Neonatal Hematology

Anemia
(Definition depends on gestational and chronologic age; Evaluation and Management depends on the etiology)

Likely Etiologies	**Latrogenic** (i.e. frequent blood draws) **Hemorrhagic**: Placental Abruption, Umbilical Cord disruption at delivery, Fetal-Maternal, Intraventricular, Head Trauma (cephalohematoma, subgaleal), NEC, Twin-twin transfusion **Hemolytic:** Rh incompatibility, ABO incompatibility
Evaluation	**Anemia at Birth**: Delivery History, Physical Exam, CBC, Retic, Type and Coombs, Blood Smear, Consider HUS or more extensive head imaging, Kleihauer-Betke on mother, Bilirubin
Management	***Transfusion criteria for term and premature infants is very controversial and facility dependent.*** **Preterm:** • If intubated and acutely ill: Hct of 35 – 40 • If a "feeder and grower": Hct + Retic ≥ 30 **Term:** • If acutely ill: consider transfusing to goal Hct>40 • If hemodynamically stable: Hct>25

Polycythemia
(Venous Hct > 65)

Likely Etiologies	• **Increased fetal production** • Placental insufficiency • Thyrotoxicosis • Gestational diabetes mellitus	• Genetic disorders (Trisomy 21, Beckwith-Wiedemann) • **Hypertransfusion** • Delayed cord clamping • Twin-twin transfusion
Evaluation	• Repeat venous or arterial CBC • Monitor for hypoglycemia • Follow bilirubin and electrolytes	**Monitor for symptoms**: • Lethargy • Hypoglycemia • Respiratory distress • Neurologic symptoms
Management	**Partial exchange transfusion (normal saline) if**: • Venous Hct>65% with symptoms • Hct>70% and asymptomatic • Observed HCT **NOTE**: Ideally use UVC to perform a partial exchange	

Thrombocytopenia
(Plt < 150)

Likely Etiologies	**Increased Destruction/Consumption:** • Autoimmune • Alloimmune (NAIT) • Infection/DIC/NEC • Drug induced/toxicity • Hypersplenism • Kasabach-Merrit Syndrome • Following transfusion	**Decreased Production:** • Thrombocytopenia-absent radius • Fanconi anemia • Trisomy 13, 18, 21 **Miscellaneous:** • Asphyxia • Pre-eclampsia • Type 2B von-Willebrand
Evaluation	• Repeat Platelet Count • Look up maternal history and platelet count • Exam for evidence of bleeding	• Coagulation studies • Consider HUS • Consider sending maternal platelets
Management	The decision to transfuse platelets depends on the etiology and how symptomatic the patient is (i.e. bleeding, hypotension, mechanical ventilation, procedures)	