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 increase 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.