possible to extend the holding period up to the expiry date of the sample.
In all cases, if advice on sample availability or holding period is required, contact the Blood Bank.

KEMH	Blood Bank Extension 2748
OUT OF HOURS	Shift Scientist Telephone 2751 or pager 3254

Pre Transfusion Testing for Neonates (< 4 months old)

The development of antibodies in neonates is extremely rare in the first 4 months of life and any antibodies present are usually maternal IgG antibodies that have crossed the placenta before birth.

In view of this, neonatal compatibility testing consists of a Group and Direct Antiglobulin Test (DAT) performed on a peripheral venous sample from the baby and a G&H performed on a maternal sample. A valid maternal sample is one that has been collected within 72 hours pre delivery onwards.

TMU must be able to establish a link between the mother and baby when using a maternal sample. In urgent cases where a maternal sample cannot be obtained compatibility testing can be performed on the baby sample but a larger sample is required. If a maternal sample is unavailable OR if a link between mother and baby cannot be established please contact TMU.

Cord Blood samples are **NOT** suitable for testing for neonatal compatibility. These samples are drawn before the baby ID band (with baby UMRN) is attached to the baby and they are only labelled with addressograph labels, which does not comply with the handwritten regulations for crossmatch samples. In addition cord samples are often of a poorer quality than peripheral samples.

- If the baby's DAT and the maternal antibody screen are Negative, blood can be issued on demand during the neonatal period without further compatibility testing. In this case, no further samples are required during the hospital admission up to 4 months, provided patient demographics do not change.

- If the baby's DAT is Positive and/ OR maternal antibodies are detected, full compatibility testing using a valid maternal sample is required. The TMU will advise of sample requirements in these cases.

If the baby is discharged and readmitted a new Group and DAT sample is required.

Correct Patient Identification during Sample Collection

The phlebotomy team will collect blood samples for elective transfusion. Requests outside the phlebotomy ward rounds are collected by Clinical staff. Blood specimens taken for cross matching/group and hold must have patient details handwritten on the tube. **Addressograph labels are not acceptable.** The only exception to this is samples from the 'eOrder bedside label generation project'.

Correct patient identification during sample collection must be followed at all times.

WARNING Failure to properly identify the patient at time of sample collection or at the time of infusion is the biggest single cause of fatal transfusion reactions.

The person collecting the sample is responsible for:

- Positively identifying the patient.
- Hand labelling the sample legibly, accurately and fully **at the patient's side**.
- Completing and signing the collection details section of the request form. The identity of the collector must be included. Work with **one** patient at a time.

Positively identify the patient by:

✓ Checking the hospital identity band that is securely fastened to the patient

AND

✓ Asking the patient (if conscious and able) to spell their surname and given names and state their date of birth. The parent or legal guardian may undertake this responsibility.

An identity band MUST be attached to the patient before the sample leaves the bedside. The information on the sample MUST match the request form and ID band.

The person who collected the sample MUST hand label it fully, accurately and legibly immediately after venepuncture at the PATIENT'S SIDE.

Samples labelled with pre-printed patient labels are **NOT** acceptable and will be rejected (the use of patient labels is a proven source of unacceptable error).

Minimum sample labelling is as follows:
- Surname and given name(s) in full and correctly spelt.
- UMRN and DOB wherever available (or DOB only if UMRN is unknown).
- Date and time of collection.
- Initials of the collector.

The collector must sign the 'Collection Details' section of the Transfusion Request Form and enter the collection date and time. By signing this section, the collector takes full responsibility for the correct identification of the patient.

DO NOT use the bed label instead of the hospital ID band.
DO NOT pre-label the sample tube before the sample is collected.
DO NOT label the sample after leaving the patient or label at nursing station
DO NOT give the sample to a second staff member for labelling.
DO NOT label the sample with a pre-printed patient label.

If the request form or blood sample identification is incomplete, incorrect or illegible, the request for blood grouping or crossmatching will be rejected.

Upon admission, patient information is verified and updated in TOPAS and a Patient Identity Band is attached to the patient. It is Patient Information Management Services (PIMS) policy that if core patient identification details are updated in TOPAS an updated patient ID band must be attached to the patient and new patient

labels placed in the medical record. **WARNING** If TOPAS and the patient ID band are updated and there are ongoing transfusion requirements contact TMU.

Unknown patients requiring transfusion

PIMS will admit the patient as "Unknown" under an emergency UMRN if the patient's identity is unknown or cannot be accurately confirmed (e.g. unconscious). In these circumstances, the UMRN is the only identifier and transfusions should be restricted to emergencies only.

As soon as the patient is properly identified according to PIMS procedures:

- The new patient details must be registered in TOPAS.
- A new identity band must be attached to the patient but the old identity band should **NOT** be removed.
- A new fully labelled crossmatch sample must be sent to TMU immediately.

PIMS staff will merge the TOPAS records once a reliable link is confirmed and inform the laboratory IT manager in normal working hours or the Shift Scientist out-of-hours.

Identification of Newborn Babies

Newborn babies are registered in TOPAS immediately after birth and baby patient ID bands and patient labels are printed. The baby ID band, with UMRN, must be attached to the baby before Transfusion Medicine samples are drawn (Note: this does not apply to cord blood samples).

The sample must be hand labelled with THREE points of identification that match the baby ID band and TOPAS as follows:

- Baby UMRN
- Baby Last Name
- Baby First Name (if registered in TOPAS otherwise DOB **must** be used)*
- Date and time of collection plus the initials of collector.

***Special Note:**

- In multiple births use DOB **plus** identify specimen by Twin I, Triplet II, etc.
- If a newborn baby is **re-registered** with a first name during the hospital admission, the new baby ID band and patient labels must be used and old labels discarded. In this case if the baby has ongoing transfusion requirements - a new crossmatch sample MUST be sent to TMU.
- When labelling the neonatal tube do **NOT** wrap the label around the specimen tube obscuring the details and the fill line on the tube. Ensure the handwritten label is attached horizontally along the tube so the details may be checked by staff handling the specimen.

Completion of PathWest Transfusion Request Form

The PathWest Transfusion Request Form should be used for all tests performed by the Transfusion Medicine Unit, including Crossmatch, Group and Hold, Cord group and Direct Antiglobulin Test (DAT).

The use of the patient addressograph label on the *request form* is recommended as request form must clearly identify the patient and include in legible form the patient surname, given name(s) in full and the unique medical record number (UMRN). If the UMRN is not available, the second check may be an emergency department number or a DOB.

Additional information required:

- Name of requesting clinician and signature – mandatory.
- Date and time of sample collection and the identity of the collector – mandatory.
- Collectors Declaration signature – mandatory.
- DOB, address and gender are useful additional checks on identity
- Location of the patient
- Number and type of blood components required
- Date and time required and degree of urgency
- Clinical diagnosis and indication for transfusion
- Previous transfusion history, known red cell antibodies
- Pregnancies, current gestation and recent anti-D prophylaxis in last 3 months.

References

- Australian & New Zealand Society of Blood Transfusion (ANZSBT) & Royal College of Nursing Australia (RCNA) Guidelines for the Administration of Blood Products 2nd Edition, December 2011 http://www.anzsbt.org.au/publications/index.cfm#societyg
- ANZSBT Guidelines for Pretransfusion Testing, 4th Edition, ANZSBT, 2007 http://www.anzsbt.org.au/publications/index.cfm#societyg
- Human Tissue and Transplant Act 1982 (s21)
- Consent to Treatment Policy Appendix 7F
- British Committee for Standards in Haematology, Blood Transfusion Task Force. The Administration of blood and blood components and the management of transfused patients. Transfusion Medicine; 1999. 9: 227-238.
- Blood Transfusion: crucial steps in maintaining safe practice. BNJ; 2000. 9(3): 135-138.Bradbury, M Cruickshank, J.
- Towards Safer Blood Transfusion Practice. J Quality in Clinical Practice; 1999. 19: 63-67. Hodgkinson B, Fitzgerald M, Borbasi S and Walsh K.

Related policies

- National Safety and Quality Health Service Standards, October 2012. Standard 7: Blood and Blood Products

Related WNHS policies, procedures and guidelines

- Neonatal Policy Transfusion
- Positive Patient Identification
- Blood Product Prescription Consent and Refusal

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