

# University of Chicago Medicine: Digital transformation saves lives in the new era of value- based care

~15–20%

FEWER CARDIAC  
ARRESTS IN THE  
HOSPITAL

## Introduction

Back when University of Chicago Medicine (UCM) couldn't share data held in several disparate systems and data silos, doctors could not make the best decisions quickly. Although a top-rated hospital, it was slowed by disconnected data. According to Shariq Ata, UCM executive director, data analytics, architecture, integration, and innovation, "We needed a technology platform that would allow us to integrate systems and centralize data so we could get information into the hands of the people who needed it."

Additionally, like many healthcare providers, UCM needed to change its business model from fee-based to value-based. Managing this shift was critical and further clarified the need for a digital, data-centric foundation.

Spotfire and TIBCO enabled UCM to transform its operations to a value-based model by connecting systems as well as patient, financial, and employee data, which led to better patient care, streamlined billing processes, and optimized use of assets.



## Challenges due to disconnected data

Under the fee-for-service model, providers were compensated for the total quantity of treatments provided to a patient, rather than the ultimate health outcome. Value-based healthcare rewards providers for positive patient outcomes, leading to more patient-focused treatment plans and potentially reduced costs and distress for patients. The switch required a completely different mindset.

In addition, the profitability of the healthcare system depends on maintaining accurate records and billing processes. Without consistent data on practitioners, procedures, prices, and patients, the hospital would struggle with billing, an important requirement for expanding its business. In terms of managing expensive assets like an operating room (OR), delays between procedures result in lost profit, as well as higher labor costs. If an anesthesiologist arrives at 2:00 p.m. to prepare for a 3:00 p.m. surgery, but due to operating room turnover, is delayed by an hour, the hospital has to pay the extra hour in labor for the doctor as well for all the staff associated with that operating room. OR turnover delays can mean expensive consequences for hospitals.

## The transition to value-based care

To deliver value-based care, UCM had to more intelligently coordinate patient data and treatments across all stakeholders throughout its ecosystem. The hospital used its TIBCO data foundation to integrate data and connect the elements, enabling a value-based business model—and ultimately, better patient treatment outcomes.

With TIBCO, UCM connected nearly every data-generating point in its ecosystem. It made a wide variety of data easily accessible so that important and time-sensitive information could be used by healthcare professionals to make better and faster decisions. In addition, it created integrated, HIPAA-compliant, patient data resources that increased medical record accuracy and streamlined billing and payments across Medicare, Medicaid, and private insurers.

Today, a patient-centric data ecosystem streamlines not only treatments but hospital administration, so UCM can treat more patients more efficiently. With a growing reputation for leadership and performance, more people than ever are seeking out UCM for their healthcare needs.

**“In real time, we can alert our rapid response team to go to the bedside of a patient who is at a high risk of going into cardiac arrest. We have successfully reduced the number of cardiac arrests in the hospital by an estimated 15 to 20%. The system went live at 7:00 a.m., and by 10:00 a.m. that day, doctors had prevented the first cardiac arrest.”**

—Shariq Ata,  
Executive Director,  
Data Analytics





## AT THE FOREFRONT UChicago Medicine

Combining compassionate patient care and groundbreaking medical and biological research, the University of Chicago Medicine (UCM) is at the forefront of solving the world's most pressing medical challenges. Whether preventing cardiac arrests, navigating industry shifts, or combating a global pandemic, as a data-driven healthcare leader, UCM is ready to face it all.

## Diagnostic data and predicting complications

The interconnectivity of patient data across multiple systems and facilities helped improve daily patient-centric hospital operations as well as the response to urgent events like cardiac arrest. Utilizing Spotfire software, UCM can now predict patient risks and target treatments to deliver more accurate and measurable healthcare outcomes. Having doctors in the right place at the right time is crucial in the event of a heart attack. UCM's eCART solution provides the intelligence to enable predictive intervention and put medical professionals closest to the most at-risk patients.

"We implemented our eCART solution that uses streaming analytics and a predictive algorithm developed by one of our leading researchers to predict when cardiac arrest is likely to happen," says Ata. "In real time, we can alert our rapid response team to go to the bedside of a patient who is at a high risk of going into cardiac arrest. We have successfully reduced the number of cardiac arrests in the hospital by an estimated 15 to 20 percent. The system went live at 7:00 a.m., and by 10:00 a.m. that day, doctors had prevented the first cardiac arrest."

## Agility in predicting and tracking treatment of COVID-19

An aspect of asset utilization particular to the global pandemic is the tracking of available ventilators for critical patients. With Spotfire, UCM provided real-time COVID-19 data to government agencies and hospital decision makers to improve critical patient care and operational support.

While COVID-19 has been notorious for overwhelming hospitals, UCM's patient-centric data foundation has provided the flexibility to adapt to the shifting needs and conditions of the pandemic. Some of these include telemedicine, patient tracking, and availability of assets like ventilators.

According to Chandra Bollampally, program lead at UCM, "Amid this pandemic, we are seeing a tremendous increase in the need for integration, automation, and electronic reporting of COVID results from local, state, and federal entities."

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Cloud Software Group  
Headquarters  
851 W Cypress Creek Rd.  
Fort Lauderdale, FL 33309  
[www.spotfire.com](https://www.spotfire.com)

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