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# BLOOD-TRANSFUSION

CRYOPRECIPITATE - Each unit (around 10 to 15 mL) typically provides:[1]

Fibrinogen 150–250 mg with a half-life of 100–150 hours Factor VIII 80–150 U with a half-life of 12 hours von Willebrand factor 100-150 U with a half-life of 24 hours Factor XIII 50–75 U with a half-life of 150–300 hours. Cryoprecipitate also contains fibronectin; however there are no clear indications for fibronectin replacement.

WHOLE BLOOD TRANSFUSION —

Whole blood is typically stored under the same conditions as red blood cells and can be kept up to 35 days if collected with CPDA-1 storage solution or 21 days with other common storage solutions such as CPD.

If the blood will be used to make platelets, it is kept at room temperature until the process is complete. This must be done quickly to minimize the warm storage of RBCs in the unit.

It is used to make a number of blood products including packed red blood cells, platelet concentrate, cryoprecipitate, and fresh frozen plasma

Packed red blood cells, also known as red cell concentrate and packed cells, are red blood cells that have been separated for blood transfusion.[1] They are typically used in anemia that is either resulting in symptoms or when the hemoglobin is less than 70-80 g/L (7-8 g/dL).[1][2] One unit brings up hemoglobin levels by about 10 g/L.[3] Repeated transfusions may be required in people receiving cancer chemotherapy or who have hemoglobin disorders

With additive solutions, RBCs are typically kept at refrigerated temperatures for up to 45 days.[14] In some patients, use of RBCs that are much fresher is important; for example, US guidelines call for blood less than seven days old to be used for neonatals, to ensure optimal cell function. However, the phenomenon of RBC storage lesion and its implications for transfusion efficacy are complex and remain controversial (see blood bank and blood transfusion articles).

With the addition of glycerol or other cryoprotectants, RBCs can be frozen and thus stored for much longer (this is not common). Frozen RBCs are typically assigned a ten-year expiration date, though older units have been transfused successfully. The freezing process is expensive and time-consuming and is generally reserved for rare units such as ones that can be used in patients that have unusual antibodies. Since frozen RBCs have glycerol added, the added glycerol must be removed by washing the red blood cells using special equipment, such as the IBM 2991 cell processor in a similar manner to washing RBCs.

Platelet transfusion, also known as platelet concentrate, is used to prevent or treat bleeding in people with either a low platelet count or poor platelet function.[1] Often this occurs in people receiving cancer chemotherapy.[1] Preventative transfusion is often done in those with platelet levels of less than 10 x 109/L.[2] In those who are bleeding transfusion is typically carried out at less than 50 x 109/L.

Platelets can be produced either from whole blood donations or by apheresis.[1] They keep for up to five to seven days.

Fresh frozen plasma (FFP) is a blood product made from the liquid portion of whole blood.[3] It is used

to treat conditions in which there are low blood clotting factors (INR>1.5) or low levels of other blood proteins.[3][2] It is also used as part of plasma exchange.[1] The specific batch typically needs to be tested for compatibility before it is given.[3] Use as a volume expander is not recommended.

Red Cells Storage temperature Shelf life Comments 2–6 ºC

Red cells: 42 days All blood refrigerators, including theatre and other holding refrigerators, must comply with AS 3864.1, AS 3864.2 (1, 2)

Paediatric red cells: 35 days Washed red cells: 28 days Platelets Storage temperature Shelf life Comments 20–24 ºC

5 days

Platelets components must be agitated gently and continuously in a single layer on a platelet agitator.

Fresh frozen plasma, cryodepleted plasma, cryoprecipitate Storage temperature Shelf life Comments At or below –25 ºC

12 months

Freezers must comply with AS 3864.1 & 3864.2 (1,2).

Fractionated plasma components Storage temperature Shelf life Comments As per product insert

As per expiry date on product

All blood refrigerators, including theatre and other holding refrigerators, must comply with AS 3864.1, AS 3864.2 (1, 2)

## GALLERY - VISUAL MNEMONICS :