

### **I. Legal, medical & ethical issues for the bleeding bloodless patient**

- A. Establish frank and open communication with the patient. Ensure that the patient understands the morbidity and mortality risks their current medical condition.
- B. Determine the wishes of the patient regarding the use of allogeneic blood products and ascertain which alternative treatment options would be acceptable (see Instruction Sheet).
- C. If there are any doubts about the autonomy of the patient, consult with the ethics committee or the courts, if necessary.
- D. Discuss with the patient concerning non-blood alternatives.

### **II. General non-blood management principles**

- A. Maintain heightened surveillance for blood loss or physiologic deterioration. Early recognition and promoting action to prevent/control abnormal bleeding are essential. The threshold for intervention should be lower than for patients who accept allogeneic blood transfusion.
- B. Promoting action to achieve hemostasis in the actively bleeding bloodless patient is life saving.
- C. Avoid a watch-and-wait approach to bleeding.

### **III. Establish the source of bleeding & perform local hemostatic strategies**

- A. Multidisciplinary care using strategies and procedures such as endoscopy, interventional radiology, or surgery can be the key for a successful outcome.
- B. Pharmacological interventions can be effective depending on the source of the bleeding.
- C. Labeling or tagging may be necessary to identify the source of a lower GI bleed. First determine if this strategy is acceptable to the bloodless patient.

### **IV. Rule out abnormalities of hemostasis & correct any coagulation defects**

- A. Perform standard coagulation screening.
- B. Discontinue all medications with anticoagulation action.
- C. Reversal of warfarin can be achieved using prothrombin complex concentrate (PCC), Kcentra, and Vitamin K. (Use of Kcentra requires patient approval.)
- D. Kcentra is fast acting and is given IV through an infusion pump, and typical dosing is 25-50 u/kg (check with pharmacy for specifics). Vitamin K can be given orally (reversal in 24 hours), or IV (reversal in 4-8 hours).
- E. PPC has been used to attempt reversal of the newer direct oral anticoagulation medications on the market. A reversal agent is available for dabigatran (Pradaxa). Currently there are no specific reversal agents for rivaroxaban (Xarelto) or apixaban (Eliquis).

### **V. Consider prohemostatic treatment**

- A. **Tranexamic acid** or epsilon aminocarpic acid have been used successfully in many orthopedic, cardiac, and postpartum hemorrhage to reduce blood loss.
- B. Dosing has not been firmly established; typically a 1g infusion is recommended.
- C. In life-threatening cases, consider recombinant activated Factor VII at a dose of 90ug/kg (if acceptable to the bloodless patient).
- D. Use desmopressin for the treatment of inherited or acquired defects in primary hemostasis.

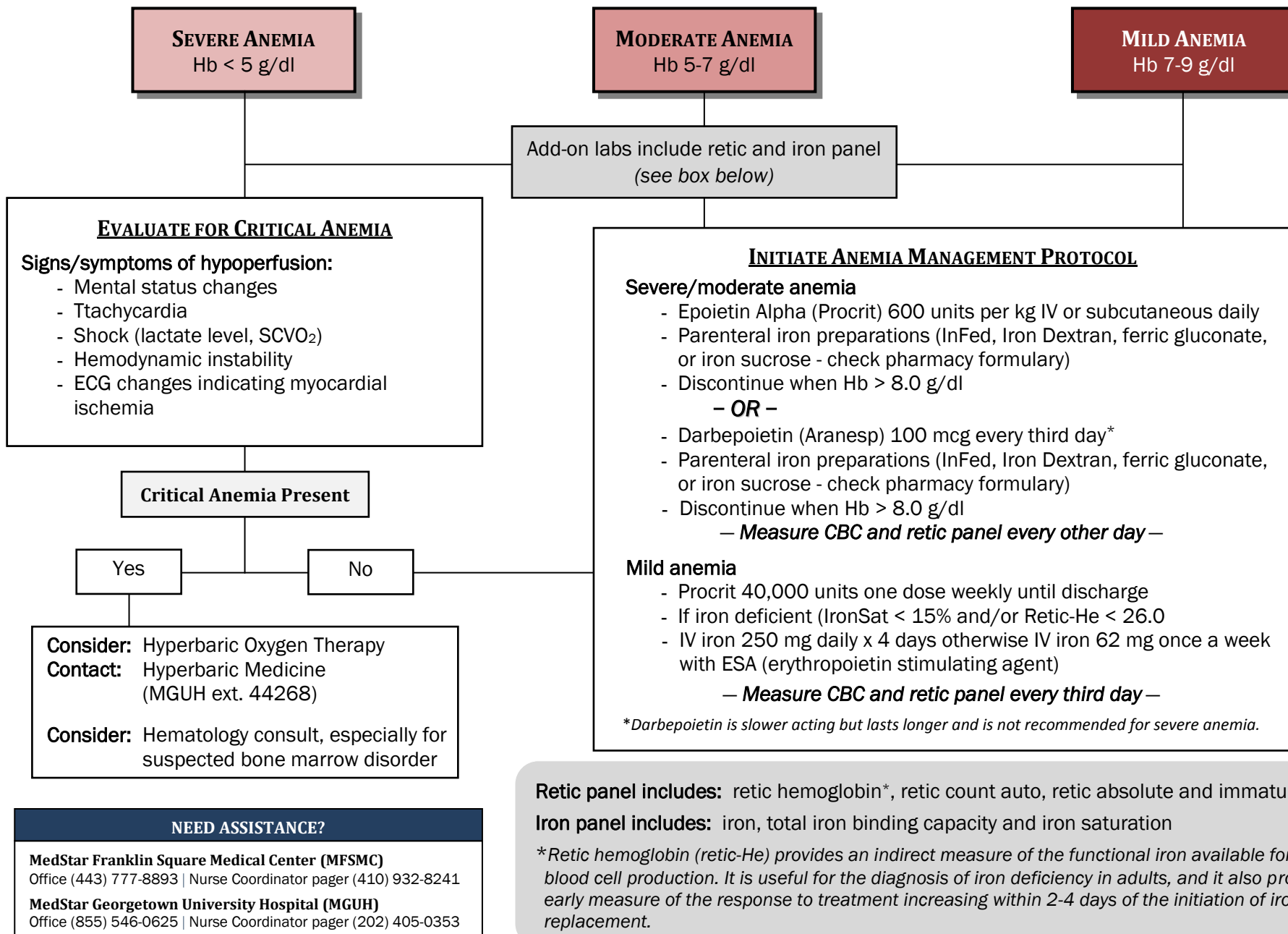
### **VI. Begin aggressive anemia management to optimize hemoglobin production**

- A. Parenteral IV iron supplementation
- B. High dose rHuEPO of 600 units/kg (see treatment algorithm)

### **VII. Minimize blood loss**

- A. Restrict diagnostic phlebotomy
  - a. Limit phlebotomy to necessary diagnostic testing.
  - b. Use pediatric blood tubes to decrease volume of blood drawn.

# ANEMIA MANAGEMENT ALGORITHM BLOODLESS PATIENTS



## NEED ASSISTANCE?

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**Retic panel includes:** retic hemoglobin\*, retic count auto, retic absolute and immature retic %  
**Iron panel includes:** iron, total iron binding capacity and iron saturation

\*Retic hemoglobin (retic-He) provides an indirect measure of the functional iron available for new red blood cell production. It is useful for the diagnosis of iron deficiency in adults, and it also provides an early measure of the response to treatment increasing within 2-4 days of the initiation of iron replacement.