

## VUMC Blood Bank Website

Products Page

### Red Blood Cells

VUMC used universal leukocyte reduced (LR) RBC products. This LR product reduces the WBC content by nearly 99.9%, however, residual WBC still persist (FDA Standard for Leukocyte Reduction is  $<5.0 \times 10^6$  WBC per unit).

#### Indication

Improve oxygen carrying capacity in critical cases, as well as treatment for symptomatic anemia.

#### Contraindications

Red-cell-containing components should not be used to treat anemias that can be corrected with specific hematinic medications such as iron, vitamin B12, folic acid, or erythropoietin.

RBCs should **not** be used solely for volume expansion or to increase oncotic pressure of circulating blood.

#### Dosage

For non-emergent cases a single RBC unit has a default volume of ~350 mL. The actual RBC content is ~55-60% of the unit, and in an adult patient will result in a 1 g/dL rise in the hemoglobin.

Pediatric patients are transfused according to their weight at VUMC.

RBC pediatric weight based ordering: 10-15 ml/kg, administered over 2-4 hours (per VUMC policy the product must be transfused in 4 hours (from spiking of unit to completion)).

For patients less than 21 kg, dosing should be written in mL.

- Ok to round up as long as does not exceed 15 ml/kg otherwise the remaining blood is discarded.
- Can consider a max of 20ml/kg when blood given due to acute hemorrhage, this is rare.
- In children, 10-15ml/kg raises hgb ~1.5-3 g/dL. The exact rise in a pediatric patient hemoglobin following transfusion can be estimated by
- $\text{Volume (mL)} = \text{Increase in hemoglobin required (g/dL)} \times 4 \times \text{weight (kg)}$
- In adults (>60kg), 1 unit of PRBCs raises hgb ~1.5 g/dL
- In children or adults with sickle cell disease, the goal hemoglobin should never exceed 11.
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What if the starting hemoglobin in a pediatric patient is low?

- If the hemoglobin is less than 6 g/dL in chronically anemic patient, or in new patients with leukemia, then transfuse # mL = hgb x weight in kg over 4 hours. (Example if hgb 3 in a 20 kg child, transfuse  $3 \times 20 = 60$  ml, therefore 60ml PRBCs over 4 hours). Will need to repeat after auscultation and consideration of furosemide in between doses of PRBC aliquots.



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