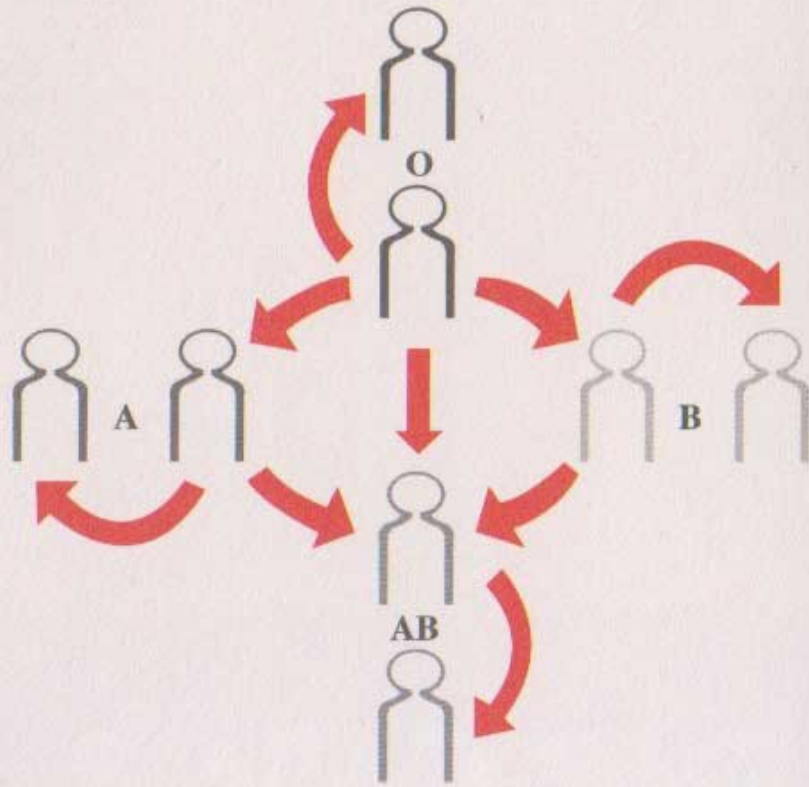


**Red Cells &
Group
Compatibility**



Blood Group of recipient	Can receive <i>Red Cells in additive solution*</i> from
A ⁺	A ⁺ , A ⁻ , O ⁺ , O ⁻
B ⁺	B ⁺ , B ⁻ , O ⁺ , O ⁻
AB ⁺	AB ⁺ , AB ⁻ , A ⁺ , A ⁻ , B ⁺ , B ⁻ , O ⁺ , O ⁻
O ⁺	O ⁺ , O ⁻
A ⁻	A ⁻ , O ⁻
B ⁻	B ⁻ , O ⁻
AB ⁻	AB ⁻ , A ⁻ , B ⁻ , O ⁻
O ⁻	O ⁻

* NOT POSSIBLE WITH WHOLE BLOOD








There are two main systems **ABO & Rhesus** which are used to classify blood for transfusion.

ABO System

These are genetically determined antigens on red cell membrane and natural antibodies which are reciprocal. e.g. group A has A antigen on red cell membrane and anti B antibodies in the plasma.

Summary of antigens & natural antibodies

Group	Antigen	Natural Antibody in plasma	Compatible red cells
AB	A,B	None	AB, A, B & O
A	A	anti B	A & O
B	B	anti A	B & O
O	None	anti A &	O

	Group A	Grou	Group AB	Group O
Red cells	antigen A 	antigen B 	antigen A antigen B 	
Plasma	 anti B	 anti A	None	 anti B anti A

ABO Compatible Blood Transfusion

The antibody present in the plasma of the recipient (patient) is the major determining factor in deciding which blood would be compatible.

This is more relevant when only red cells (sans plasma) is the component which is to be transfused, because this component does not have plasma and therefore antibodies present in plasma can be disregarded.

Alternative blood groups can be used with optimum safety & efficacy. (as shown in the "Compatible blood" colu

Rhesus System

In over 90% of people the rhesus factor (antigen D) is present on red cell membranes, i.e. they are rhesus positive (Rh+ve / D+ve). The rest are Rh -ve. However the rhesus system is different from ABO system in the way that they do not have natural antibodies but if Rh+ve blood is given to Rh-ve recipient it would stimulate an immune response with the production of antibodies that cause hemolysis of the transfused red cells. However Rh-ve can be safely transfused in Rh+ve recipient.

Rh Compatible Blood Transfusion

Group	Possible antibody in plasma	Compatible blood
Rh+ve	-	Rh+ve & Rh-ve
Rh-ve	D	Rh-ve

Component	Description	Indication
Red cells in Additive solution	300-350 ml of red cells in additive solution collected from 450 ml whole blood	Symptomatic anemia; acute or chronic
Pediatric unit	Prepared from Red cell units in desired volume by using sterile tube connecting device	Same as red cell in additive solution
Washed red cells	300-350ml Red cells washed with normal saline thrice under Laminar air flow	Symptomatic anemia with *IgA deficient patient with IgA antibodies *To reduce febrile hemolytic transfusion reaction *Plasma protein antibodies
Leuco-reduced red cells	Prepared by removing buffy coat at the time of separation to reduce leucocytes	*To reduce febrile hemolytic reaction
For Exchange Transfusion	Red cells & FFP are mixed in desired volume by using sterile tube connecting device	Hemolytic Disease of New born (HDN)
Red cell filters	Filter retain leucocyte & allow red cells to pass & reduces the leucocytes	*To reduce febrile hemolytic reaction *To reduce HLA alloimmunization *To avoid CMV transmission



प्रथमा

PRATHAMA BLOOD CENTRE

ADVANCED TRANSFUSION MEDICINE RESEARCH FOUNDATION

B/h Jivraj Mehta Hospital, Dr. C. V. Raman Marg, Vasna, Ahmedabad-380007, Gujarat, India

Phone: +91-79-6600101, Fax: +91-79-6611850,

E-mail: prathama@prathama.org.

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