

Blood Transfusion

What is it?

An intravenous infusion of red blood cells, which contain haemoglobin (the oxygen carrying part of the blood). Sometimes this is combined with a platelet transfusion (the part of the blood that stops bleeding) or clotting factors (the proteins in the blood that help platelets to work).

Any surgery may involve the risk of a blood transfusion however several procedures which **may** be associated with a higher risk of blood transfusion are:

1. Any kind of laparoscopy
2. Any kind of laparotomy
3. Hysterectomies
4. Vaginal repairs

Some patients may be more prone to bleed during surgery than others, and this may not be realised until the surgery is underway. This may be caused by medications, some herbs or alternative remedies, or clotting problems which can be inherited.

Why would I need a blood transfusion?

A low haemoglobin can be tolerated by young people without difficulty however older patients may need a higher haemoglobin especially if they have heart disease, chest disease or diabetes. There are several kinds of blood products which are used.

What is a blood product?

When a donor donates blood “whole blood” is collected. This whole blood is then divided into its different components which can be used separately. This means that the precious blood donation can be used most efficiently according to need. Not all people who require a blood transfusion require the red cells or the other components.

What do these different blood products and components do?

1. Red blood cells carry haemoglobin that delivers oxygen to your tissues and organs. Red blood cells are usually given if haemoglobin levels are low (anaemia) or if a lot of blood is lost or if there is another medical need to have higher haemoglobin.
2. Platelets. Platelets are tiny fragments of cells which act as puncture repair kits, repairing holes in blood vessels and reducing bleeding. This is the body’s normal response to injury. Some diseases medications or treatments can lower the number of platelets that are found in the blood, or render them less effective.

Fresh Frozen Plasma and Cryoprecipitate

These contain clotting factors (proteins made by the liver and elsewhere) that work with platelets to seal wounds and reduce bleeding. Some clotting factors are individually manufactured and if unavailable then fresh frozen plasma and or cryoprecipitate may be required. These products are made from blood donations.

Where does blood come from?

All blood transfused in Australia comes from voluntary, unpaid donors. The donors are very carefully screened beforehand, and the blood donations are also screened afterwards.

Is the blood safe?

The Australian Red Cross blood service is the body governing the donation and preparation and distribution of blood products in Australia. It has many safeguards to ensure a safe blood supply for patients. Before donating blood donors must satisfactorily complete a confidential interview donor declaration and a health check.

In Australia all donations are tested for:

- ABO and RHD blood groups
- Red cell antibodies
- HIV, hepatitis B, hepatitis C
- Syphilis
- Human T-lymphotropic virus (HTLV). Here relevant and according to the donor type further blood tests may be performed for additional groups of the infective agents and in blood borne viruses for example cytomegalovirus (CMV) and malaria.

Potential risks.

Infection (from Australian Red Cross Blood Service, July 2017)

<i>HIV (AIDS)</i>	<i><1/1000000</i>
<i>Hepatitis C</i>	<i><1/1000000</i>
<i>Hepatitis B</i>	<i><1/1000000</i>
<i>HTLV</i>	<i><1/1000000</i>
<i>Malaria</i>	<i><1/000000</i>

The estimated chance of death from a lightning strike is <1/1000000

Other risks are:

- Headache, mild fever, itching and hives: 1/100 patients.
- Creutzfeldt-Jakob disease (no testing) the risk is possible but not yet reported in Australia.

However the risks of not having a blood product transfusion when you need one may be greater than the risks of transfusion. Nonetheless blood transfusions are used very wisely and selectively.

Are there any alternatives to blood transfusion?

Some alternatives to bloods do exist and are used wherever possible. Improved surgical methods including laparoscopic surgery are now used to decrease the amount of bleeding and minimise the possible need for blood transfusion. There are some medications, which may assist the body's recovery from blood loss, without actually giving blood. Such medications include iron infusions, erythropoietin (EPO).

How do I receive a blood transfusion?

A blood sample is taken to establish your blood group. A donor blood is tested for compatibility (called cross matching) against your own blood sample. The person taking your blood sample must further recheck your personal details and correctly label all the samples. You will be asked to sign a consent for your transfusion.

The cross matching of red blood cells may take several hours but can take as little as 15 minutes. Not all hospitals have onsite blood banks where this is possible. Other blood products may be more readily available and may take less time to organise. Blood transfusions are given intravenously through a drip (needle). One unit of red blood cells typically takes 2-3 hours to infuse, and a platelet transfusion takes 20-to-30 minutes. The number and type of units given depends on your specific situation but it is common to transfuse at least 1 or 2 units of packed red blood cells. In the event of a very large transfusion (more than 5 units of packed red blood cells) the blood can become diluted and other clotting factors less effective, and so other clotting agents may need to be given.

During the blood transfusion you will be closely observed. If this is done in the operating theatre it will be done by the anaesthetist. If on the hospital ward, this is done by nursing staff. Your blood pressure and general condition will be monitored. Minor reactions to blood transfusions may include fevers, chills, shortness of breath or a rash.

Jehovah's Witnesses

If you are a Jehovah's Witness it is extremely important to discuss your individual requirements with Dr. Thomas prior to surgery. Other products may be used, to minimise blood loss, or to treat blood loss intra operatively which are not based on blood products. It is possible that the hospital where you are having your surgery may not have these products in stock and these will need to be ordered. Dr. Thomas will also inform the anaesthetist who is in charge of the care during the surgery so that he or she can act in a proactive fashion if there is more blood loss than usual. A specific form will need to be signed at the hospital, declining the use of blood products and specifying what products may be acceptable.