COAGULATION PARAMETERS 3-10
EMMC Guidelines for Invasive Procedures
Abnormal INR and/or Thrombocytopenia

- Epidural placement or manipulation of neuraxis, lumbar puncture
- Arteriotomy
- Nephrosomy
- Kidney biopsy
  - Platelet count: ≥ 35,000
  - INR: ≤ 1.7
- Thoracentesis, liver biopsy, or other invasive procedures
  - Platelet count: ≥ 25,000
  - INR: ≤ 2.0
- Paracentesis
  - Platelet count: ≥ 25,000
  - INR: ≤ 3.0
- Superficial fine needle aspiration (FNA), 20 gauge or smaller needle
  - Platelet count: Any
  - INR: Any
For Procedures Perceived to be at Higher Risk for Bleeding

Examples: biopsies kidney, liver, near large vessels, involving the neuraxis

Pursue prudent measures to lower risk:
  o Vitamin K
  o Adequate abstinence from Coumadin, Clopidogrel, aspirin
  o Ensure adequate platelet count and function
  o Liver Biopsy: consider tract embolization; drain ascites; consider transjugular route

For vascular procedures:
  o Consider smallest possible catheter/sheath
  o Consider closer device
  o Consider alternative imaging
If Correction of Thrombocytopenia or Increased INR is Required

- **If INR is too high:**
  - Follow guidelines for Coumadin reversal/use of vitamin K
  - In general, intravenous vitamin K is effective with 6-8 hours
  - Frozen plasma should only be used when emergent reversal is required and should always be used together with intravenous vitamin K
  - Frozen plasma is generally ineffective in correcting the increase in INR associated with liver disease. However, these patients generally have normal in vivo thrombin formation and rarely bleed from needle biopsies, paracentesis, etc.

- **If correction of thrombocytopenia is required:**
  - Transfuse a single unit of apheresis platelets and check post-transfusion platelet count