

# Improving Surgical Outcomes: Optimizing Patient Care with High-Quality Surgical Analytics

ORLANDO HEALTH®

## RESULTS

- **0.69-day decrease** in the inpatient length of stay (LOS)—**10 percent relative reduction** in nine months—enabling patients to spend **42.5K more days at home**.
- **0.4 percent** mortality rate.

## PRODUCTS

- **Health Catalyst® Data Platform**
- **Surgery Department analytics accelerator**

## EXECUTIVE SUMMARY

In the U.S., surgical procedures contribute significantly to healthcare spending, costing billions annually. Orlando Health, a nationally recognized health system comprised of specialty and community hospitals, sought to decrease costs, accelerate patient recovery, and improve surgical outcomes. However, limited access to data impeded improvement efforts. By utilizing the Health Catalyst® Data Platform and Surgery Department analytics accelerator, Orlando Health was able to identify opportunities for improvement and lower costs.

## THE INCENTIVE FOR IMPROVING SURGICAL OUTCOMES

Elective inpatient and outpatient surgical procedures in the U.S. cost more than \$147 billion annually.<sup>1</sup> However, multimodal perioperative care pathways can help patients achieve early recovery, optimize outcomes, and decrease costs.

## DIFFICULTY IN GAINING INSIGHT

Orlando Health was committed to improving outcomes for patients undergoing surgery, investing substantial resources to manually review patients' medical records and create reports to identify improvement opportunities.

When the organization implemented an EHR, leaders hoped they would gain greater data access, allowing them to understand performance across surgery settings, types, and providers. Still, they discovered they could not access the high-value data and insights required to understand and improve performance. Tracking data related to surgical site infections (SSIs) required team members to manually generate dozens of reports they had to reconcile and align. Even after all that effort, the organization still couldn't get answers to its performance questions, impeding the effectiveness of improvement efforts.

## IMPROVING THROUGH ANALYTICS

The solution for Orlando Health's data and analytics needs was the Health Catalyst® Data Platform and Surgery Department analytics accelerator. The organization uses the Surgery Department analytics accelerator to gain access to the high-value data and analytics necessary to analyze and improve performance.

Using the analytics accelerator, Orlando Health has visibility into multifaceted metrics for all patients undergoing surgery. The organization can readily access summary data and drill into patient-level detail, enabling it to understand, monitor, and improve performance. Orlando Health can now ask and answer questions like:

- Are there differences in SSI rates and other outcome measures between facilities, surgery types, and surgeons?
- How does the patient's preoperative location (home, inpatient medical-surgical unit, or intensive care unit) impact SSI rates? Are there differences in compliance with antisepsis rates? What do antibiotic choice and timing look like, and how do they impact patient outcomes?
- What are the differences, and what are all the reasons for those differences, within the same surgical patient populations for patients with and without diabetes?

Orlando Health uses its high-value data to determine the unique improvement opportunities for various patient populations across its health system. It routinely shares location and population-specific data with each team member involved in providing care to surgical patients. Teams then implement location and population-specific improvement opportunities, focusing on multimodal perioperative care pathways to optimize patient readiness for surgery and improve early recovery and postoperative outcomes.



### ABOUT ORLANDO HEALTH

Orlando Health encompasses award-winning hospitals, stand-alone emergency departments, behavioral healthcare, skilled nursing facilities, rehabilitation services, and urgent care locations. The health system is nationally recognized for its pediatric and adult trauma programs, as well as its high-performing community hospitals and specialty hospitals.



***“The Surgery Department Analytics Accelerator is invaluable in providing real-time insights into surgical outcomes, allowing us to drill down into patient-level data and address specific performance challenges.”***

Jill Nykanen, RN, MSN, CPHQ, Chief Quality Officer, Orlando Health Arnold Palmer Hospital for Children, Assistant Vice President, Orlando Health

Orlando Health addresses unique patient needs while completing all elements of the multimodal perioperative care pathway and evaluating adjustments in care processes on patient outcomes. For example, the organization identified that many pediatric patients with autism spectrum disorder who are undergoing surgery often have sensitivity to touch. This can make it challenging to perform preoperative skin antisepsis protocols while patients are fully awake. Orlando Health adjusted the timing of some activities to occur after these patients received sedation for their procedure, decreasing patient anxiety. The organization used its analytics application to monitor performance to ensure the expected care was provided and confirm that the changed workflow still resulted in high-quality patient outcomes.

The analytics application enables improvement teams, surgeons, and patient care teams to visualize and understand the direct impact of their work and improvement activities on patient outcomes, accelerating continuous improvement. Leaders can proactively identify unfavorable changes, intervening to prevent performance deterioration.

Orlando Health also shares pediatric data with a third-party organization that benchmarks it against 140 other children's hospitals, supporting performance improvement and the development of targeted interventions for pediatric care.



***“With the Health Catalyst Data Platform, we have access to high-value, actionable data that enables us to identify and act on key improvement opportunities across all facilities and all surgery settings.”***

Jill Nykanen, RN, MSN, CPHQ, Chief Quality Officer, Orlando Health Arnold Palmer Hospital for Children, Assistant Vice President, Orlando Health

## RESULTS

Orlando Health's data-informed surgical improvements have improved care quality, optimized patient outcomes, and decreased costs. Results include:

- **0.69-day decrease** in the inpatient LOS, which is a **10 percent relative reduction** in nine months, enabling patients to spend **42.5K more days at home**.\*
- **1.7-hour decrease** in ambulatory LOS, which is a **15 percent relative reduction** in six months, enabling patients to spend **2.9K more days at home**.\*
- **0.4 percent** mortality rate.
- **Increased adherence** to antisepsis interventions, including:
  - **47 percent relative increase** in nasal decolonization rate.
  - **33 percent relative reduction** in MRSA-positive rate.
  - **23 percent relative increase** in MRSA screening rate.
  - **12 percent relative increase** in skin antisepsis rate.

\* Numerous throughput and clinical documentation improvement initiatives likely had a positive impact on LOS.



## WHAT'S NEXT

Orlando Health plans to use its high-value data and analytics to further improve the care provided to patients undergoing colorectal surgery and those receiving a hysterectomy.

## REFERENCES

1. Best, M.J., et al. (2020). The likely economic impact of fewer elective surgical procedures on US hospitals during the COVID-19 pandemic. *Surgery*. 2020 Nov; 168(5):962-967  
Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7388821/>

## 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. Its more than 500 clients leverage the cloud-based data platform or its other software applications—powered by data from over 100 million patient records and encompassing trillions of facts—as well as its analytics software and professional services expertise to make data-informed decisions and realize measurable clinical, financial, and operational improvements. Health Catalyst envisions a future in which all healthcare decisions are data informed.

Learn more at [www.healthcatalyst.com](http://www.healthcatalyst.com), and follow us on X, LinkedIn, and Facebook.