



## Five Things Physicians and Patients Should Question

1

### Don't proceed with non-emergent major surgery until anemia is evaluated and treated.

Anemia is a global health problem with an incidence of up to 25% in neonates, infants and children. An independent association between preoperative anemia and postoperative morbidity and mortality has been reported. Expert consensus guidelines recommend screening 3 to 6 weeks before major elective surgery. Targeted preventative and therapeutic strategies, which may include iron supplementation, to improve the hematologic status of anemic patients prior to surgery could reduce blood transfusions, improve safety, and decrease costs.

2

### Avoid hemodilution and unnecessary blood draws to avoid dilutional coagulopathy and iatrogenic anemia.

Excessive fluid administration causing hemodilution and unnecessary phlebotomy reduce hemoglobin levels and may unnecessarily trigger red blood cell transfusions based on a numeric threshold despite adequate oxygen carrying capacity. Replacing blood loss with intravenous fluids which do not contain adequate clotting factors (i.e. crystalloids, colloids and packed red blood cells) may lead to dilutional coagulopathy causing a bleeding diathesis. Routine blood draws should be avoided, and if necessary, blood laboratory investigations should be consolidated when appropriate, using minimal volume withdrawal and closed loop collecting systems.

3

### Avoid/reduce allogenic transfusion by first using cell salvage for pediatric high blood loss surgery.

Cell salvage, as a part of a multimodal patient blood management strategy in pediatrics, may reduce unnecessary blood transfusions, improve outcomes and decrease costs. Expert consensus recommendations, observational reports and prospective research suggest that utilizing cell salvage decreases RBC transfusions in infants, children and adolescents undergoing craniostomy, spinal and cardiac surgical procedures. While prospective clinical studies are few, the evidence suggests that cell salvage is feasible, effective, and safe. More high-quality trials will further guide optimum use.

4

### Avoid transfusing older RBC units (>7 days) in infants <10 kg or < 1 year of age requiring massive transfusions to prevent hyperkalemic cardiac arrest.

Transfusion-associated hyperkalemia resulting in cardiac arrest (TAHCA) has been recognized as a complication of massive RBC transfusion in children. During storage, potassium in the extracellular fluid of RBC units stored in additive solutions increases linearly over time. Transfusion of older RBC units ( $\geq 7$  days) should be avoided when large volume/ massive transfusions are expected in neonates and children, such as in craniostomy and spinal surgeries, neonatal CPB prime, and cannulation for ECMO or trauma. Although potentially limited in supply, the use of fresh RBC units (<7 days) should be used in large volume/ massive transfusions in neonates and children to prevent hyperkalemic cardiac arrest.

5

### Avoid dependence on standard laboratory values for transfusion decisions; consideration of the patient's clinical status is requisite.

Laboratory studies may not accurately portray the individual's hemostatic status, bleeding risk or need for transfusion; laboratory studies must be assessed in the context of the patient's overall clinical status. Additional platelet function and viscoelastic testing should be performed to guide blood product transfusions in children with (or at risk for) moderate to severe bleeding. Pharmacologic modalities (i.e. antifibrinolytics, topical hemostatic agents) should be utilized as appropriate. Hemoglobin levels should be assessed in the context of the patient's fluid status, hemodynamics, and degree of cardiopulmonary reserve; with the goal of restrictive RBC transfusion practices.

# How This List Was Created

The Executive Committee and Board of Directors (BOD) of the Society for the Advancement of Patient Blood Management (SABM) had a strong desire to participate in the *Choosing Wisely*<sup>®</sup> campaign. Participation allows SABM to align with the national *Choosing Wisely*<sup>®</sup> team and other specialty societies to further the mission of collaborative physician-patient healthcare delivery and responsible use of resources.

A Task Force composed of specialists in neonatal and pediatric medicine and surgery was appointed at the suggestion of the SABM Educational Oversight Committee. With SABM BOD approval, this Task Force drafted an initial set of statements. Evidence-based recommendations were based on our Society's foundational pillars and structured around published SABM Standards. For this particular list, the SABM Standards, Section 13, 5th edition for neonatal and pediatric patients were critical for statement development. An essential element was the review of relevant literature for supporting evidence applicable to each statement. Ultimately, the draft recommendations were vetted by the Task Force. This resulted in the final five statements for which evidentiary materials and pertinent references were written. The Educational Oversight Committee and the BOD approved the materials prior to submission to the *Choosing Wisely*<sup>®</sup> national team.

Working with this initiative, our selected recommendations and integrated materials will be further honed based on subsequent Campaign review. The list and supporting evidence, once approved, will form the basis of a manuscript for publication in a peer-reviewed journal. We foresee this as a vehicle for outreach to other professional societies, healthcare providers and patients.

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#### About the ABIM Foundation

The mission of the ABIM Foundation is to advance medical professionalism to improve the health care system. We achieve this by collaborating with physicians and physician leaders, medical trainees, health care delivery systems, payers, policymakers, consumer organizations and patients to foster a shared understanding of professionalism and how they can adopt the tenets of professionalism in practice.

To learn more about the ABIM Foundation, visit [www.abimfoundation.org](http://www.abimfoundation.org).



#### About the Society for the Advancement of Patient Blood Management

The Society for the Advancement of Patient Blood Management (SABM) was founded in 2001 by healthcare providers, nurses and physicians, who saw the need for a new way of thinking about transfusion as a therapy. SABM included thought leaders who promulgated the concept of patient blood management as the new standard of care. The SABM mission is broad, its foundation based on appropriate evidence-based transfusion guidelines, the management of anemia, optimization of coagulation and minimization of bleeding, and utilization of interdisciplinary blood conservation strategies. The goal is improved outcomes for patients of all ages. SABM membership includes numerous practitioners involved in the care of neonates and pediatric patients and SABM has published Standards for PBM practice specific to these patient populations.



Today, SABM is recognized as a key educational resource for patient blood management. SABM is grounded in scientific validation, evidence-based practices and focused on promoting the patients' best interest through effective and optimal patient blood management.

Given our mission and message, SABM is truly honored and proud to partner with the *Choosing Wisely*® campaign.