



Providence Regional Medical Center Everett

Sharing Best Practices to Decrease Blood Transfusion in Open-Heart Surgery

Creating positive change and decreasing cost with evidence-based care

Edy Zelinka MBA CCP, Director of Operations, SpecialtyCare — June 26, 2014

AT A GLANCE

Red blood cell transfusion is associated with adverse patient outcomes and increased costs for hospitals. Transfusion practices are varied in cardiac surgery, and there is no known standardized evidence-based practice. An opportunity exists to improve quality of patient care and to decrease an organization's financial burden by sharing best practices between hospitals to decrease transfusion. Providence Regional Medical Center Everett has taken advantage of this opportunity and has succeeded in significantly reducing red blood cell transfusion and in spreading knowledge to other hospitals to reduce their transfusion rates. As a director of operations for SpecialtyCare, Providence Regional Medical Center Everett's perfusion services provider of 16 years, I would like to highlight this hospital's experience.

BACKGROUND

Providence Regional Medical Center Everett, in Everett, Washington, is a large community hospital, within the Providence Health System, located 30 miles north of Seattle.

It houses just over 500 beds and performs 20,000 surgeries per year. Providence has a dedicated cardiac surgery team in the operating room and postoperative setting that cares for 500 open-heart patients annually.

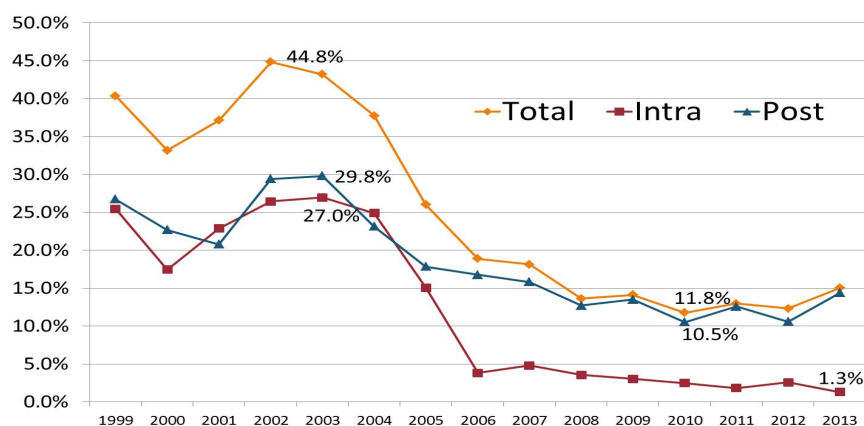
This hospital implemented a collaborative, multidisciplinary effort to decrease red blood cell transfusion in 1999. As seen in Figure 1, through trial and error, we managed to decrease our transfusion rate from as high as 44.8% to a record low of 11.8% for all open-heart patients, including transfusions in the postoperative setting (Providence Regional Medical Center Everett, 2014).

SPREADING CHANGE

In a video by the Institute for Healthcare Improvement, Lisa Schilling noted that spreading improvement is a difficult task that involves both clinicians and leadership (Schilling, 2014). In addition, Rushmer noted that change needs to be focused on organizational change rather than individual practice modification; otherwise, its sustainability will be lost (Rushmer, Hunter, & Steven, 2014).

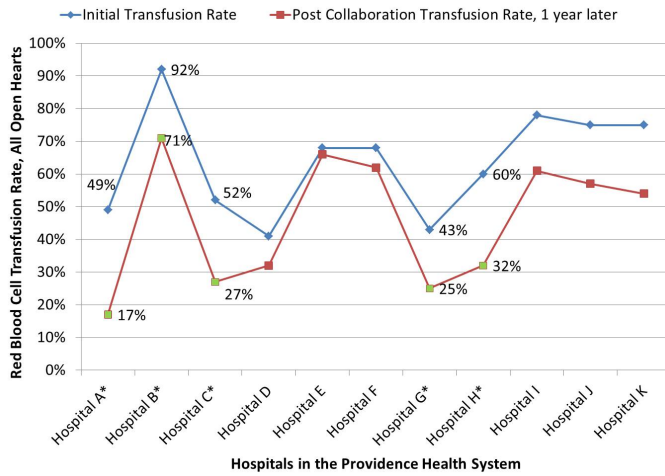
In 2009, we collaborated on a system-wide initiative to reduce red blood cell transfusion in the Providence Health System open-heart surgery programs. Although all hospitals participated, five hospitals in the system had a site visit with the Everett team to learn blood reduction processes firsthand. As seen in Figure 2 (next page), these five hospitals enjoyed a greater reduction in blood transfusion rates than did most of the other participating hospitals (Zelinka, 2014). In addition, this figure demonstrates the wide range of transfusion practices in use, even within a single hospital system. This is both a problem and an opportunity to create positive change. Administrative support plays an important role in any organizational initiative and is imperative to sustain and continue to improve results.

Figure 1. Providence Regional Medical Center Everett



Providence Regional Medical Center Everett red blood cell transfusion rates for all open-heart surgeries. Includes intraoperative and postoperative rates.

Figure 2. Providence Health Systems



Providence Health Systems pre and post-collaboration red blood cell transfusion rates. Hospitals with asterisks had site visits with Providence Regional Medical Center Everett.

PATIENT OUTCOMES AND FINANCIAL REWARD

Red blood cell transfusion has been shown to increase a patient’s risk of postoperative morbidity (Bernard, 2009; Koch, 2009) and mortality (Jakobsen, 2012). In addition to reducing the quality of patient care, these risks lead to increased postoperative length of stay and additional tests and treatment, resulting in avoidable expenses for the hospital. Furthermore, red blood cell transfusions are a limited resource. According to the Department of Health and Human Services, donor blood supply is a limited resource, as total collections have declined 9.1% from a high of 17.3 million units in 2008 to 15.7 million units in 2011 and are continuing to decline significantly (Department of Health and Human Services [DHHS], 2013). Reducing the incidence of blood transfusion may improve patient outcomes, will lessen the burden on the world’s blood supply, and will lead to operational and cost efficiencies for hospitals.

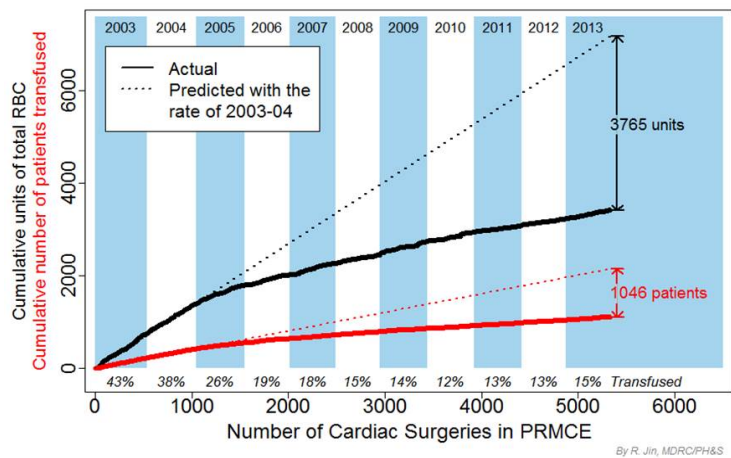
At Providence, as the transfusion rate decreased, patient morbidity and mortality remained stable or improved (Brevig et al., 2009). As noted in Figure 3, as a result of the transfusion reduction efforts between 2004 and 2013, transfusions were avoided in more than 1,000 patients compared with the 2003 transfusion rate (Jin, 2014). This saved more than 3,700 units of blood and roughly \$4 million of hospital operational and product cost (Report, 2014).

THE SOLUTION

Just knowing what to do is not always enough to effect change. Knowledge alone frequently fails to result in taking actions or engaging in behaviors consistent with that knowledge (Pfeffer & Sutton, 2000). An example of this is the Society of Thoracic Surgeons and Society for Cardiovascular Anesthesiologist perioperative blood transfusion and blood conservation clinical practice guidelines that were issued in 2007 (The Society of Thoracic Surgeons Blood Conservation Task Force [STS], 2007). This document offered multiple recommendations on how to reduce transfusion. However, results from a survey regarding the effect of the new guidelines demonstrated that very few practice changes were made (Likosky, Fitzgerald, Groom, Jones, & Baker, 2010). As a result, the guidelines were revised in 2011, and it is unknown whether the results have improved.

Positive, sustainable change is made possible by actively participating in learning from others’ experiences. Our experience at Providence has demonstrated that cardiac surgery can be performed safely with fewer red blood cell transfusions and that a multidisciplinary, collaborative approach to blood conservation can result in lower transfusion rates with equivalent outcomes (Brevig et al., 2009). In addition, results showed that for the Providence Health System, blood utilization is more variable between

Figure 3. Cumulative Sum Graph



Cumulative sum graph showing units of blood transfused and number of patients transfused in 2003 with a trend line (dotted line) and actual cumulative number of units and patients transfused through 2013 (thick line), identifying number of patients saved from receiving a transfusion and number of units saved had we continued to transfuse at the 2003 rate.

hospitals versus within hospitals; specifically, blood utilization is more affected by which hospital the surgeon practices at than by the surgeon's individual preference. This indicates that hospital leadership, and the culture that is created by that leadership, is directly related to practice and methodologies (Jin et al., 2013).

These efforts to affect change in cardiac practice have led to Providence Regional Medical Center Everett being named as the hospital in Washington State with the lowest transfusion rate and one to benchmark against for the past 4 years (Clinical Outcomes Assessment Program, 2013). Our philosophy and techniques were shared with other SpecialtyCare Pacific Northwest hospital clients in 2012, and several of their transfusion rates dropped by up to 3% in just 1 year (Matchok, 2014). In addition to Everett, three other SpecialtyCare perfusion clients are in the top six out of 17 participating hospitals with the lowest transfusion rates in Washington State (Clinical Outcomes Assessment Program, 2012).

Reducing red blood cell transfusion can be achieved by identifying the need, changing the culture of the hospital, and creating a collaborative environment where all disciplines are motivated to create positive change leading to improved patient outcomes.

LET SPECIALTYCARE HELP

SpecialtyCare is the largest single perfusion and clinical service provider, performing more than 350,000 clinical procedures annually in more than 825 hospitals in the United States, including the District of Columbia and Puerto Rico, and Germany. We employ more than 1,500 clinicians, and our focus is on providing highly innovative and quality-driven procedures that improve patient outcomes while providing operational efficiencies.

SpecialtyCare's mission is to efficiently provide the best service, highest quality, and most thoughtful innovation by following our core values: Integrity, Sense of Urgency, Teamwork, Respect, Accountability, and Continuous Improvement. We aspire to exceed the highest standards of patient-focused care in an ethical, reliable, and fair manner. In addition, we pride ourselves on providing resources and guidance to our hospital partners to help them responsibly treat their patients and manage their business.

As an organization, SpecialtyCare is in a growth stage and has recently been named as one of the top 25 fastest growing businesses (Snyder, 2014). In addition, we are developing new partnerships with hospitals, vendors, and group purchasing organizations (GPOs). In fact, early this year, SpecialtyCare was awarded the sole source purchasing agreement for Premier, Inc., a leading health care improvement company that also focuses on better care

and outcomes at a lower cost (Business Wire, 2014).

SpecialtyCare offers multiple resources to help spread positive change. For example, we maintain a detailed database of surgical data from all our open-heart programs. This data is used to identify the hospitals with the best quality indicators, such as low red blood cell transfusion rates, to glean information from these programs about their practices. The information is then disseminated to other programs within SpecialtyCare in an effort to create positive change through learning. One can see the effectiveness of this practice in the transfusion reduction noted above for the hospitals in the Pacific Northwest.

The key to success is first instilling a passion in people to realize that change is possible, along with making reducing blood transfusion a high priority through motivation by hospital leadership. Continually monitoring and measuring improvements along the way will motivate those involved to stay focused. Finally, helping organizations learn by doing will result in knowledge that is turned into actual results. SpecialtyCare is a resource that can help organizations stay focused while monitoring and sharing their improvements to sustain positive advances along the way.

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hospitals benefit from exceptional resources and our annual caseload experience of more than 350,000 surgical procedures. SpecialtyCare provides perfusion services in more than 50,000 open-heart surgeries each year. One in every nine open-heart surgeries performed in the US this year uses SpecialtyCare for perfusion services.