



Safe transfusion practice for surgery – the importance of pre-admission testing

Insight – August 2017

- **A current Group & Screen** means a fast response to blood demands and advanced notice of antibodies. Blood can be issued electronically within minutes.
- **No current Group & Screen** means a minimum delay of 50 minutes before the antibody screen is complete after the laboratory has received the specimen. If the antibody screen is negative, blood can then be issued by immediate electronic issue.
- **No current Group & Screen and antibodies** means selected blood must be obtained and a Crossmatch performed to prevent a haemolytic reaction. A delay of hours may result.

Group & Screen Vs Crossmatch

A Group & Screen or Crossmatch should be performed for all pre-admission patients at predictable risk of bleeding and in those patients where uncommon and unexpected bleeding may be catastrophic.

The availability of a Group & Screen or Crossmatch should be a routine part of the pre-operative checklist either for the pre-admission clinic or at the pre-anaesthetic nursing check.

A Group & Screen includes ABO and Rh Groups and red cell antibody screen. Once completed, blood can be issued on request for up to 72 hours from release of the first unit.

A Crossmatch indicates a Group & Screen has been performed **and** units have been reserved for your patient regardless of whether they are actually required. This allows hospitals without an on-site laboratory to have blood placed in the hospital blood refrigerator in advance of surgery so it is readily available.

If your hospital **does not have** a laboratory on-site, and you will/may require blood, you need to order a Crossmatch.

If your hospital **does have** a laboratory on-site, you only need to order a Group & Screen.

What is the value of performing a Group & Screen prior to admission?

The Group & Screen result dictates blood availability. If the Screen is negative, the scientist can electronically issue compatible blood within a few minutes of request on the day or subsequent to the day of surgery.

If the Screen is positive, the scientist will need to determine the antibody specificity (1 – 2 hours). Once the specificity is identified the scientist must then find compatible, antigen negative units and perform a Crossmatch. The units may need to be sourced from the Australian Red Cross Blood Service (ARCBS). If the antibodies are uncommon or complex, ARCBS may not have compatible blood until they source an appropriate donor.

When should a pre-operative Group & Screen be ordered?

A valid Group & Screen can be collected within 28 days of the planned date of transfusion (not the planned date of surgery). A report will be issued to indicate that pre-operative testing has been done and the date when the valid Group & Screen expires. After this date a new specimen will be required if blood is needed.

We can only provide this extended expiry if the date and type of surgery, and the name of the hospital are provided on the request. There are also some other uncommon exceptions to this rule. It will be indicated in the report when they occur, along with a warning that extended expiry does not apply. Melbourne Pathology will contact these patients and arrange repeat collection immediately prior to admission.

How much blood should be requested for Crossmatch?

A Maximum Blood Order Schedule (MBOS) can be used to gauge expected blood use for some common procedures, but it is personal experience and an understanding of the individual patient risk that is of greatest value. An example of an MBOS is provided for your reference if required. Remember, if your hospital has a laboratory on-site, you only need to order a Group & Screen not a Crossmatch.

Why is it risky for a Crossmatch to be performed at induction of anaesthesia?

It can be too late! Specimen transit time and processing time may cause serious delay and may compromise patient safety. If an antibody is detected, there could be a delay of hours.

Do these rules apply to children?

Yes! Though many atypical red cell antibodies are stimulated by transfusion or pregnancy, some occur spontaneously, probably following viral infections, and they can occur in children. These antibodies are capable of causing significant haemolytic transfusion reactions.

In addition, children have special product requirements that may require appropriate units to be sourced from ARCBS. Children may require fresh blood, and young females may require K antigen negative blood. Provision of the appropriate blood product for a child under your care should be discussed with the Melbourne Pathology Blood Bank in advance of surgery.

If I need blood urgently, can't I just give O negative?

O negative emergency units ("Universal donor" units) are not always safe, however if you have not performed a pre-operative Group & Screen or Crossmatch it is still recommended to use O negative emergency units if the situation is life-threatening and the patient will be compromised by a delay in the provision of blood.

O negative blood often expresses significant red cell antigens. If your patient has an antibody they may still have a transfusion reaction to an O negative emergency unit. Thankfully, most people do not form antibodies.

It is important to remember that O negative is commonly in short supply. Pre-operative blood group determination conserves O negative units for those patients who genuinely need it.

Pre-operative recommendations

- Have a list of procedures for which Group & Screen and Crossmatch are required. If your patient is to have one of these procedures or **any** other procedure that you consider **may** require blood, it is strongly recommended that you order a Group & Screen pre-operatively.
- Use of a Pre-admission Clinic is strongly encouraged however you can also send your patient to any Melbourne Pathology collection centre. With extended sample viability, this can be done up to 28 days prior to transfusion.
- Blood **cannot** be issued through Melbourne Pathology if the Group & Screen is performed by a pathology provider other than Melbourne Pathology, Epworth Pathology or Cabrini Pathology. In this case, another sample will be required and a delay in provision of blood should be expected.

Melbourne Pathology now has a preferred Blood and blood products request which captures all relevant information related to your patient and their procedure. If a standard request form is used, it must at least record the planned date, hospital and the type of procedure to be performed.

Patients are able to take these requests to any Melbourne Pathology or Epworth Pathology collection centre, and a copy of the results will be issued to the hospital as well as the referring doctor.

Specimen labelling requirements

Blood banking standards require strict adherence to labelling requirements, as dictated by the Australian and New Zealand Society of Blood Transfusion (ANZSBT) and enforced by the National Association of Testing Authorities (NATA).

The sample **must** be labelled with:

1. Patient's surname (in full)
2. Patient's given name (in full)
3. UR number and/or date of birth
4. Date and time of collection
5. Signature (or initials) of the collector

The request form details and the specimen labelling must match, including collector's signature/initials, and the date and time of collection. Please do not use abbreviations or variations of the patient's name. Samples that do not conform to these requirements will not be processed. O Rh(D) negative units will be issued in the event of urgent blood provision awaiting a valid and appropriately labelled specimen.

Please note that these procedures also apply to addressograph labels. Addressograph labels must be signed by the collector and the date and time of collection written on the label.

Figure 1: example of Blood and blood products request

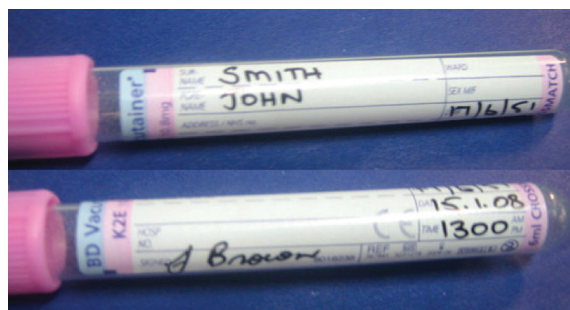


Figure 2: example of correctly labelled tubes



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Dr Maxwell is a University of Melbourne graduate who completed combined fellowships with the College of Physicians and the College of Pathologists in 1997.

She trained initially at the Austin and Repatriation Medical Centres and later the Alfred Hospital where she developed a keen interest in coagulation and transfusion medicine.

Dr Maxwell is a current member of the Victorian Blood User Group, the National Blood Transfusion Committee, The Australian Red Cross Blood Service Advisory Committee and the Serious Transfusion Incident Reporting Working Group (DHS Victoria). She has been an active member of many committees for the RCPA and ANZSBT.

Dr Maxwell was appointed Medical Director at Melbourne Pathology in September 2009.

To order Blood and blood products requests, please contact your Business Development Manager.



Pre-operative group and antibody guidelines, on-site vs no on-site blood bank

Appendix* – August 2017

Cardiac surgery		
	On-site Blood Bank	No on-site Blood Bank
All surgery	G&S	2 units

General surgery		
	On-site Blood Bank	No on-site Blood Bank
Abdomino-perineal resection	G&S	2 units
Amputation (above or below knee)	G&S	G&S
Anterior resection	G&S	2 units
Apronectomy	G&S	G&S
Bowel resection	G&S	2 units
Breast surgery	G&S	G&S
Cholecystectomy	G&S	G&S
Colectomy (formation or closure)	G&S	G&S
Gastrectomy	G&S	2 units
Gastric stapling	G&S	G&S
Hiatus hernia repair - Transthoracic - Abdominal	G&S	G&S G&S
Laparotomy	G&S	G&S
Lipectomy	G&S	G&S
Lumbar sympathectomy	G&S	G&S
Pancreatectomy	G&S	2 units
Parotidectomy	G&S	G&S
Splenectomy	G&S	2 units
Thyroidectomy	G&S	G&S
Tonsillectomy	G&S	G&S

Gynaecological surgery		
	On-site Blood Bank	No on-site Blood Bank
Caesarean section	G&S	G&S
Colposuspension	G&S	G&S
Dilatation and curettage	G&S	G&S
Ectopic pregnancy	G&S	G&S
Hysterectomy	G&S	G&S
Myomectomy	G&S	G&S

Gynaecological surgery cont...		
Ovarian cystectomy	G&S	G&S
Termination of pregnancy	G&S	G&S
Vaginal repair	G&S	G&S
Vulvectomy	G&S	G&S

Orthopaedic surgery		
	On-site Blood Bank	No on-site Blood Bank
Fractured femur	G&S	G&S
Harrington's Rods	G&S	4 units
Hip replacement	G&S	G&S
Knee replacement	G&S	G&S
Laminectomy	G&S	G&S
Putti-platt	G&S	G&S
Spinal fusion	G&S	2 units
Synovectomy (knee)	G&S	G&S

Thoracic surgery		
	On-site Blood Bank	No on-site Blood Bank
Lobectomy	G&S	2 units
Pleurectomy	G&S	2 units
Pneumonectomy	G&S	4 units
Thymectomy	G&S	2 units

Urological surgery		
	On-site Blood Bank	No on-site Blood Bank
Cystectomy	G&S	2 units
Nephrectomy	G&S	G&S
Nephrolithotomy	G&S	G&S
Prostatectomy - Radical - Transurethral	G&S G&S	2 units G&S
Pyelolithotomy	G&S	G&S
Ureterolithotomy	G&S	G&S

Vascular surgery		
	On-site Blood Bank	No on-site Blood Bank
Aortic aneurysm (elective)	G&S	2 units
Aorto-femoral bypass graft	G&S	4 units
Aorto-iliac bypass graft	G&S	4 units
Carotid endarterectomy	G&S	G&S
Femoro-popliteal bypass graft	G&S	2 units
Ilio-femoral bypass graft	G&S	4 units

Ear/nose/throat		
	On-site Blood Bank	No on-site Blood Bank
Mastoidectomy	G&S	G&S
Rhinoplasty	G&S	G&S

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Adapted from Guidelines for Pretransfusion Laboratory Practice, 5th Edition, March 2007, ANZSBT

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