In his article “The Innovations in Transfusion Medicine and Blood Banking: Documenting the Record in 50 Years of TRANSFUSION,” McCullough describes some of the major advances in blood product formation and availability. He also pays tribute to blood conservation, referred to as “blood utilization and management,” as one of the 10 major advances of the last 50 years.

Transfusion medicine has always been a product-centered discipline. Although there have been repeated calls for blood bankers and transfusion specialists to emerge from the laboratory and/or blood bank and be part of the clinical world, this has yet to happen in a consistent and well-organized way.

In 2000, a group of internationally known leaders in transfusion medicine, blood-banking, critical care, surgery and anesthesiology came together to assess whether a patient-centered transfusion practice was considered an unmet need. The affirmation was the creation of the Society for the Advancement of Blood Management (SABM.org). Blood management was defined as the appropriate provision of blood components, blood conservation, improved clinical outcomes and patient-centered activity.

In the ensuing decade, a burgeoning literature accumulated suggesting that transfusion of major components of blood (red cells, plasma and platelets) were associated with increased mortality and worse clinical outcomes, including increased incidence of infection, septicemia, ischemic events (including stroke, myocardial infarction and renal impairment/failure), thromboembolism, multisystem organ failure, systemic inflammatory response syndrome and acute respiratory distress syndrome. Most of these data were observational and retrospective in nature, and many centered primarily on red cell exposure. At the same time, an increasing number of articles have been published on blood conservation techniques and the associated improved patient outcomes.

Debate in the past decade or so has centered on the validity of the association of transfusion and negative outcomes. Given that observational studies have limitations in establishing causality, the heated debate rages around whether patients were transfused because they were sick or whether transfusions made patients sick. Despite this “purist” approach to the question at hand, does the need for patient blood management depend on the resolution of this question? In his latest editorial, Vamvakas strongly suggests that there are already sufficient established reasons to change the paradigm from a product focus to a patient-centered blood management approach.

A fundamental question during this period has been whether or not the adverse outcomes associated with transfusion are inherent to transfusion and whether or not they are exacerbated by the storage age of red blood cells. The height of this debate was reached in 2008 with the publication by a group of investigators headed by an anesthesiologist of a landmark article on the age of blood. Despite the shortcomings of this manuscript, the editorial that followed, titled “New Blood, Old Blood, or No Blood,” led readers once more to the conclusion that blood management offers the best choice for patients, while the debate goes on.
Transfusion of blood components remains one of the major challenges in medicine today. Risks, immediate and delayed,27-29 negative patient outcomes, age of blood, perceived benefit of donor blood,21,30 repeated shortages of blood and the rising cost of blood and transfusion31-34 make the “evidence-based” decision to transfuse an impossible endeavor for clinicians.35 Despite the numerous guidelines available, with those from ASA leading the pack,36 wide variations in transfusion of the three major components persist between countries, institutions and even between individual clinicians within the same institution37-42 and are considered “inappropriate” in more than half the cases. The elusive search for a single hemoglobin level as an indication for red cells,43 the single partial thromboplastin time (or INR, used interchangeably on many occasions) for plasma44 and the lowest platelet count for platelet transfusion45 will permanently evade us. Is there, then, another approach?10,46

Although much of what is discussed above is restricted to the one to three unit transfusion, (the most common procedure in hospitalized patients), trauma and hemorrhaging patients are also at risk of all the negative effects listed above.47,53 Blood

<table>
<thead>
<tr>
<th>Measure Title</th>
<th>Brief Description of Measure</th>
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<tr>
<td>Transfusion Consent</td>
<td>Percentage of patients with a signed consent for blood transfusion who received information about the risks, benefits and alternatives of transfusions prior to the initial transfusion, or the initial transfusion was deemed a medical emergency.</td>
</tr>
<tr>
<td>RBC Transfusion Indication</td>
<td>Percentage of transfused red blood cell units (bags) with pre-transfusion hemoglobin or hematocrit result and clinical indication documented.</td>
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<tr>
<td>Plasma Transfusion Indication</td>
<td>Percentage of transfused plasma units (bags) with pre-transfusion PT/INR result and clinical indication documented.</td>
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<tr>
<td>Platelet Transfusion Indication</td>
<td>Percentage of transfused platelet doses (bags) with pre-transfusion platelet count result and clinical indication documented.</td>
</tr>
<tr>
<td>Blood Administration Documentation</td>
<td>Percentage of transfused units/doses (bags) of RBCs, plasma or platelets with documentation for all of the following: 1. Patient identification (ID) and transfusion order (blood ID number) confirmed prior to the initiation of blood. 2. Date and time of transfusion. 3. Blood pressure, pulse and temperature recorded pre-transfusion, during and post-transfusion.</td>
</tr>
<tr>
<td>Preoperative Anemia Screening</td>
<td>Percentage of selected orthopedic, cardiac and hysterectomy elective surgical patient = 18 years with documentation of preoperative anemia screening 14 - 45 days before anesthesia start date.</td>
</tr>
<tr>
<td>Preoperative Blood Type Testing and Antibody Screening</td>
<td>Percentage of selected orthopedic, cardiac and hysterectomy elective surgical patients = 18 years with preoperative blood type testing and antibody screening (type and screen or type and cross match) ordered and completed prior to anesthesia start time.</td>
</tr>
</tbody>
</table>
conservation techniques can be utilized in this population with significant reduction or elimination of these patients’ exposure to donor blood.\textsuperscript{54,56} Obviously, those exposed to one to three units can benefit even more by proactively planning their blood management.\textsuperscript{18,57,58}

In 2010, the ASA Committee on Transfusion Medicine changed its title to the Committee on (Patient) Blood Management (COBM). Since many anesthesiologists pioneered this concept, the committee felt ASA should keep abreast if not ahead of the evolving concept. The House of Delegates wisely adopted the name change and the concept behind it.

During the same year, the SABM Board of Directors, including leading anesthesiologists in this field, addressed the concept evolution and recognized that transfusion practice was well covered by other professional organizations and that the concept of “blood management” was a term limited to blood product inventory and management. The concept of patient blood management (PBM) was adopted, as was the new definition: “Patient blood management is the application of evidence-based medical and surgical concepts aimed at relying on a patient’s own blood rather than on donor blood and achieving better patient outcomes.”

PBM is now a recognized concept around the globe.\textsuperscript{10} The European Union is examining the clinical and health finance implications of PBM. The Government of Western Australia Department of Health has embarked on a five-year project to implement a health-system-wide Patient Blood Management Program \texttt{www.health.wa.gov.au/bloodmanagement}. An early achievement has been the production of a model of care for elective major joint replacement surgery with patient blood management guidelines (go to \texttt{www.healthnetworks.health.wa.gov.au/network/musculoskeletal.cfm} and click on “Elective Joint Replacement Service Model of Care”).

In Canada, the province of Ontario has funded a blood conservation program called the Ontario Transfusion Coordinators (OnTrac), which has been implemented in 23 of the province’s hospitals that use more than 70 percent of that region’s blood supply. The aim of this organized activity was to improve transfusion practice, preserve a precious resource, and improve outcome and care. This coordinated activity used in elective large joint replacement surgery and coronary bypass surgery has yielded significant reduction in blood use with better clinical and economical outcomes in patients seen by a coordinator versus those undergoing “standard” care.\textsuperscript{40}

In the U.S., The Joint Commission has just completed (see Table) newly tested core measures in PBM. Again, anesthesiologists were leading this project.

The ASA COBM is, like all other ASA committees, made up of dedicated volunteers committed to bringing the latest in transfusion medicine, including controversial issues, to our membership. In addition, the committee recognizes the need to inform the membership of important developments in the now well-recognized field of PBM.

References are available at the back of the online version of this NEWSLETTER at \texttt{www.asahq.org} or by request by e-mailing communications@asahq.org.

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