# THE BENEFITS OF PATIENT BLOOD MANAGEMENT FOR THE PATIENT AND THE HEALTH CARE SYSTEM


## By Jennifer Rhamy MBA, MA, MT(ASCP)SBB, HP

Director, Blood Donor Center, SCL Health- St. Mary's


Blood saves lives. One in 10 hospitalizations are associated with a blood transfusion.[1] There are often significant cost associated with this life-saving procedure, including recruitment, collection, processing, testing and distribution of allogeneic blood. Cost is incurred with phlebotomy, compatibility testing and dispensing blood to the floor. On the floor, there is the expense of the administration set, fluids, vital sign monitoring, patient identification and patient consent. There are additional costs associated with the refrigerators, administration, quality management and information technology. These expenses will vary by facility, with approximately 60% of costs being direct and 40% indirect in the United States. Indirect costs represent 32-33% of the total costs in Europe.[2]

Patient Blood Management (PBM) asks whether each transfusion improves the patient's outcomes, which, if not needed, in turn eliminates costs associated with unnecessary transfusions as well as any associated adverse events. Data from around the world shows variability in the number of transfusions per 1,000 population.[3] Assuming demographic homogeneity in Western industrialized countries, if the United States transfused patients at the same rate as Western Australia, the health care system would save an estimated activity-based cost of $0.6 billion annually (2009 dollars) using $760.82 ±293.74 as the average cost for RBC transfusion.[1] This does not include treatment of adverse outcomes, potential increase in length of stay, or other difficult-to-measure changes in patient outcomes that may also increase the cost savings. An estimate of the total cost of transfusion including these factors in the US is $64 billion[2] (2013 dollars). A Johns Hopkins study showed $582,039-$873,058 activity-based annual cost savings resulting from its PBM program, 93% due to decrease in RBC transfusions alone.[7] The acquisition cost savings alone were $181,887/year.

In addition to allogeneic RBC savings, institutions may consider reductions with other products and interventions. Cost savings from using intraoperative autologous cell collections versus allogeneic transfusions depend on superior patient outcomes for cost-neutrality[4], which are often difficult to estimate. A 2016 study reviewed the activity-based costs of plasma transfusions in the United States.[5] In the study, 136 of 849 transfused patients received 534 units of plasma. The cost per unit of fresh frozen plasma was $409.62 and $1,608.37 per patient transfusion episode since most patients get more than one unit of plasma. Another application of the benefits of decreasing the use of plasma comes from three hospitals in Rhode Island[6] that reduced plasma use by 77% throughout a ten-year period by establishing guidelines, educating prescribers, screening prescriptions and engaging with

prescribers placing out of guidelines orders through concurrent review of orders. More work needs to be done as most studies have not shown much change in platelet transfusions (or costs) associated with PBM.[7]

In a world where health care costs continue to increase significantly and emphasis is shifting to value-based care, PBM benefits everyone by freeing up money for other types of valued services by avoiding unnecessary, and potentially harmful, transfusions for individual patients.

---


1. Goodnough T. Blood management: transfusion medicine come of age. Lancet 2013;381: 1791-1792
2. Shander A. et al. Activity-based costs of blood transfusions in surgical patients at four hospitals. Transfusion 2010; 50 : 753-765.
3. Hoffman A. et al. Economic considerations on transfusion medicine and patient blood management. Best Practice & Research Clinical Anesthesiology 2013;, 27 : 59-68
4. Shander A. Estimating the cost of blood: past, present and future directions. Best Practice & Research Clinical Anesthesiology 2007; 21 : 271-289.
5. Shander A. et al. Activity-based costs of plasma transfusions in medical and surgical inpatients at a US hospital. Vox Sanguinis 2016: 111 : 55-61.
6. Nixon C. et al. How do we reduce plasma transfusion in Rhode Island? Transfusion 2007; 57 : 1863-1873
7. 7 R. Thakkar et all. Relative impact of a patient blood management program on utilization of all three major blood components. Transfusion 2016; 56 : 2212-2220.