

Adaptive Problem-Solving and Analytics Improves Quality and Saves \$4.7M



\$4.7M in cost savings.



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0.63 Standardized Infection Ratio (SIR) for catheter-associated bloodstream infections.



0.83 SIR for hospital-onset *Clostridioides difficile*.

PRODUCTS

- ▶ Health Catalyst® Data Operating System (DOS™)

EXECUTIVE SUMMARY

The U.S. continues to spend more on healthcare than any other country. As costs increase, healthcare organizations are exploring ways to improve care while containing costs. The University of Kansas Health System recognized it could improve performance efforts across its entire organization. By leveraging data and analytics and an adaptive problem-solving approach to drive improvement, the organization has achieved impressive results.

RISING COSTS HIGHLIGHT THE NEED FOR HEALTHCARE QUALITY IMPROVEMENT

The U.S. leads the world in healthcare expenditures, with the overall healthcare price index continuing to increase.¹ These growing costs have heightened attention on the need for continuous improvement in healthcare.²

DISJOINTED PROCESS HINDERS EXPORTS

The University of Kansas Health System identified the opportunity to further improve the effectiveness of its healthcare quality improvement efforts across the organization. While many people, particularly clinicians, had discrete challenges to address and were invested in improving, a lack of alignment across the organization slowed improvement efforts.

Clinical departments had varying levels of support for improvement work, and many felt disconnected from system leadership. Clinical performance data were shared widely, but users lacked a common and connected understanding of problems and countermeasures, resulting in disjointed improvement outcomes. Clinicians' compensation was primarily based upon productivity, with occasional small components based on performance or value. To maintain its high-quality clinical outcomes, the organization sought to create new processes that would enable its people to drive improvement.

DEVELOPING A STRATEGIC APPROACH TO HEALTHCARE QUALITY IMPROVEMENT

The University of Kansas Health System embarked on developing and applying an adaptive approach to problem-solving and developing a strategic performance improvement system. The organization applies a problem-solving approach that ensures it identifies key stakeholders, involving them early and often. It defines success at the outset of problem-solving operations, leveraging data from the Health Catalyst® Data Operating System (DOS™) platform and a robust suite of analytics applications to understand, assist with, and evaluate improvement opportunities.

The organization uses constant Plan-Do-Check-Act improvement cycles to drive improvement. The business intelligence, applied analytics, and lean promotion office support and facilitate quality improvement procedures. The University of Kansas Health System links problems and possible solutions to the broader organizational vision and targets, leveraging its data and improvement resources to develop a clear and consistent understanding of the desired target performance from all stakeholders. Improvement work is aligned across the organization, and clinicians are actively engaged in improvement efforts.

The following four examples demonstrate how The University of Kansas Health System used its adaptive approach to problem-solving:

Care Connections Program

The Care Connections program emphasizes the core functions of an academic medical center and focuses on innovative approaches to performance improvement driven by physicians. The University of Kansas Health System provides foundational support for each Care Connections program, giving clinicians access to the data, measurement, and analytics resources required for success. The Care Connections program:

- Supports the move from paying for time to paying for value—offering additional compensation for the completion of improvement projects.
- Encourages clinicians and their teams to generate improvement ideas.
- Ensures organizational alignment by providing executive oversight and coaching for project, measurement, and outcome selection.
- Improves academic productivity by requiring clinicians to present and publish their work.



ABOUT THE UNIVERSITY OF KANSAS HEALTH SYSTEM

The University of Kansas Health System is a world-class academic medical center and destination for complex care and diagnosis. The organization's culture of quality puts patients first and delivers the best care possible.

Department and Finance Planning Sessions

Department chairs and senior administrators partner with business intelligence, applied analytics, and the clinical affairs office for planning sessions. The teams partner to understand departmental data, including definitions, timeliness, limitations, trends, and the stories behind the trends. Department finance and planning sessions drive alignment between clinicians and health system leadership, empowering them to use data to identify data-informed improvement strategies and tactics.

Leaders use the planning sessions to review detailed data and gain new insight into performance in four major areas: financials, operations/growth, workforce, and market. Leaders are then able to understand the demand from the market perspective, workforce supply, and the internal resources to accommodate that demand and comprehend the impact on the health system's financial success. The planning sessions provide the opportunity to select performance measures that clinicians can successfully impact.

Chasing Zero Harm Initiative

The University of Kansas Health System is chasing zero harm through an interdisciplinary team that facilitates patient safety improvement efforts across the organization. The organization leverages the analytics platform as the single source of truth for zero harm data, using process behavior charts to help identify signals in the data. It also uses data from the analytics platform to provide continuous monitoring, measurement, management, and prevention of all-cause harm events.

Value-Based Performance

The University of Kansas Health System engages departments and divisions in moving away from compensation being based primarily on volume or productivity and toward being based on value. The organization's value-based performance (VBP) improvement pilot projects find improvement opportunities that both the health system and physicians see as valuable. The organization implemented five VBP pilot projects focused on medication utilization and readmission reduction. It supports the physician department or division in idea generation, measurement selection, establishing baselines, and analytics required for improvement.

Through these VBP pilot projects, the organization strives to:

- Remove barriers.
- Support continuous improvement.
- Generate value.
- Share the value of the improvement work within the organization and externally through presentations and publications.



We've leveraged data from the analytics platform and standard tools and processes to engage clinicians and operational leaders in improvement. We've successfully enhanced the patient experience, improved population health, and reduced costs—saving more than \$4M while improving the experience of our clinicians and staff.

**Jack Beal, JD, Vice President,
Performance Improvement
and Deputy General Counsel,
The University of Kansas
Health System**

RESULTS

The University of Kansas Health System's efforts to build a strategic performance improvement system is delivering the desired results. All 21 clinical departments have annual growth and improvement plans in place, and the organization has generated \$4.7M in cost savings.

- > The Care Connections program has achieved:
 - > **\$2.3M in cost savings**, the result of a 3.9 percent relative reduction in readmission rates over 12 months.
 - > **0.69 O/E mortality rate** for patients admitted to the hospital.
- > The departmental planning sessions have meaningfully elevated the ambulatory patient experience, as demonstrated by the medical practice CG-CAHPS percentile gains:
 - > **20-point increase in access to care.**
 - > **11-point increase** in overall rating of provider.
 - > **10-point increase** in physician communication quality.
- > In just one year, the zero harm initiatives improved care while reducing harm and costs.
 - > **\$1.8M in cost savings**, the results of a:
 - > **0.63 SIR** for catheter-associated bloodstream infections.
 - > **0.83 SIR** for hospital-onset *Clostridioides difficile*.
 - > **0.96 SIR** for catheter-associated urinary tract infections.
- > **\$600K in savings** from five VBP pilot projects in one year.



WHAT'S NEXT

The University of Kansas Health System will continue to develop its strategic performance improvement system, maximizing the value of its data and engaging clinical and operational leaders to further improve outcomes. 🏆

REFERENCES

1. Paavola, A. (2021). US healthcare spending picks up: 4 things to know. *Becker's Hospital Review*. Retrieved from <https://www.beckershospitalreview.com/finance/us-healthcare-spending-picks-up-4-things-to-know.html>
2. Harvard T.H. Chan School of Public Health. (2016). *8 healthcare quality improvement tips*. Retrieved from <https://www.hsph.harvard.edu/ecpe/8-healthcare-quality-improvement-tips/>

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.

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