

Ordering Blood

- ✓ Order type and crossmatch if blood is to be given immediately or scheduled to be given within 3 days
- ✓ Order type and screen if blood may not be given; crossmatch can later be completed quickly if needed.
- ✓ A crossmatch is needed only for red cells; plasma and platelet orders do not require a crossmatch, but do require two patient blood type determinations on record.

Platelet transfusion (adult)

- ✓ Store only at room temperature, do not refrigerate or place in coolers.
- ✓ Each dose of platelets should raise count by $\sim 30 \times 10^9/L$

Platelets are most likely appropriate:

- Stable without bleeding $< 10 \times 10^9/L$
- Hematopoietic stem cell transplant $\leq 20 \times 10^9/L$
- Before major procedures & up to 72 hr after $< 50 \times 10^9/L$
- Interventional radiology exceptions:
 - Elective arterial procedure $< 70 \times 10^9/L$
 - Non-vascular procedure $< 70 \times 10^9/L$
- Neurological or ophthalmological procedure or bleeding $< 100 \times 10^9/L$
- Bleeding or pre-operative and any count
 - Documented reason for platelet dysfunction; or
 - Abnormal platelet function by thromboelastograph

Platelets are most likely NOT appropriate:

- Patients with immune thrombocytopenic purpura (ITP), thrombotic thrombocytopenic purpura (TTP) or heparin-induced thrombocytopenia (HIT) unless they have life-threatening hemorrhage

Plasma Transfusion

- ✓ Minimum effective adult dose is 2 units (~ 500 ml)
- ✓ Be aware of patient's volume status, do not fluid overload
- ✓ $INR \geq 1.6 \approx PT > 5$ sec above upper normal

Plasma is most likely appropriate:

- Bleeding or before most procedures $INR \geq 1.6$
- Interventional radiology exceptions:
 - Emergent arterial procedure $INR > 2.0$
 - Central venous line $INR > 2.0$
 - Venous procedure $INR > 3.0$
- Significant bleeding in patients with DIC any INR

Plasma is most likely NOT appropriate:

- Stable patients with $INR \leq 1.5$
- For treatment of hypovolemia or hypoalbuminemia
- Correction of isolated prolonged PTT (usually due to heparin or lupus anticoagulant)
- To replace a single coagulation factor if concentrate is available (i.e. hemophilia and von Willebrand Disease)

Cryoprecipitate transfusion

- ✓ Typical dose is one pooled-pack which should raise fibrinogen 40-50 mg/dL

Cryoprecipitate is most likely appropriate:

- Isolated hypofibrinogenemia (≤ 100 mg/dL)
- Patients with dysfibrinogenemia
- Bleeding in uremic patients if DDAVP and estrogens fail to improve platelet function or are contraindicated
- As part of massive transfusion

Cryoprecipitate is most likely NOT appropriate:

- Patients with concurrent clotting factor deficiency and hypofibrinogenemia (use FFP instead)
- Patients with von Willebrand disease or hemophilia A (use factor concentrates instead, when available)

Red blood cell transfusion (adult)

- ✓ One unit will raise Hgb by approximately 1 g/dL
- ✓ $Hgb 8$ g/dL $\approx Hct 24\%$, $Hgb 10$ g/dL $\approx Hct 30\%$

RBCs are most likely appropriate:

- 72 hr before and after surgery $Hgb < 8$ g/dL
- Chronic anemia if other therapy fails $Hgb < 8$ g/dL
- Clinical symptoms of anemia $Hgb < 10$ g/dL
- Massive blood loss any Hgb (> 750 cc or $> 15\%$ blood volume)

RBCs are most likely NOT appropriate:

- Asymptomatic patients with $Hgb > 8$ g/dL

Modified Red Blood Cell Units

- ✓ Orders for "fresh" or "washed" RBCs are appropriate in very few patients (i.e. severe transfusion reactions or specific causes of potassium elevation)
- ✓ Orders will be considered on a case-by-case basis

Leukoreduced Products

- ✓ All standard blood products at this institution are pre-storage leukocyte reduced to decrease the incidence of febrile nonhemolytic transfusion reactions and HLA alloimmunization.
- ✓ Leukocyte reduced units are CMV-safe products with virtually equivalent risk of CMV transmission as CMV seronegative units.

CMV-negative Products

- ✓ For nearly all patients leukoreduced blood is equivalent to CMV-negative blood
- ✓ CMV-negative blood is not routinely stocked

Blood Irradiation

- ✓ To prevent graft vs. host disease in susceptible patients
- ✓ Does not sterilize product or reduce risk of infection

Irradiation is appropriate:

- Hematologic malignancies
- Hematopoietic stem cell transplant recipient or scheduled for HSC transplant
- Receiving purine analogs (fludarabine, 2-CDA, etc.)
- HLA-matched products or directed donations from blood relatives
- Intrauterine transfusion
- Newborns who received intrauterine transfusions or are in the neonatal ICU
- Congenital T cell-mediated immunodeficiencies (DiGeorge's, SCID, Wiskott-Aldrich, etc)

Irradiation is most likely NOT appropriate:

- Patients with AIDS or HIV
- Solid organ transplant recipients
- Patients receiving immunosuppressive therapy or chemotherapy who do not meet above criteria
- Congenital humoral immunodeficiencies (aggamaglobulinemia, hypogammaglobulinemia)

Supplementary Pediatric Guidelines

RBCs are most likely appropriate:

- Shock due to perinatal blood loss
- Infants on mechanical ventilation with:
 - MAP > 8 and FIO₂ > 0.4 Hct < 35%
 - FIO₂ < 0.4 Hct < 28%
 - Recently extubated with FIO₂ > 0.4 Hct < 28%
- Clinical signs of anemia, such as Hct < 25%
 - Unexplained bradycardia or apnea for 48 hours
 - Serum lactate > 2.5 mEq/L
 - Poor weight gain with adequate calories
 - Unexplained lethargy
- Prior to surgery Hct < 25%
- Without signs of anemia Hct < 20%

Platelets are most likely appropriate:

- Preterm infants with increased risk of bleeding < 50 x10⁹/L

Concise Blood Product Ordering And Administration Guidelines

Blood Bank: 8-4444

Based on guidelines prepared by:
UCD Blood Utilization
Review Committee

Complete guidelines available at:
<https://www.uchealth.org/professionals/Pages/Clinical-Laboratory/Transfusion-Services.aspx>

Updated: April 2015