

New Published Study Finds the Cost of Blood Transfusions is Significantly Under-Estimated, Establishes True Cost at \$522 to \$1,183 Per Unit

Annual Costs Total \$1.6 to \$6 Million Per Hospital Surveyed—Warranting Improved Conservation & Cost Containment Strategies

Irvine, California – A new blood transfusion cost analysis study published in the April 2010 issue of *Transfusion*, a peer-reviewed academic journal, shows that when all of the complex cost factors leading up to and after a red blood cell (RBC) transfusion are considered, the actual cost of blood is substantially higher than previously estimated. With actual blood transfusion costs ranging between \$522 and \$1,183 per-unit—37% higher than estimated by prior studies, which did not include all associated costs—the new study calculates that the true cost of blood is 3.2 to 4.8-fold higher than reported blood product acquisition costs.¹

"Representing the most detailed and rigorous method utilized to date to account for the cost of blood transfusions," study findings confirm that annual expenditures on blood and transfusion-related activities for surgical patients are significant resource drains—costing between \$1.6 to \$6.0 million per hospital surveyed.

In the study, researchers from the Society for the Advancement of Blood Management (SABM) and the Medical Society for Blood Management (MSBM) prospectively analyzed 20,104 surgical patients who had their blood typed and screened in preparation for a blood transfusion at two U.S. and two European hospitals. After precisely mapping all diagnostic, therapeutic, technical, laboratory, logistic, administrative, informational, educational, and quality activities involved in the transfusion of blood in real-world surgical settings, researchers constructed an activity-based cost model capturing all the actual direct and indirect costs of acquiring, delivering, administering, and monitoring RBC transfusions from the hospital perspective—yielding "for the first time a dollar amount for the cost per unit of blood that reflects the complexities of real-world blood utilization."

Study findings also showed that "total annual blood costs are largely driven by transfusion rate," which includes factors such as the proportion of surgical patients transfused and the number of RBC units per patient transfused, and provide a unique understanding of both cost drivers and the opportunities for cost containment. According to researchers, "reducing either or both factors has the potential to reduce costs dramatically."

Most importantly, the study's activity-based cost model provides a "roadmap for institutional administrators worldwide to evaluate hospital processes and the impetus to initiate programs to reduce and optimize blood usage," says lead researcher and the President-elect of SABM, Aryeh Shander, M.D., who is also the Executive Medical Director for The Institute for Patient Blood Management & Bloodless Medicine and Surgery at Englewood Hospital and Medical Center in Englewood, New Jersey. Dr. Shander believes that this study spotlights the incredibly complex resource and cost drains associated with real-world blood transfusions, offering hospitals and healthcare providers an important cost saving insight that "improved blood testing techniques and blood conservation strategies provide unique opportunities to significantly reduce the number of unnecessary blood transfusions and the quantity of units administered—delivering better cost containment and patient benefits."

While multiple studies have shown that blood transfusions increase morbidity and mortality, the present study did not attempt to evaluate the morbidity-associated costs of blood transfusions. Thus, the cost estimate presented in this study may still underestimate the cost of giving blood transfusions.

Masimo Rainbow SET Pulse CO-Oximetry—a breakthrough noninvasive blood constituent monitoring platform measuring multiple blood constituents that previously required invasive procedures, including: total hemoglobin (SpHb®), oxygen content (SpOC™), carboxyhemoglobin (SpCO®), methemoglobin (SpMet®), PVI®, acoustic respiration rate (RRa™), oxyhemoglobin (SpO2), pulse rate (PR), and perfusion index (PI). Masimo SpHb, PVI, and SpO2 have been shown in multiple clinical studies to provide accurate, reliable, real-time measurements that help clinicians to proactively monitor and manage hemoglobin, fluid, and oxygen saturation levels more appropriately and conservatively.

¹ Shander, A., Hofmann, A., Ozawa, S., Theusinger, O., Gombotz, H., Spahn, D. "Activity-based Costs of Blood Transfusions in Surgical Patients at Four Hospitals." *Transfusion*. April 2010, Volume 50, Issue 4, Pages 753-765. Available online [here](#).