

## National Blood Shortage – Optimization and Minimization Techniques for Patient Blood Management (PBM)

Recently, national media outlets and many of our colleagues have highlighted that we are currently experiencing the worst blood shortage in over a decade, focusing on the need to recruit blood donors. Apart from increasing the national blood supply with appeals for donations, it is perhaps equally as important to decrease the demand for allogeneic blood products. With this in mind, the American Society of Anesthesiologists (ASA) Committee on Patient Blood Management (CPBM) has compiled a list of strategies that anesthesiologists and other medical professionals can employ to optimize the blood health of each patient, minimize allogeneic blood exposures, and conserve limited blood resources for those who need it most. These include:

- Identification and treatment of anemia early with non-transfusion options, including adequate preoperative optimization of anemia:
  - Intravenous or oral iron for iron deficiency; consideration of the use of erythropoietin or other therapies for various anemia etiologies preoperatively
  - Postoperative treatment of anemia with therapies to support blood production
- Prevention, Identification, and management of coagulation derangements perioperatively, including use of anti-fibrinolytic agents, factor concentrates, and point-of-care viscoelastic testing:
  - Loosening restrictions on factor concentrates in moderate to massive transfusion scenarios in high-risk surgeries
  - Maintaining normothermia
- Employment of blood conservation techniques during and after surgery, including cell salvage, acute normovolemic hemodilution, topical hemostatic agents and the elimination or reduction of non-essential laboratory testing
- Transfusion of the minimum amount of blood products necessary:
  - Employment of evidence-based hemoglobin thresholds in hemodynamically stable patients without active large-volume hemorrhage (i.e., restrictive transfusion thresholds of *hemoglobin 7-8 g/dl* for most patients)
  - Single unit red blood cell transfusions for non-hemorrhaging patients

During this critical blood shortage, anesthesiologists are uniquely poised to bring value to our institutions by providing expertise in PBM, doing everything possible to “keep the blood in the patient” and decrease the need for blood transfusion.

### References:

- Warner MA, Shore-Lesserson L, Shander A, Patel SY, Perelman SI, Guinn NR. Perioperative anemia: Prevention, diagnosis, and management throughout the spectrum of perioperative care. *Anesth Analg*. 2020;130(5):1364-1380. <https://pubmed.ncbi.nlm.nih.gov/32167979/>
- Spahn DR, Muñoz M, Klein AA, Levy JH, Zacharowski K. Patient blood management: Effectiveness and future potential. *ASA Monitor*. 133(1):212-222. <https://pubs.asahq.org/anesthesiology/article/133/1/212/109158/Patient-Blood-ManagementEffectiveness-and-Future>
- Warner MA, Schulte PJ, Hanson AC, et al. Implementation of a comprehensive patient blood management program for hospitalized patients at a large United States medical center. *Mayo Clin Proc*. 2021;96(12):2980-2990. [https://www.mayoclinicproceedings.org/article/S0025-6196\(21\)00602-9/fulltext](https://www.mayoclinicproceedings.org/article/S0025-6196(21)00602-9/fulltext)
- Two national societies with which the ASA has formed an alliance:
  - Association for the Advancement of Blood and Biotherapies ([AABB](#))
  - Society for the Advancement of Patient Blood Management ([SABM](#))