

# Engaging Providers to Transform Blood Transfusion Practices



## HEALTHCARE ORGANIZATION

Community Hospital

## PRODUCTS

- Health Catalyst® Data Operating System (DOS™) platform
- Blood Utilization Analytics Accelerator

## SERVICES

- Accelerated Practices (AP) Program

## EXECUTIVE SUMMARY

Thibodaux Regional Health System sought to transform its blood transfusion practices. Aware that blood transfusions were often over-used, Thibodaux Regional's leadership prioritized engaging providers to decrease unnecessary transfusions, reduce potential risks to patients, and improve costs of care. The organization leveraged data and analytics to better understand opportunities for improvement. Results include:

- \$104K reduction in costs, the result of a 28.6 percent relative reduction in red blood cell transfusion.

## DESPITE COSTS, BLOOD TRANSFUSIONS REMAIN OVERUTILIZED

Blood transfusions are a lifesaving procedure. However, they have been linked to increased mortality and are one of the top five of the most overused procedures in the U.S., despite the scarcity of blood. Blood transfusions are also costly. On average, a single unit of blood costs \$218, and variable overhead and transportation costs can increase that price nearly five times.<sup>1,2</sup> For health systems, this makes reducing blood transfusions a top priority.

Thibodaux Regional Health System, a nationally recognized hospital for excellence in patient care located in Thibodaux, Louisiana, has focused on the IHI Triple Aim and has found ways to increase revenue, reduce costs, and improve employee engagement and clinical outcomes. It sought to improve the efficiency of red blood cell transfusions to achieve this mission.

## LACK OF STANDARDIZATION RESULTS IN OVERUSE OF BLOOD TRANSFUSIONS

Thibodaux Regional's access to transfusion data was limited, and the organization lacked visibility into the actionable data required to effectively manage blood transfusions. In the absence of meaningful data, blood transfusion policies, procedures, order

“We've been able to significantly reduce our transfusion rate and avoid unnecessary transfusions, which has improved patient safety and reduced costs.

Greg Stock  
Chief Executive Officer  
Thibodaux Regional  
Health System

“The Blood Utilization Analytics Accelerator informs and tracks our progress. We're able to monitor individual components of the improvement plan, and can easily share success, including decreased transfusions and decreased costs, within the organization and with our community.

Danna Caillouet, RN  
Director of Quality Improvement  
Thibodaux Regional  
Health System

sets, and prescribing practices varied widely across the organization.

Aware that blood transfusion was often over-used, Thibodaux Regional's leadership prioritized engaging providers to decrease unnecessary red blood cell transfusions, reduce potential risks to patients, and reduce costs of care. Thibodaux Regional leveraged its data and analytics to better understand the problem.

## IMPROVING BLOOD UTILIZATION WITH THE HELP OF ANALYTICS

Thibodaux Regional's care transformation initiative is the organization's internal process to create a valued enterprise by achieving patient-centered excellence. Its consistent methodology engages interdisciplinary improvement teams focused on strategies to create better outcomes. The organization convened a care transformation improvement team, charging it with improving transfusion practices. Leadership engaged physician representatives from the pathology, oncology, cardiovascular surgery, internal medicine, and gastrointestinal specialties to facilitate the rapid development and adoption of improvement efforts designed to reduce red blood cell transfusions.

Thibodaux Regional used the American Association of Blood Banks (AABB) red blood cell transfusion guidelines to develop the organization's standard transfusion policy, procedures, and order set—outlining red blood cell transfusion criteria based upon the patient's hemoglobin levels, limiting orders for the initial number of units transfused to one.

Single-unit transfusion orders are embedded within the EMR and contain clinical decision support informing the ordering provider in real-time about the evidence-based indications for transfusion. A multifaceted education plan was developed and provided before the implementation of the transfusion guidelines, ensuring providers were aware of the new red blood cell transfusion guidelines and order sets. The education plan presented the clinical evidence, emphasizing the randomized clinical trials supporting restricting blood transfusions, and outlined the guidelines, leveraging marketing campaign language provided by AABB.

Thibodaux Regional leverages the Health Catalyst® Data Operating System (DOS™) platform and a robust suite of analytics applications as the foundation for its data and analytics. The organization implemented the Blood Utilization Analytics Accelerator to gain insight into the factors driving blood product utilization and management, using the analytics accelerator to guide the identification of improvement opportunities, and to standardize transfusion practices for the best clinical and financial results (see Figure 1).

**FIGURE 1. BLOOD UTILIZATION ANALYTICS ACCELERATOR SAMPLE VISUALIZATION**

- 1 Filters by date, visit type, transfusion reactions, appropriateness of transfusion, blood product type, and order information.
- 2 Summarizes blood utilization data, including lives saved, total discharges with transfusion, transfusion mortality rate, and transfusion average variable costs.
- 3 Graphs compliance with appropriate transfusion criteria.
- 4 Graphs blood units per 100 discharges.
- 5 Graphs transfusion reactions.
- 6 Displays current performance for average variable costs, units transfused, transfusion mortality rate, average LOS for inpatient, ED, and ICU.

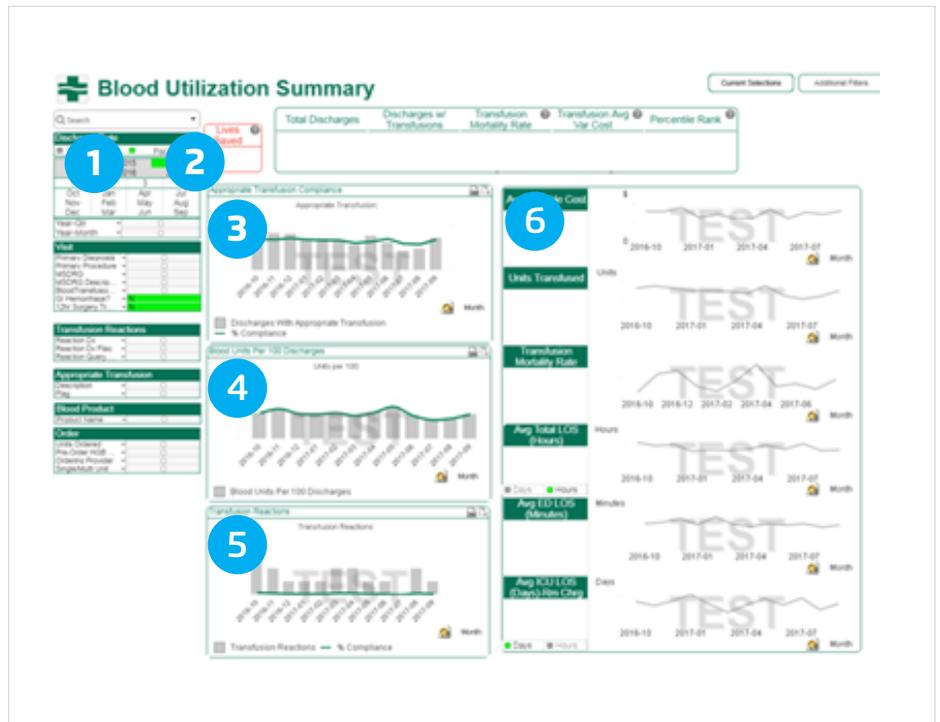


Figure 1: Blood Utilization Analytics Accelerator sample visualization

The analytics accelerator provides Thibodaux Regional with near real-time visibility into details of blood product utilization, including ordering provider, specialty type, transfusion type, and patient hemoglobin level at the time of transfusion order. The organization uses the analytics accelerator to surface variation in prescribing practices, evaluate adherence to clinical indications for ordering blood, and to review the appropriateness of blood utilization on a per-patient and population basis.

By engaging providers from varied practice specialties to evaluate the evidence and to develop a comprehensive improvement plan, we had excellent adoption of standard blood transfusion practices, leading to improved quality of care while reducing costs by more than \$100K.

Richard DeMoss, MD  
Pathology  
Thibodaux Regional  
Health System

The Blood Utilization Analytics Accelerator enables accurate economic assessments, which helps us to identify achievable cost reductions.

Ryan Myhand  
Clinical Applications Analyst/  
Interface Analyst/ Developer  
Thibodaux Regional  
Health System

Thibodaux Regional can accurately quantify the economic impact of reduced red blood transfusion using real-time cost data, enabling accurate assessment of transfusion costs, as well as opportunities for improvement. Data from the analytics accelerator is used for updating leadership regarding performance. Providers receive ongoing feedback on individual compliance with transfusion guideline recommendations, ensuring improvements are sustained, and new opportunities are not missed.

## RESULTS

Thibodaux Regional transformed blood transfusion practices, ensuring the appropriate use of red blood cells, substantially reducing blood utilization and costs.

- \$104K reduction in costs, the result of a 28.6 percent relative reduction in red blood cell transfusion.

## WHAT'S NEXT

Thibodaux Regional plans to continue its data-driven approach for ongoing monitoring of blood transfusions, ensuring improvements are sustained. The organization intends to focus future improvement efforts on reducing platelet utilization. 📈

## REFERENCES

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2. Kacik, A. (2017). Hospitals see improved outcomes, lower costs as blood transfusions drop. *Modern Healthcare.* Retrieved from <https://www.modernhealthcare.com/article/20170721/NEWS/170729977/hospitals-see-improved-outcomes-lower-costs-as-blood-transfusions-drop>

## ABOUT HEALTH CATALYST

Health Catalyst is a leading provider of data and analytics technology and services to healthcare organizations, committed to being the catalyst for massive, measurable, data-informed healthcare improvement. Our customers leverage our cloud-based data platform—powered by data from more than 100 million patient records, and encompassing trillions of facts—as well as our analytics software and professional services expertise to make data-informed decisions and realize measurable clinical, financial, and operational improvements. We envision a future in which all healthcare decisions are data informed. Learn more at [www.healthcatalyst.com](http://www.healthcatalyst.com).

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