

HEMATOLOGY/ONCOLOGY

Transfusion Guidelines

Pediatric Specific Risks

- Bacterial and viral contamination (same as adults)
- Hypothermia: increased risk given pediatric surface area to weight ratio; consider blood warmer especially if large volume will be transfused
- Hyperkalemia: increased if whole or irradiated blood used
- Hypocalcemia: due to chelation from colloids; a rapid transfusion may cause hypotension since calcium is a potent inotrope in infants and children

Packed Red Blood Cells

- Dose: 10-15 mL/kg
One unit of pRBCs is approximately 250-350 mL. Transfusing a pediatric patient 10-15 mL/kg raises Hgb by 3 gm/dL (or 4 mL/kg = Hgb 1 gm/dl = Hct 3%). Transfusing an adult patient 1 unit will raises Hgb 1 gm/dL (Hct 3%).
- Rate: 5 mL/kg/hr, or 10-15 mL/kg over 2-4 hours
Consider Lasix mid-transfusion or post-transfusion if concerned about fluid overload.
- Goals: Hgb >7 or as clinically indicated
- Ordering packed red blood cells
Leukocyte reduced: ALL blood products need to be leukocyte reduced (aka CMV safe). Prevents febrile, non-hemolytic transfusion reactions.
Irradiated: Eliminates possibility of GVHD by eliminating donor-derived T cells that can engraft in an immunocompromised recipient. *Indications = all neonates <4 months, severe known or suspected immunodeficiency or immunosuppression (chemo, radiation, stem cell transplant), and donor-directed blood products.*
CMV Seronegative: Indications = infants <1000 grams, CMV negative/pending patient who is either receiving stem cells from CMV negative donor, AML or aplastic anemia, high-risk neuroblastoma, or congenital or acquired immunodeficiency syndrome.
Phenotype Matched: Indications = sickle cell, thalassemia, other chronic anemias
Washed RBCs: Indications = cardiac patients <4 kg, GI patients <5 kg, history of serious febrile or allergic transfusion reaction, IgA deficiency, kidney or liver failure

Platelets

- Dose: 5-10 mL/kg, raises platelet count by 40,000-60,000 (for 10 mL/kg)
One unit of platelets is approximately 50-60 mL.
- Rate: as fast as tolerated (30 minutes to 1 hour)
- Goals: >10K if not bleeding >20K if febrile or with recent hemorrhage
>50K if bleeding or scheduled for major procedure >100K if CNS bleed
If ITP, discuss all platelet transfusions with Heme/Onc team first.

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Fresh Frozen Plasma

- Dose: 10-30 mL/kg
- Rate: No faster than 1 mL/kg/min or should be followed by calcium
- Contains: ALL factors and albumin

Cryoprecipitate

- Dose: 1 unit per every 5-10 kg (1 unit is approx. 250 mg fibrinogen)
- Rate: as fast as tolerated
- Contains: high-molecular weight proteins including fibrinogen, Factor VIII, vWF, and Factor XIII

Transfusion Reaction

****Stop all transfusions when the temperature rises $>1^{\circ}\text{C}$ or $>2^{\circ}\text{F}$ from baseline****