

# Data-Informed Decisions Drive Revenue Improvement by More Than \$48M



## HEALTHCARE ORGANIZATION

Integrated Delivery System

## PRODUCTS

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

## SERVICES

- Professional Services

## EXECUTIVE SUMMARY

MultiCare Health System's Pulse Heart Institute (Pulse Heart) recognized that better care coordination was required for patients receiving cardiac, thoracic, and vascular care. The organization wanted to further improve quality outcomes, provider engagement and recruitment, and its own economic health. To meet these objectives, Pulse Heart focuses on clinician engagement and organizational alignment, ensuring widespread access to meaningful, actionable data and analytics to inform decisions and drive improvement. Results include:

- \$48M in revenue, surpassing the year three market share goals in year two. Overall market share improved in every submarket.

## HOSPITAL MARGINS UNDER PRESSURE

A changing payer mix and declining reimbursements have resulted in significant strains on healthcare organization finances, with median operating margins among non-profits hitting an all-time low of 1.6 percent.<sup>1,2</sup> Health systems are reliant on strategies that strengthen revenue growth to succeed.

MultiCare's Pulse Heart Institute (Pulse Heart) strives to be the Pacific Northwest's destination for adult heart health, offering a comprehensive range of the most advanced cardiac, thoracic, and vascular services available.

## INSUFFICIENT DATA LIMITS REVENUE IMPROVEMENT EFFORTS

Pulse Heart identified the need to better coordinate care across the continuum for patients receiving cardiac, thoracic, and vascular care. Improving quality outcomes, provider engagement and recruitment, and the organization's economic health were among priorities for the institute.



“We understood that to improve quality outcomes, provider engagement and recruitment, and improve our own economic health, the approach had to be scalable, applicable across clinical domains, remonetize the platform, and ensure sustainability.

Holly Burke  
Pulse Heart Institute  
Executive Director  
Clinical Quality  
MultiCare Health System

Traditional frontline leader budgeting efforts were focused on supplies and labor costs but often lacked physician input on workflow redesign that targeted cost-control strategies. Previous initiatives lacked the data required to identify opportunities to improve revenue, limiting the organization’s ability to effectively improve economic health. The organization desired an elegant, comprehensive, data-informed approach to engage clinicians in transforming healthcare delivery and improving care pathways, while also improving contribution margins.

## DATA-DRIVEN INSIGHTS FOR IMPROVING CONTRIBUTION MARGINS

Pulse Heart selected three key strategies to ensure success in enhancing healthcare delivery in a way that also improved the contribution margin, focusing on:

- Engaging the providers in a model that promoted administrative and organizational alignment.
- Ensuring widespread access to meaningful, actionable data and analytics to inform decisions and drive improvement.
- Providing developmental opportunities to advance data literacy, enhance financial acumen and leadership performance, and increase competency to drive improvement.

## Improving clinician engagement and organizational alignment

Pulse Heart actively involved physicians in governance, starting at the top with practicing physicians on the board of directors. Physicians direct decisions regarding improvement opportunities and financial resource allocation at all organizational levels.

Physicians commit to the organization’s compact agreement, committing to achieve high-quality clinical outcomes, and supporting and advancing the organizational culture, including cultivating positive working relationships. Provider incentives and organizational goals are aligned, with administrators and physicians sharing common objectives. These goals cascade from each business unit to the various sub-specialties and individual physicians, and the entire workforce is engaged in achieving high-priority organizational goals.



We needed more than access to data to provide affordable, quality care. We wanted physician-friendly and better cost data, so people could collaborate and understand the information given. Now that we have this clarity, we have insight into where and how to prioritize and execute to meet our quality, cost, and revenue objectives.

Needham Ward, MD  
Chief Medical Officer  
Pulse Heart Institute  
MultiCare Health System

Pulse Heart has incorporated centers of excellence (COEs) to surround patients with the resources that ensure the best clinical patient outcome, coordinating care across various organizations, care, settings, and teams. Each COE has a strategic plan, and is responsible for tactical operating plans, profit and loss statements, and performance benchmarks. COEs are also responsible for new program development and research.

### Ensuring widespread access to meaningful, actionable data to inform decisions and drive improvement

To better inform decisions, Pulse Heart leverages the Health Catalyst® Data Operating System (DOS™) platform and a robust suite of analytics applications. DOS combines and standardizes data across source systems to provide actionable insights in a single technology platform, enabling COEs to easily visualize clinical, operational, and financial performance, identifying improvement opportunities.

The data platform and analytics applications help Pulse Heart manage and improve the effectiveness of its operations. The organization used a Margin Explorer Analytics Application to understand margin per encounter, identifying that structural heart margin per encounter had the greatest opportunity for improvement. It then redesigned its operating room (OR) services and case scheduling for structural heart cases, standardized unit supplies and cost, and redesigned work processes to reduce the cost of care provided in its inpatient units.

Pulse Heart utilized the analytics application to identify patients with aortic stenosis who had not yet received a referral to cardiology. Coordinators then reach out to identified patients, closing care gaps, and ensuring they receive the appropriate cardiology referral and clinical care.

The organization also uses an Operations Management Analytics Application to monitor all aspects of operational performance, including labor management expense, OR volume, procedure volume, provider productivity, clinic access and the time to the next available appointment, timeliness of follow-up, capacity management, inventory utilization, and ambulatory volume.

These tools aid Pulse Heart in easily and quickly obtaining detailed performance data. For example, Pulse Heart can visualize cath lab and OR utilization, including the percent of time the cath lab and OR are utilized during business hours, outside of business hours, and are occupied by hour (see Figure 1). Pulse Heart visualized this data for each of its individual facilities, aiding the organization in identifying the opportunity to redesign the cath lab and OR block times.

**FIGURE 1. OPERATIONS MANAGEMENT ANALYTICS APPLICATION SAMPLE VISUALIZATION**

- 1 Filters by date, service lines, facility, and location.
- 2 Displays room capacity during and outside of business hours.
- 3 Displays room occupancy by hour of the day.

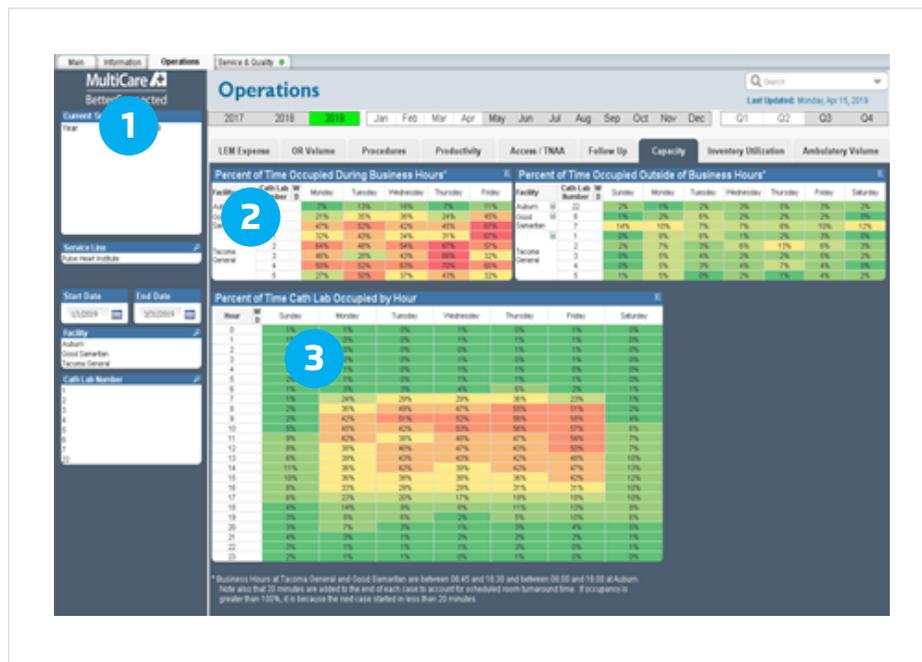


Figure 1: Operations Management Analytics Application sample visualization

### Providing developmental opportunities to advance data literacy, financial acumen, leadership performance, and the ability to facilitate quality improvement

The Pulse Heart administrative and business leaders are committed to teaching physicians and other clinical partners about business aspects they may not have been exposed to previously. Physicians and other clinicians are committed to teaching their administrative and business partners about clinical decision-making, workflow, and patient needs.

Furthering their education, physicians participate in peer-to-peer development offerings for a variety of needs. Physicians are also trained on how to use the data platform and analytics applications, allowing each provider to review data independently.

## RESULTS

Through these efforts, Pulse Heart has improved clinical outcomes, the effectiveness of its operations, and its economic performance. Results include:

- \$48M in revenue, surpassing the year three market share goals in year two. Overall market share improved in every submarket.
- 18.2 percent relative increase in the number of cath lab cases.
- Increased OR volumes in three separate populations, including:
  - 36.2 percent relative increase in the number of cardiothoracic cases.
  - 20 percent relative increase in the number of pediatric cardiothoracic cases.
  - 22.4 percent relative increase in the number of vascular cases.
- Increased ST-Elevation Myocardial Infarction (STEMI) volumes at three different facilities, with door to balloon (treatment) times less than 53 minutes, including:
  - 21.9 percent relative increase in STEMI volumes at Deaconess Hospital.
  - Two-fold relative increase in STEMI volumes at Auburn Medical Center.
  - 33.3 percent relative increase in STEMI volumes at Tacoma General Hospital.
- Six-fold increase in the number of patients receiving an implantable cardioverter defibrillator—a treatment for potentially life-threatening electrical problems with the heart.
- Doubled the number of practicing providers.
- Improved employee engagement scores including a:
  - 10.2 percent relative increase in employee engagement scores in the procedural areas.
  - 8.8 percent relative increase in employee engagement scores in the inpatient units.

## WHAT'S NEXT

Pulse Heart intends to further develop its COEs, using data analytics to identify opportunities for improving patient care and increasing revenue. The organization is exploring how to engage venture capital as a method to grow products and services, and it is evaluating the translation of its COE structure to other clinical domains. 📌

## REFERENCES

1. Egan, Y. & Martin, A. (2019). We asked 90 C-suite executives about their biggest concerns. Here's what they told us. *Advisory Board*. Retrieved from <https://www.advisory.com/research/health-care-advisory-board/blogs/at-the-helm/2019/06/c-suite>
2. Jones-Sanborn, B. (2018). Nonprofit, public hospital margins hit 10-year record low, Moody's report says. *Healthcare Finance*. Retrieved from <https://www.healthcarefinancenews.com/news/nonprofit-public-hospital-margins-hit-10-year-record-low-moodys-report-says>

## 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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