

Universal Donor Blood Group

In the developed world, most blood donors are unpaid volunteers who donate blood for a community supply. In some countries, established supplies are limited and donors usually give blood when family or friends need a transfusion (directed donation). Many donors donate for several reasons, such as a form of charity, general awareness regarding the demand for blood, increased confidence in oneself, helping a personal friend or relative, and social pressure. Despite the many reasons that people donate, not enough potential donors actively donate. However, this is reversed during disasters when blood donations increase, often creating an excess supply that will have to be later discarded. In countries that allow paid donation some people are paid, and in some cases there are incentives... b566e5dc66 In adults, one unit brings up hemoglobin levels by about 10 g/L (1 g/dL). Repeated transfusions may be required in people receiving cancer chemotherapy or who have haemoglobin disorders. Cross-matching may be required before the blood is given. A red blood cell concentrate is given by injection into a vein. The widespread use of red blood cell concentrates as part of blood component therapy began in the middle of the 20th century, when polyvinyl chloride (PVC) blood bags were introduced as storage containers. b566e5dc66 Blood types are inherited and represent contributions from both parents of an individual. As of June 2025, a total of 48 human blood group systems are recognized by the International Society of Blood Transfusion (ISBT). The two most important blood group systems are ABO and Rh; they determine someone's blood type (A, B, AB, and O, with + or – denoting RhD status) for suitability in blood transfusion. b566e5dc66 Side effects include red blood cell breakdown, high blood potassium, infection, volume overload, lung injury, and allergic reactions such as anaphylaxis. Whole blood is made up of red blood cells, white blood cells, platelets, and blood plasma. It is best within a day of collection; however, it can be stored for up to three weeks if refrigerated (1-6 °C). The blood is typically combined with an anticoagulant and preservative during the collection process. b566e5dc66

Blood type The A blood type (also known as a blood group) is a classification of blood based on the presence and absence of antibodies and inherited antigenic substances on the surface of red blood cells (RBCs). Some of these antigens are also present on the surface of other types of cells of various tissues. antibodies for the blood cell antigens of

the donor. Several of these red blood cell surface antigens can stem from one allele (or an alternative version of a gene) and collectively form a blood group system. [citation needed] The ABO system is the most important blood-group system in human-blood transfusion. These antigens may be proteins, carbohydrates, glycoproteins, or glycolipids, depending on the blood group system b566e5dc66

Packed red blood cells and screening are also performed on donor blood. 70 L/L and a volume between 250 and 320 mL. 50 – 0. Transfusion of red blood cell concentrates is indicated to compensate for a deficit caused by critical bleeding or to correct anaemic conditions, in order to increase the oxygen-carrying capacity and avoid detrimental effects caused by oxygen debt. A red blood cell concentrate typically has a haematocrit of 0. The blood groups represent antigens on the surface of the red blood cells which might react with antibodies Red blood cell concentrates, also known as red cell concentrates or packed red blood cells, are red blood cells that have been separated for blood transfusion b566e5dc66

The service is the successor to the National Blood Transfusion Association which was established in 1948 and was, itself, born from the work carried out by the St. John Ambulance Brigade of Ireland in setting up an 'on call' blood donor panel to serve hospitals in the Dublin area. In 1975 the Cork Blood Transfusion Service was amalgamated with the board, and in 1991 the Limerick Blood Transfusion Service was amalgamated with the board. b566e5dc66 == Types == b566e5dc66 The first transfusion of whole blood was in 1818; however, common use did not begin until the First and Second World Wars. It is on the World Health Organization's List of Essential Medicines. Whole blood is also used to make a number of blood products including red cell concentrates, platelet concentrates, cryoprecipitate... b566e5dc66

ABO blood group system For human blood transfusions, it is the most important of the 48 different blood type (or group) classification systems currently recognized by the International Society of Blood Transfusions (ISBT) as of. blood group system is used to denote the presence of one, both, or neither of the A and B antigens on erythrocytes (red blood cells). For human blood The ABO blood group system is used to denote the presence of one, both, or neither of the A and B antigens on erythrocytes (red blood cells) b566e5dc66

Blood type (non-human) The classification of most animal blood groups therefore uses different blood typing systems to those used for classification of human blood. should be performed prior to transfusion,

or a universal donor may be used. Antigens from the human ABO blood group system are also found in apes and Old World monkeys, and the types trace back to the origin of anthropoids. The ideal universal whole blood donor is a non-thoroughbred gelding that is Aa, Animal erythrocytes have cell surface antigens that undergo polymorphism and give rise to blood types. Other animal blood sometimes agglutinates (to varying levels of intensity) with human blood group reagents, but the structure of the blood group antigens in animals is not always identical to those typically found in humans b566e5dc66

== History == b566e5dc66

Irish Blood Transfusion Service The Service provides blood and blood products for humans. Donors with O Rh D negative are known as universal donors. Their blood can be transfused to patients of any other blood group in an The Irish Blood Transfusion Service (IBTS), or Seirbhís Fuilaistriúcháin na hÉireann in Irish, was established in Ireland as the Blood Transfusion Service Board (BTSB) in 1965, taking its current name in 2000. that blood type. It is responsible to the Minister for Health b566e5dc66

Blood bank The term "blood bank" typically refers to a department of a hospital usually within a clinical pathology laboratory where the storage of blood product occurs and where pre-transfusion and blood compatibility testing is performed. Blood banking includes tasks related to blood collection, processing, testing, separation, and storage. However, it sometimes refers to a collection center, and some hospitals also perform collection. While the first blood transfusions were made directly from donor to receiver before coagulation A blood bank is a center where blood gathered as a result of blood donation is stored and preserved for later use in blood transfusion. separation of plasma from a donor's blood is called plasmapheresis b566e5dc66

For blood donation agencies in various countries, see list of blood donation agencies and list of blood donation agencies in the United States. b566e5dc66

Blood transfusion Transfusions are used for various medical conditions to replace lost components of the blood. Early transfusions used whole blood, but modern medical practice commonly uses only components of the blood, such as red blood cells, plasma, platelets, and other clotting factors. [citation needed] This chart shows possible matches in blood transfusion between donor and Blood transfusion is the process of transferring blood products into a person's circulation intravenously.

Whole blood has come back into use in the trauma setting. actual blood group of the patient and to check for alloantibodies. White blood cells are transfused only in very rare circumstances, since granulocyte transfusion has limited applications b566e5dc66

Cross-matching In some circumstances, an electronic cross-match can be performed by comparing records of the recipient's ABO and Rh blood type against that of the donor sample. This antibody-antigen reaction can be detected through visible clumping or destruction of the red blood cells, or by reaction with anti-human globulin. Along with blood typing of the donor and recipient and screening for unexpected blood group antibodies, cross-matching is one of a series of steps in pre-transfusion testing. Normally, this involves adding the recipient's blood plasma to a sample of the donor's red blood cells. If the blood is incompatible, the antibodies in the recipient's plasma will bind to antigens on the donor red blood cells. red blood cells, or by reaction with anti-human globulin. Cross-matching is also used to determine compatibility between a donor and recipient in solid organ transplantation including heart/lung transplation. Along with blood typing of the donor and recipient and screening for unexpected blood group antibodies Cross-matching or crossmatching is a test performed before a blood transfusion as part of blood compatibility testing. In emergencies, blood may be issued before cross-matching is complete b566e5dc66

Several types of blood transfusion exist: b566e5dc66 The ABO blood types were discovered by Karl Landsteiner in 1901; he received the Nobel Prize in Physiology or Medicine in 1930 for this discovery. ABO blood types are also present in other primates such as apes, monkeys and Old World monkeys. b566e5dc66 It was established in 1965. b566e5dc66 Two categories of blood groups, human-type and simian-type, have been found in apes and monkeys, and they can be tested by methods established for grouping human blood. Data is available on blood groups of common chimpanzees, baboons, and macaques. b566e5dc66 == Blood type systems == b566e5dc66 == History == b566e5dc66 Red blood cells (RBC) contain hemoglobin and supply the cells of the body with oxygen. White blood cells are not commonly used during transfusions, but they are part of the immune system and also fight infections. Plasma is the "yellowish" liquid part of blood, which acts as a buffer and contains proteins and other important substances needed for the body's overall health. Platelets are involved in blood clotting, preventing the body from bleeding. Before these components were known, doctors believed that blood was homogeneous. Because of this scientific misunderstanding, many patients died because of incompatible blood transferred... b566e5dc66 The widespread use of

packed red blood cells began in the 1960s. It is on the World Health Organization's List of Essential Medicines. A number of other versions also... b566e5dc66

Whole blood It is either given intravenously or through Intraosseous infusion. One unit of whole blood (approximately 450 mL) increases hemoglobin levels by about 10 g/L. It is used in the treatment of hemorrhagic shock, in exchange transfusion, and when people donate blood to themselves (autologous transfusion). pre-hospital transfusion, low-titer O universal donor whole blood (LTOWB) can be used; this requires that the donor plasma contains only low titers of anti-A Whole blood (WB) is human blood from a standard blood donation. Cross matching is typically done before the blood is given b566e5dc66

== Simian blood groups == b566e5dc66 June 2025. A mismatch in this serotype (or in various others) can cause a potentially fatal adverse reaction after a transfusion, or an unwanted immune response to an organ transplant. Such mismatches are rare in modern medicine. The associated anti-A and anti-B antibodies are usually IgM antibodies, produced in the first years of life by sensitization to environmental substances such as food, bacteria, and viruses. b566e5dc66 The symbol of the service is a stylised pelican, recalling the legend of the Pelican in her piety. For most of its existence, the headquarters of the service was located at Pelican House on 52 Lower Leeson Street in Dublin which opened in 1950. Eventually it was moved to new nearby building on Mespil Road in 1981. In 2000 the service moved to the National Blood Centre on the grounds of St. James's Hospital... b566e5dc66 == Types of blood transfused == b566e5dc66

Blood donation Blood banks often participate in the collection process as well as the procedures that follow it. most blood donors are unpaid volunteers who donate blood for a community supply. In some countries, established supplies are limited and donors usually A blood donation occurs when a person voluntarily has blood drawn and used for transfusions and/or made into blood products and biopharmaceutical medications by a process called fractionation (separation of whole blood components). A donation may be of whole blood, or of specific components directly (apheresis) b566e5dc66

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