Concise Blood Product Ordering and Administration Guidelines

Blood Bank: 8-4444

Based on guidelines prepared by:
UCH Blood Utilization Review Committee

Complete guidelines available at:
https://www.uchealth.org/professionals/uch-clinical-laboratory/

Updated: July 2020

Ordering Blood

All non-emergency blood product orders require two patient blood type determinations on record

Order type and screen if red cells may not be given; crossmatch can later be completed quickly if needed

Order type and crossmatch if red cells to be given immediately or scheduled to be given within 3 days

A crossmatch is needed only for red cells. Plasma and platelet orders do not require a crossmatch.

Platelet transfusion (adult)

Each dose of platelets is expected to raise patient count by ~30x10^9/L
Store only at room temperature, do not refrigerate or place in coolers

Platelets are most likely **appropriate**:	Platelet count
Stable without bleeding	< 10x10^9/L
Active bleeding or DIC	≤ 50x10^9/L
Before major procedures & up to 72 hr after	≤ 50x10^9/L
Neurological or ophthalmological procedure or bleeding	< 100x10^9/L
Bleeding or pre-operative and Documented reason for platelet dysfunction or reduced platelet function by thromboelastography	any count

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

Red blood cell transfusion (adult)

1 unit will raise Hgb by approximately 1g/dL

Red cells are most likely **appropriate**:	Hgb
Any patient	<7g/dL
CV disease AND symptoms of chest pain, orthostatic hypotension, tachycardia unresponsive to fluid resuscitation	<8 g/dL
Perioperative acute blood loss anemia with expected Hgb drop to	<7 g/dL
Cytotoxic chemotherapy with an expected hemoglobin drop to	<7 g/dL
Anemia with symptoms that are intolerable without transfusion	
Hemodynamically unstable patient with an acute bleed	

Red cells are most likely **NOT appropriate**:	
Asymptomatic patient	>7g/dL
Non-bleeding patient	>10 g/dL

Transfusing for a Hgb above evidence-based thresholds can expose the patient to an unnecessary risk of harm

Modified Red Blood Cell Units

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

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 TA 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,

Plasma Transfusion

Minimum effective adult dose is 2 units (~ 500 ml)
INR ≥ 1.6 ≈ PT > 5 sec above upper normal

Plasma is most likely **appropriate:**	
Bleeding, DIC or before most procedures	INR ≥ 1.6
Reduced clotting factor function by thromboelastography	any INR

Plasma is most likely **NOT appropriate**:

Stable patients with an INR ≤ 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

One pooled-pack should raise fibrinogen 40-50 mg/dL

Cryoprecipitate is most likely **appropriate**:	Fibrinogen
Hypofibrinogenemia	<100 mg/dL
DIC	<150 mg/dL
OB hemorrhage	<200 mg/dL
Cardiac surgery with continued bleeding	<200 mg/dL

Bleeding in uremic patients if DDAVP and estrogens fail to improve platelet function or are contraindicated

Patients with dysfibrinogenemia
Reduced clotting factor function by thromboelastography

Cryoprecipitate is most likely **NOT appropriate**:

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

Supplementary Pediatric Guidelines

RBCs are most likely appropriate:	
Shock due to perinatal blood loss	
Infants on mechanical ventilation with:	Hct < 35%
MAP > 8 and FIO_2 > 0.4	Hct < 28%
FIO_2 < 0.4	Hct < 28%
Recently extubated with FIO_2 > 0.4	Hct < 25%
Clinical signs of anemia, such as: Unexplained episodes of bradycardia or apnea witnessed over 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	≤ 50x10^9/L