

To Help Extend the Blood Supply, Look to Patient Blood Management

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For the past several months, American life has been returning to normal as the world makes progress against the COVID-19 pandemic. Although the United States has emerged from the worst days of the pandemic, a look inside the refrigerator at any of the nation's blood banks reveals some lingering challenges. The barren shelves say it all: the nation's blood supply has not fully recovered.

Summer blood shortages are not uncommon, but the pandemic further reduced collections and exacerbated seasonal supply pressures. While hospitals nationwide were delaying elective surgeries during the peak of COVID-19 transmission, most have since resumed such procedures. Blood collections – already diminished due to increased travel, the ubiquity of remote work, and the cancellation of school and workplace-based blood drives – have not rebounded as the country has reopened.

In September, the AABB Inter-organizational Task Force on Domestic Disasters and Acts of Terrorism, a group of representatives from blood collection services, associations, commercial entities, and government that collaborates to ensure that the blood inventory is safe and adequate, warned that the blood supply was “dangerously low,” with less than a one-day supply of blood at the majority of blood centers.

A key and omnipresent concern for blood centers and hospitals is triking the proper balance in the blood supply by ensuring collection efforts are sufficient to meet patients' needs without creating potential unneeded surpluses that can lead to product wastage. According to Richard Gammon, MD, Medical Director

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of OneBlood and chair of the AABB Transfusion Medicine and Patient Blood Management Subsection, health care providers at every step of the transfusion chain must consider new strategies to ensure that the blood supply remains adequate.

“There is not one silver bullet to prevent a blood shortage,” Dr. Gammon said, “But a combination of donor engagement, close communication between blood centers and hospital transfusion services, and the adoption of a culture that applies evidence-based patient blood management strategies in hospitals can help reduce the risk of a blood shortage without affecting patient outcomes.”

PBM strategies

Patient blood management (PBM) encompasses all aspects of patient evaluation and clinical management surrounding the transfusion decision-making process, including the optimization of patient red blood cell volume, the application of appropriate indications, and the minimiza-

tion of blood loss. PBM can help reduce the need for allogeneic blood transfusions and associated health care costs while ensuring that blood components are available for the patients who need them.

Managing preoperative anemia is one PBM strategy that may potentially reduce mortality risk and prevent unnecessary transfusion, according to Mark T. Friedman, DO, Associate Professor, Pathology, Director, Transfusion Services, and Director, Hematology Laboratory, at NYU Langone Health System/Long Island School of Medicine.

“As a transfusion medicine specialist with vested interest in good patient blood management practices, I would advise surgeons to evaluate patients with anemia to identify treatable common causes, such as iron, folate, and vitamin B12 deficiency,” Dr. Friedman said.

Treating iron deficiencies with I.V. iron therapy can be a useful therapeutic intervention, Dr. Friedman said, particularly now that the risk of anaphylaxis is low, with newer non-dextran-based I.V. iron preparations. Erythropoietin-stimulating agents may also be useful adjuncts to anemia therapy.

Additional tools to extend the blood supply include cell salvage, which allows practitioners to recover and reinfuse shed blood, and hemostatic agents such as tranexamic acid and epsilon-aminocaproic acid, which reduce blood loss. Cell salvage allows for up to 60% of shed blood to be recovered and may reduce transfusions by 38% (*Int J Clin Transf Med* 2015;3:65-73). It is also optimized when significant blood loss is expected (*Int J Clin Transf Med* 2015;3:65-73).

Clinicians may also consider interventions to prevent iatrogenic anemia when implementing strategies to extend the blood supply. According to Jennifer Rhamy, MBA, MA, MT(ASCP)SBB, HP, retired director of St. Mary's Regional Blood Donor Center, unnecessary lab testing may contribute to a patient's risk for iatrogenic anemia and subsequent need for a blood transfusion.

Choosing wisely

Rhamy cited the American Society for Clinical Pathology's Choosing Wisely guidelines, which are directed toward improved test selection, as a key resource for hospitals considering PBM strategies (asamonitor.pub/3EGRr5V). The recommendations state that forgoing a test may be optimal compared with using a smaller tube if it will not impact patient care. Additional recommendations include reducing the orders for preoperative tests for low-risk surgeries and eliminating orders for outdated tests such as CK-MB and sedimentation rates that are of minimal clinical use; targeted test ordering versus screening panels with little diagnostic value; using non-invasive methods for monitoring oxygenation instead of repetitive arterial blood gases; not ordering a type and screen when risk of bleeding in surgery is low; and numerous recommendations for appropriate coagulation test ordering.

“A goal for PBM programs should include reduction of blood loss while hospitalized, and they should develop strategies to minimize the amount of blood removed from patients that do not add clinical value,” Rhamy said. “Keeping the blood in the patient instead of the test tube improves patient outcomes while saving resources.”

According to Gammon, these PBM strategies will help hospitals respond to pandemic-related supply pressures, optimize patient outcomes, and help ensure that blood remains available for patients for whom blood transfusion is indicated.

“Patients are always going to need blood, whether that is during surgery or as part of their regular care,” Dr. Gammon said. “Widespread adoption of evidence-based PBM strategies will help hospitals improve patient outcomes and extend the availability of blood. These strategies will also support blood collection centers as they respond to and prepare for future health crises.” ■

Editor's Note

ASA State Affairs staff would like to inform readers that the September ASA Monitor article titled “The Private Practice Landscape in Anesthesiology – A Brief Update” inaccurately described the number of states that allow nurse anesthetist independent practice. Forty-five states and the District of Columbia have laws that require physician oversight or involvement in anesthesia care delivery. While governors in 19 states opted out of the Medicare requirement for physician supervision of nurse anesthetists, very few of those states have adopted corresponding laws to eliminate physician involvement requirements. A revised version of this article can be found on the ASA Monitor website here: asamonitor.pub/2Y2EliM.