

I NEED TO KNOW ABOUT BLOOD PRODUCTS FOR NEONATES

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What is a neonate?

Neonate is a medical term that describes a baby from birth to four weeks. This also includes premature infants.

Why do neonates need different blood products than adults?

A neonate is not a miniature adult. Some things need to be considered when giving a neonate a blood transfusion including:

- Neonates have only about 70–80 mLs of blood per kilo of weight. Many premature babies weigh under a kilogram. Special, tiny blood packs called paediatric packs are made by splitting a normal red cell donation into four parts.
- They are very susceptible to cold and so blood products should be room temperature when administered
- Neonates have tiny veins
- Stored blood may increased levels of potassium, which can cause medical troubles for a premature baby. Fresh blood is preferred.
- Neonates have an immature immune system which needs to be protected so they often receive irradiated blood products and cytomegalovirus (CMV) negative blood (see our fact sheet *I Need to Know About Cytomegalovirus*, Vol 5, No 4).

Why are red blood cells required?

Red blood cell transfusions are required to treat anaemia – a lack of red blood cells or the oxygen carrying component or red blood cells called haemoglobin. Anaemia in neonates is generally caused by:

- Prematurity (when a baby is born before it is due) – the anaemia may also be worsened by frequent blood tests during the hospital admission
- Blood loss
- Infection
- Haemolytic disease of the newborn (HDN) – when the red cells of the neonate are destroyed due to incompatibility of mother's and baby's blood groups.



Why are platelets required?

Platelet transfusions are required to treat thrombocytopenia – low platelet counts. In neonates this is generally caused by:

- Neonatal alloimmune thrombocytopenia (NAIT) – when the platelets are destroyed by the mother's antibodies (attack molecules)
- Impaired production in premature infants
- Lack of oxygen or a placenta that has not been working properly during the pregnancy
- Infection with increased consumption of platelets.

Why is fresh frozen plasma (FFP) required?

FFP may be used in situations of acute bleeding or plasma protein deficiencies.

BLOOD FACT

A tiny neonate may only require a transfusion of a few teaspoons of red blood cells.