The Benefits of Patient Blood Management

Health care organizations that ensure that blood product use conforms to guidelines will see better patient outcomes and lower costs.

By Wendy Knowles, R.N.

A national study showing growth in programs that reduce inappropriate use of blood transfusions is welcome news. The 2011 National Blood Collection and Utilization Survey, released in July 2013 by Health & Human Services and conducted by the American Association of Blood Banks, credits patient blood management — the oversight of blood use in hospitals and clinics — for an 8.2 percent reduction in the use of blood products from 2009 to 2011.

Among survey respondents, nearly one-third say they have a formal PBM program, while others report various initiatives that address some of the practices advocated by PBM policy experts. The survey also found that more than 1.2 million fewer units of whole blood or red blood cells were transfused in 2011 than in 2009. These developments are a good start, but if PBM programs were universal, the benefits would be even greater.

**Improving Quality and the Bottom Line**

Blood transfusion is effectively a tissue transplant, and its associated adverse events (mild or life-threatening) have been well-documented. There also is growing evidence that patients who are given blood unnecessarily or prematurely may have poorer outcomes than patients who are transfused according to evidence-based guidelines.

A health system that employs PBM is actively overseeing the use of blood products and ensuring that its use conforms with evidence-based practices. Effective PBM programs can reduce length of stay, eliminate costs of treating adverse events and lead to significant savings in blood procurement. At an average unit cost of $225 for red blood cells, the 1.2 million fewer units used in 2011 add up to $274 million in savings to hospitals — not including the costs of transporting blood from the laboratory to the bedside and transfusing it.

**Blood Use in the United States**

Many hospitals still have a long way to go to bring the rate of blood transfusion to a level supported by evidence-based medicine. Blood use in the United States is higher per capita than in other Western nations. The contrast is particularly stark when we compare U.S. progress with that of Canada, which reports a transfusion rate of 30 red blood cell units per 1,000 patients compared with 44 per 1,000 in the United States — without any significant differences in out-
comes for comparable patient populations.

Among survey respondents, 31 percent of hospitals and 11 percent of blood centers reported providing some elements of a PBM program, including 15 percent that have a transfusion safety officer, 41 percent that participate in performance benchmarking for transfusion practices and 64 percent that provide formal transfusion training to their staff (although training often is limited to nursing staff, residents and newly employed physicians).

In 32 percent of all hospitals and 54 percent of hospitals with PBM programs, workers evaluate factors predictive of pre- and postoperative anemia for patients facing elective surgery with a high probability of blood loss. Nineteen percent of all hospitals and 33 percent of PBM hospitals have a formal program to manage patient anemia prior to surgery. The most common perioperative interventions reported were intraoperative blood recovery and restrictive use of postoperative transfusions.

These statistics show the need to address blood overuse. They also demonstrate that most hospitals have, at best, only partial PBM programs. To have a significant impact, a PBM program must be comprehensive and address all the pre-, intra- and postoperative issues related to transfusion. Moreover, it must be applied to inpatients and outpatients in both surgical and medical settings.

**BloodSource**

The performance of California hospitals served by our blood center, BloodSource, is an example of the progress that can be achieved when a comprehensive PBM program is used. Working with hospitals through our BloodSmart PBM program, we reduced the average number of red blood cell units transfused by more than 30 percent than the U.S. average. This translates into millions of dollars saved and, more importantly, improved quality of care for patients.

Here are results our hospital clients have seen after adopting PBM initiatives:

- The average number of red blood cell units transfused is 31 per 1,000 patients (compared with the U.S. average of 44 per 1,000) in more than 40 California hospitals served by BloodSource.
- An 8 percent decrease in red blood cell use was demonstrated at the hospitals implementing PBM improvement projects compared with an increase of 4 percent at hospitals that are not actively managing blood use.
- Mercy Medical Center in Merced saw an 89.6 percent reduction in the use of unnecessary washed red blood cells after implementing evidence-based guidelines.
- Mercy General Hospital in Sacramento realized $1 million in savings for blood products in its cardiac surgery service over two years after implementing a PBM program.
- One large academic hospital saw a 9 percent decrease in red blood cell usage, a 12 percent decrease in platelet usage and a 16 percent decrease in plasma usage from 2011 to 2013.

**What’s Required for Effective PBM**

The 2012 Joint Commission and American Medical Association-convened Physician Consortium for Performance Improvement National Summit on Overuse focused on overuse as a patient safety and quality concern, and advocated PBM programs that include:

- a tool kit of clinical educational materials for physicians throughout the learning continuum, including risks and benefits of transfusion and dissemination of best practices and guidelines supported by evidence;
- education on transfusion avoidance and appropriate alternatives to transfusion;
- identification of subject matter experts to provide guidance;
- advocacy for scheduled periodic assessments of prescriber competency and for accountability to organizational standards;
- standardization of performance metrics, data collection and vocabulary to allow valid benchmarking within organizations;
- measurement of individual physician transfusion practice as part of ongoing professional practice evaluation;
• development of a separate informed consent process for transfusion that communicates risks and benefits consistent with current evidence;
• identification of research priorities to close evidence gaps in what constitutes optimal transfusion practice.

We consider these recommendations essential as we work closely with our hospital partners throughout California. Perhaps the most important component of our BloodSmart PBM program is having our medical staff available for consultation 24/7. On an average day, we respond to five to seven inquiries from physicians, nurses, clinical laboratory scientists, administrators and other hospital-based colleagues. The questions cover such topics as managing patients’ refractory, routine platelet transfusions and intrauterine fetal transfusion needs.

Ongoing education for health care professionals also is critical to success. Our program provides:
• webinars and in-person presentations directed toward physicians, transfusion medicine staff and other providers;
• website resources, including medical advisories, alerts, videos and newsletters on the latest developments in transfusion practices. Web-based materials enable physicians to access information when and where they need it [just-in-time learning].

The Joint Commission and AMA work group concluded that more guidelines are not the answer to blood overuse. The group noted that, while there are excellent evidence-based guidelines available, they are not being followed. They sum up by stating, “To make sustainable progress in the use of blood and blood components, changing behaviors when supporting data are available is the best solution.”

The stakes are high when it comes to blood transfusions in terms of quality care as well as hospital costs. But the rewards are great. The transfusion medicine behaviors that contribute to inappropriate and often excessive use of blood are well worth changing.

Wendy Knowles, R.N., B.S.N., M.H.A., H.P. (ASCP), is the transfusion safety officer and BloodSmart educator for BloodSource, a nonprofit supplier of blood products and services based in Mather, Calif.