Understanding Blood Transfusion

A blood transfusion is the delivery of blood products through a vein. Depending on your need, your doctor may order red blood cells, white blood cells, platelets or clotting factors, plasma, or whole blood. This document is meant to assist in your learning about blood transfusions, where the blood used in transfusions comes from, and the potential benefits and risks of getting a blood transfusion.

Transfusion

Blood is made up of many tiny cells that all play a different role in the body. Depending on your needs, the doctor may order one type of blood cell or all of them at the same time.

- Red Blood Cells (RBC) – RBCs carry oxygen from the lungs to all the parts of the body. Once the oxygen is delivered, the RBCs carry carbon dioxide, the used up part of oxygen, back to the lungs to be exhaled out. Too few red blood cells results in not enough oxygen circulating through the body. When a person doesn’t have enough red blood cells in their body it is called anemia. A person can also have too few RBCs if they have been bleeding.

- Platelets and clotting factors – Platelets and clotting factors are cells that help clot wounds and injuries. Too much blood clotting factors can result in a stroke or deep vein thrombosis. Too little blood clotting factors can result in uncontrolled bleeding.

- White blood cells (WBC) – WBCs help protect the body from infection. There are five types of WBCs, each with different protective roles that combine forces to prevent infection: neutrophils, lymphocytes, basophils, eosinophils, and monocytes. Having too few WBCs can put you at increased risk for an infection. Having a lot of WBCs in your blood can indicate an infection is currently happening.

- Plasma – This is the liquid that blood cells are suspended in. It is mostly water and helps control electrolyte balance in the body. It also protects the body from infection.
• Whole Blood – Whole blood includes red blood cells, white blood cells, plasma, and platelets/clotting factors together.

Preparing Blood

Blood is donated by non-paid healthy volunteers. Prior to giving blood donors are asked about their health history and social activities to determine their eligibility. People who are sick, who are taking certain medications, who have chronic diseases (like hepatitis or AIDS), or who are at high risk for developing certain diseases are excluded. Only blood that is determined to be safe is used.

Once blood is donated it is tested for safety. Blood that carries diseases and illnesses is not used. Blood is also typed using the ABO and Rh system.

The ABO System was developed to identify compatibility of blood between different people. Based on your genetic makeup, you will carry Type A, or Type B, or Type AB, or Type O blood.

• People with Type A blood can receive Type A or Type O blood without problems. They cannot receive Type B or Type AB blood because life threatening blood reactions can occur.

• People with Type B blood can receive Type B or Type O blood without problems. They cannot receive Type A or Type AB blood because life threatening blood reactions can occur.

• People with Type AB blood can receive Type AB, Type A, Type B, and Type O blood without problems. However, they cannot give blood to anyone except those with Blood Type AB.

• People with Type O blood can receive blood from Type O only. If they receive blood from Type A, B, or AB serious reactions can occur. However, Type O can give blood to all types. It is the universal donor.

The Rh System also helps determine blood compatibility; it describes whether or not you carry a protein on your blood cells. If you carry the protein and 85% of the population does, your blood is classified as Rh+. If you do not carry the protein your blood is classified as Rh-.

• People who are Rh- can only receive Rh- blood. If they are subjected to the protein carried by people who are Rh+, serious life threatening side effects can occur.

• People who are Rh+ can receive blood that is Rh+ or Rh- without problems developing.

All test results are double checked before any blood is made available for use.
Before the blood is transfused, samples of your blood and the donor blood are checked to make sure they are compatible. This is called “cross-match” and it ensures that your blood and the donor’s blood match on the ABO and Rh Systems.

**Alternatives to Volunteer Blood Bank Blood**

Donate your own blood (*Autologous Donation*) before admission for surgery:

- Requires your doctor’s approval and advance planning.
- You may not qualify if you have an infection or anemia.
- Your donated blood is tested like all other units. Any abnormal results are given to your doctor.
- Testing requires at least three (3) working days before the scheduled transfusion or surgery and is NOT done on an emergency basis.
- You may donate more than once, up to twice a week. This is up to your doctor.
- Your doctor decides whether your blood is used during or after surgery.

**Have Friends or Family Donate Blood to You (*Directed Donation*)**

- This type of donation is not any safer than using the blood of volunteer donors.
- Directed donation requires the same advance planning as autologous donation.
- Parents can donate for their children.
- Women of child-bearing age are discouraged from having their husbands donate because it can affect future pregnancies.
- These units are tested; all units assured to be safe and are the correct blood type are saved for you.
- After you leave the hospital, if directed units haven’t been used, they may be made available to others.

**If You Need a Blood Transfusion**

If you need a blood transfusion you doctor will talk with you about the potential risks and benefits of this procedure. Before blood is given a blood sample will be drawn from you. This sample will allow the blood bank personnel to identify your blood type (A, B, AB, O) and if your carry the Rh protein or not (Rh+ or Rh-). You will be given an armband that has specific numbers that match the blood set up for you in the blood bank. Do not remove the armband – if it is removed a new blood sample will have to be drawn and tested again.
When it’s time to give you the blood, the nurse will pick up the blood that matches yours from the blood bank and bring it to you. It is checked several times to make sure you are getting blood that matches your blood type. The blood is given through IV tubing into a vein. You will be monitored to make sure the transfusion is proceeding well.

**Risks of Transfusion**

Possible reactions during or shortly after transfusion:

- Chills
- Fever
- Hives
- Headache
- Back Pain
- Light-headedness or Dizziness
- Difficulty Breathing

None of these are common. They may or may not be part of a serious reaction. Tell the nurse if you experience any of them. The transfusion may be stopped, or you may be given medicine before completing the transfusion.

**If You Refuse Transfusion**

Your doctor will discuss the benefits and risks of transfusion as well as the risks if you refuse it. Refusing a transfusion that your doctor considers medically necessary is an important decision. If you refuse the transfusion, be sure all your questions are answered so that you understand how this can affect your health. You have the right to refuse any treatment you do not want.