

Blood component therapy in NICU

Guidelines for PRBC transfusion thresholds in preterm neonates (<32 weeks)

Postnatal age	Suggested transfusion threshold Hb (g/dL)		
	Ventilated	On oxygen or CPAP/NIPPV	No supplemental oxygen
First 24 hr	<12	<12	<10
Days 2 to 7	<12	<10	<10
Days 8 to 14	<10	<9.5	<7.5 – 8.5
Day 15 onwards	<10	<8.5	<7.5

British Committee for Standards in Hematology, Guidelines on transfusion for fetuses, neonates and older children 2016

Guidelines for PRBC transfusion thresholds in term neonates

Condition	Hb (g/dL)
Severe pulmonary disease	<12
Moderate pulmonary disease	<10
Severe cardiac disease	<12
Major surgery	<10
Symptomatic anemia	<7

Suggested thresholds for neonatal platelet transfusion

Platelet Count	Condition
<25,000/cubicmm	Neonates with no bleeding (including neonates with NAIT if no bleeding and no family history of ICH)
<50,000 /cubic mm	<ul style="list-style-type: none"> • Neonates with bleeding • Evidence of coagulopathy • Before surgery • NAIT if previously affected sibling with ICH
<1,00,000 /cubic mm	Major bleeding e.g. significant IVH Major surgery

INDICATIONS FOR TRANSFUSING FFP IN A NEW BORN

The valid indications for transfusing FFP in a newborn include.

1. Disseminated intravascular coagulation (DIC).
2. Vitamin K deficiency associated bleeding.
3. Neonates with clinically significant bleeding or prior to invasive procedures with a risk of significant bleeding and with abnormal coagulation profile (PT or aPTT significantly above the normal gestational- and postnatal-age-related reference ranges).

FFP should not be used for simple volume replacement/expansion or enhancement of wound healing or routinely for prevention of IVH.

INDICATIONS FOR USE OF CRYOPRECIPITATE

1. Congenital factor VIII deficiency when recombinant and plasma derived factor VIII products are not available.
2. Congenital factor XIII deficiency with active bleeding or while undergoing an invasive procedure in absence of factor XIII concentrate
3. Afibrinogenemia and dysfibrinogenemia with active bleeding or while undergoing an invasive procedure

PEDIATRIC DOSING OF BLOOD COMPONENTS

Component	Dose	Expected increment
Red Blood Cells	10-15 mL/kg	Hemoglobin increase 2-3g/dL
Fresh Frozen Plasma	10-15 mL/kg	15%-20% rise in factor levels (assuming 100% recovery)
Platelets (whole-blood-derived (WBD) or apheresis)	5-10 mL/kg or 1 WBD unit/10 kg (patients \geq 10 kg)	50,000/ μ L rise in platelet count (assuming 100% recovery)