

Community Hospital of the Monterey Peninsula	PC-2036
Medical Staff Policy: Pediatric Transfusion Guidelines	Page 1 of 4

These guidelines have been prepared to assist physicians in the use of the various available blood components. They illustrate conditions under which transfusion would be considered reasonable, and to serve as a basis for establishing criteria for auditing blood component administration as required by various accrediting agencies. Such guidelines cannot substitute for clinical judgment and they are not to be interpreted as mandatory practice or standard of care. A medical staff member of the Transfusion Work Group will review transfusions not meeting the indications outlined in these guidelines.

In addition to appropriate documentation of informed consent, all transfusions should be documented as to indications and outcomes with specific notations when exceptions to these criteria exist. Documentation in the Anesthesia or Perfusion record will suffice for intra-operative transfusions. Pre- and post-transfusion laboratory tests and/or notations in the physician's notes are appropriate in other situations.

Indications for Red Blood Cells (leukoreduced)

1. Less than 4 months old
 - (a) Hematocrit less than 24% / 8g/dL hemoglobin with low reticulocyte count and symptoms of anemia (tachycardia, tachypnea or poor feeding)
 - (b) Hematocrit less than 30% with one or more of the following:
 - Less than 35% hood O₂
 - On O₂ by nasal canula
 - On CPAP or intermittent mandatory ventilation with mean airway pressure less than 6 cm H₂O
 - Significant apnea or bradycardia (apnea of 6 episodes in 12 hours or 2 in 24 hours) requiring bag and mask ventilation while given methylxanthines.
 - Low weight gain (less than 10g per day over 4 days, given 100 kcal/kg per day)
 - (c) Hematocrit less than 35% with an infant:
 - On greater than 35% hood O₂
 - On CPAP or intermittent mandatory ventilation with mean airway pressure 6-8 cm H₂O
2. Greater than 4 months old
 - (a) Emergency surgical procedure in a patient with significant preoperative anemia
 - (b) Preoperative anemia when other corrective therapy is not available
 - (c) Intraoperative blood loss greater than or equal to 15% total blood volume
 - (d) Hematocrit less than 24% per 8g/dL hemoglobin:
 - In the perioperative period with signs or symptoms of anemia
 - While on chemotherapy/radiotherapy
 - Chronic congenital or acquired anemia
 - (e) Acute blood loss with hypovolemia not responsive to other therapy
 - (f) Hematocrit less than 40% / 13g/dL hemoglobin with severe pulmonary disease
 - (g) Sickle cell disease with:
 - Cerebrovascular accident
 - Acute chest syndrome
 - Splenic sequestration
 - Recurrent priapism
 - Preoperatively when general anesthesia is planned, to reach hemoglobin of 10g/dL
 - (h) Chronic transfusion program (such as for thalassemia)

Indications for Washed RBC's

1. History of anaphylactic reaction to blood components
2. IgA deficiency with documented anti-IgA antibodies
3. Neonatal alloimmune thrombocytopenia or hemolytic disease of the newborn, if the mother is the donor

Indications for Platelets (leukoreduced)

1. Routine use of platelets is not indicated in cases of idiopathic thrombocytopenic purpura (ITP), autoimmune thrombocytopenia and thrombotic thrombocytopenic purpura (TTP).
2. Pathologist consultation is recommended for consideration of platelet product for newborns with neonatal alloimmune thrombocytopenia (NAIT – severe thrombocytopenia due to maternal anti-platelet antibodies) or thrombocytopenia due to maternal ITP.
3. Platelets of 5,000-10,000 with failure of platelet production
4. Platelet count of less than 30,000 in a neonate with failure of platelet production
5. Platelet count of less than 50,000 in a stable premature infant with:
 - Active bleeding
 - Invasive procedure
6. Platelet count of less than 100,000 in a sick premature infant with:
 - Active bleeding
 - Invasive procedure
7. Normal platelet count with:
 - Active bleeding and a qualitative platelet defect
 - Unexplained excessive bleeding in a patient undergoing bypass

Indications for Irradiated RBC's or Platelets

1. All neonates less than or equal to 28 days (including exchange transfusion for hyperbilirubinemia)
2. Known or suspected immune deficiency
3. Stem cell transplant
4. Immunosuppression by chemotherapy or radiotherapy
5. Related donor (directed donation)
6. Patients receiving HLA matched components
7. Patients with Hodgkin's Lymphoma

Indications for HLA Matched or Crossmatched Platelets

Indicated for patients with documented refractoriness to random platelet pheresis units. For example, poor post-transfusion increase on at least two occasions in the absence of sepsis, DIC, ITP, TTP, splenomegaly, bleeding, or other conditions of accelerated platelet destruction.

Indications for Frozen Plasma (FP)

1. Disseminated intravascular coagulopathy (DIC)
2. Replacement therapy if specific concentrate not available
3. Plasma exchange
4. Reversal of Coumadin in an emergency situation
5. PT/INR or PTT greater than 1.5 times the mean reference range in a non-bleeding patient scheduled for an invasive procedure
6. Plasma dosing calculation to correct patient INR: **refer to Appendix A**

Indications for Cryoprecipitate

1. Hypo or dysfibrinogenemia with active bleeding or undergoing a procedure
2. Factor XIII deficiency with active bleeding (if Factor XIII not available)
3. Limited directed donor for bleeding episodes in small children with Hemophilia A (previously untreated children should receive recombinant Factor VIII)
4. Fibrin sealant
5. VonWillebrand’s Disease (if DDAVP and HUMATE-P concentrate not available) with:
 - Active bleeding
 - Invasive procedure

Indications for CMV Serologic Negative

1. Premature infants less than 1500g at birth with:
 - Infant or mother seronegative or CMV status unknown
2. CMV seronegative patient at risk for transfusion transmitted CMV (example: chemotherapy with severe neutropenia, solid organ transplant)
3. Known or suspected immunodeficiency

Granulocytes – Specialized Request

Ordered in advance with consultation with blood center medical director

Whole Blood – Specialized Request

Ordered in advance with consultation with blood center medical director

PHARMACY PRODUCTS:

Recombinant Factors

1. Factor VIII – as indicated for hemophilia A
2. Factor IX – as indicated for hemophilia B

Albumin-Volume Expansion

IVIG

1. Some Immune Deficiencies
2. Kawasaki Disease

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Related policies:	Transfusion Guidelines

Appendix A

Frozen Plasma (FP) Dosing Calculation to Correct Patient INR

CHOMP Laboratory Services Guide

Plasma dosing calculation for adults /children: the on-call pathologist is available for any questions. Please use laboratory values (INR) and clinical assessment/judgement to guide frozen plasma therapy. Ideally the INR should be checked prior to and after the calculated FP dose is given.

Summary of calculation for adults and children greater than 10 kg with example:

Mass (Kg) x 70 mL/kg x (1 - Hct) x fractional increase in factors needed x 1 unit FP/200 ml = # FP units to transfuse

70 kg x 70 mL/kg x (1 – 0.45) x 0.3 x 1/200 mL = 4 units FP to transfuse (to correct INR from 3 to 1.3 or lower)

Details and instructions (note: for children less than 10 kg use 100 mL/kg):

1. Determine the patient's blood volume, then their plasma volume:

Mass (kg) x 70 mL plasma/kg x (1 – Hct) = mL plasma volume

Example: 70 kg x 70 mL/kg x (1 – 0.45) = 4900 mL x 0.55 = 2695 mL plasma volume

2. Determine the coagulation factor deficit (volume of plasma to transfuse):

INR is gross assessment of coagulation, not a direct measure of individual factors. In general, an INR of 3 could represent a need to replace 30% of plasma volume to correct to 1.3 or lower. An INR of over 8 could represent a need to replace 40% of plasma volume to correct the INR to 1.3 or lower.

Sample calculation: INR 3, to correct to 1.3 or lower: 2695 mL x 0.3 = 808 ml

3. Determine the number of units needed:

Example: 808 mL x 1 unit FP/200 mL = 4 units FP to transfuse