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 x 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
  Volume (mL)=Increase in hemoglobin required (g/dL) x 4 x 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.

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 x 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.