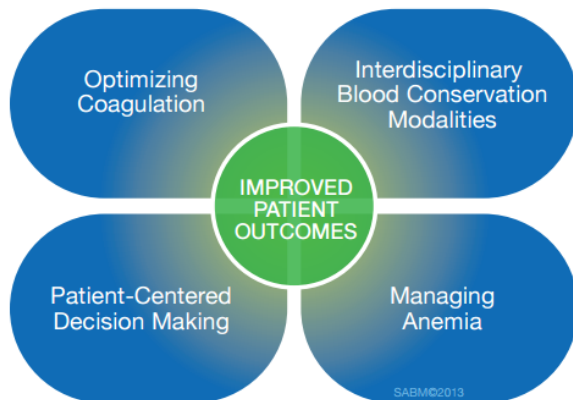


Patient Blood Management

Abstracted from a presentation given by Ravi M. Bissessar, MD, USAP-Florida at the USAP Leadership Conference, 2016.

To use a baseball analogy, a grand slam in health care is: 1) better care; 2) better health; 3) lower cost; 4) better experience. Patient Blood Management (PBM) is vital to this strategy.

According to the Society for the Advancement of Blood Management (SABM), PBM is “the scientific use of safe and effective medical and surgical techniques designed to prevent anemia and decrease bleeding, in an effort to improve patient outcomes.” In other words, it’s part of an evidence-based, multidisciplinary, patient-focused program that addresses *modifiable* risk factors to reduce the need for blood transfusions and improve patient outcomes. This is achieved a number of ways preoperatively, intraoperatively and postoperatively.



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*sabm.org

But why does blood management really matter? Public concern over blood safety is one reason, but there are actually five primary drivers for the paradigm shift:

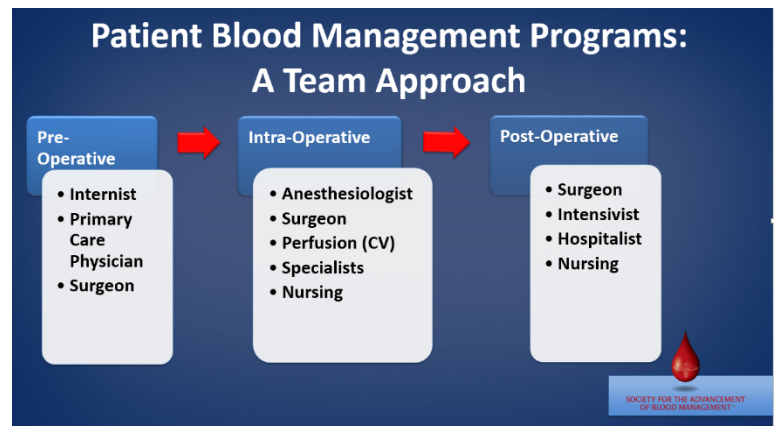
1. The growing gap between supply and demand for blood products
2. The escalating cost of transfusion
3. Product safety issues
4. Adverse transfusion outcomes
5. Questionable efficacy of transfusions

* Source: Hofmann, A., Farmer, S., Shander, A., “Five Drivers Shifting the Paradigm from Patient-Focused Transfusion Practice to Patient Blood Management.” *The Oncologist*, 2011;16(suppl3):3-11

Red blood cell transfusion shows a direct association with risk-adjusted, increased risk for every postoperative morbid event.

Transfusions are risky and can increase the risk for Pneumonia, an Intensive Care Unit (ICU) stay, ventilator time, hospital acquired infections and mortality⁴.

Luckily, patients can play as much of a role in reducing their need for a blood transfusion as can their care team. One



way is by building up the patient's blood counts prior to surgery. Starting at least a few weeks before surgery, patients should be eating foods rich in iron and vitamins. If they're anemic (low red blood cell count), they may wish to talk to their doctor about growth factors (medications that cause bone marrow to produce more blood cells). However, growth factors do pose risks. The decision to take these medicines should be made through a conversation between the patient and their physician.

It's important that patients and care providers agree on and take steps toward optimal blood management strategies, with the goal of avoiding the need for transfusion. In our pursuit of improving patient outcomes and the overall treatment and healing experience, blood transfusions should be the alternative, not the standard.

Optimal blood management means every drop of blood counts. Integrated PBM is a team strategy that requires administration, physicians, nurses and patients working together toward the common goal of better patient care and outcomes. Blood conservation policies and protocols, a core PBM team led by physicians, continuing clinical education, and patient education are staples of good PBM.

The Cost of Poor Blood Management

In addition to better quality care and outcomes for patients, blood management helps to better sustain our U.S. blood supply, increases operating room throughput, helps to minimize unnecessary surgical costs and improves physicians' skills⁵.

Blood costs include more than just the cost of collecting products. Hospitals pay to test patients before transfusion, store blood, dispense it from the blood bank and give it to patients. This requires safety checks at every step. When a patient experiences an adverse event, costs increase for treatment and longer hospital stays, and their overall experience declines drastically. Avoiding unneeded transfusions saves these costs and prevents unnecessary side effects.

Precise and meticulous surgical techniques using all available methods of hemostasis are vital to PBM⁶. Care teams should pay close attention to blood loss opportunities so that they can rapidly diagnose and arrest blood loss in all situations, and employ appropriate intraoperative blood conservation modalities in an evidence-based fashion. All available intraoperative and postoperative autologous blood conservation modalities should be considered, while care teams measure and assess hemoglobin loss and control diagnostic blood loss⁷.

It is important to address anemia as early as possible in hospitalized patients to avoid the need for transfusion, either during their stay, after discharge or during future hospital admissions.

Patient Role in Blood Management

Patients can play a role in reducing their need for a blood transfusion by doing the following:

- Know your blood counts
- Find out if you have anemia (low red blood cell (RBC) count)
- Build up RBCs with iron, vitamins or growth factors prior to surgery
- Talk to your primary care physician and your surgeon about blood management strategies early, before surgery
- Talk to your care team about washing and recycling your own blood during and/or after surgery
- Ask your physician if minimizing blood draws is right for you
- Have your doctor explain the

Elective surgery patients should be checked for anemia at least four weeks prior to surgery to allow sufficient time for any necessary anemia management.

Managing anemia

To manage anemia, create methods for early and ongoing detection with your patients. Enhance physiologic tolerance of anemia by minimizing oxygen consumption. Employ timely evidence-based pharmaceutical and nutritional intervention to support erythropoiesis (the process for producing red blood cells). Determine the causes and contributing factors of each patient's anemia and apply evidence based rationale for use of red cells.

Strategies for Reducing Phlebotomy Blood Loss

To reduce phlebotomy blood loss, eliminate extra tubes, rainbow draws and overdraws. Use testing material with low sample volume and reduce unnecessary testing and standing orders. Use microtainers selectively and make sure your nursing staff and phlebotomists maintain current standards and skills in blood withdrawal.

Optimizing Coagulation

To optimize coagulation, evaluate both quantitative and qualitative measures to assess the true coagulation status. Accurately assess the true cause of dysfunctional bleeding and employ goal directed therapy to correct coagulation abnormalities. Apply evidence-based rationale for use of plasma.

Resources

1. Dr. Ravi Bissessar's presentation at the 2016 Leadership Conference
2. Hofmann, A., Farmer, S., Shander, A., "Five Drivers Shifting the Paradigm from Patient-Focused Transfusion Practice to Patient Blood Management." *The Oncologist*, 2011;16(suppl3):3-11
3. sabm.org
4. Hannon TJ. *Pharmacotherapy*. 2007;27(10):1394-1411
5. *Cardiothoracic and Vascular Anesthesia*, Vol 18, No 4 (August Supplement), 2004: pp 15S-17S+
6. https://www.researchgate.net/publication/258955669_Patient-Centered_Blood_Management
7. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4260303/>