HealthCatalyst
ignite outcomes improvement

Using a Healthcare Enterprise Data Warehouse and Analytics to Reduce Labor Costs

Texas Children's Hospital®

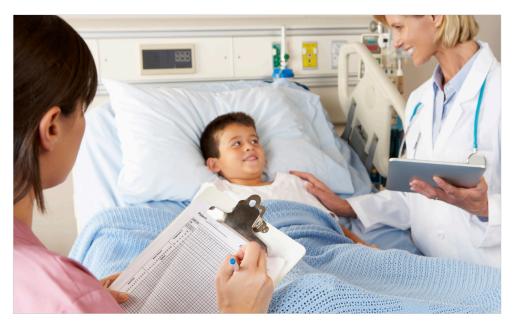### HEALTHCARE ORGANIZATION
Children's Hospital

TOP RESULTS

➤ Estimated 2% reduction in total salaries and benefits to date

➤ 66 percent increase in the speed of data availability and data transparency

➤ Estimated NPV of $425,000 savings over a 4-year period from automated data integration

PRODUCTS

➤ Late-Binding TM Data Warehouse

➤ Workflow/Operational Analytics Advanced Application- Labor Productivity Module

SERVICES

➤ Installation Services

➤ Improvement Services

TEXAS CHILDREN'S HOSPITAL, a not-for-profit organization consistently ranked among the top children's hospitals in the nation, recognized the importance of using technology to enable the delivery of higher-quality and lower-cost patient care. What hospital leaders found when they rolled out the Health Catalyst Late-Binding ™ Enterprise Data Warehouse (EDW) and advanced healthcare analytics applications was not only the ability to analyze data on demand to improve clinical quality but also ways to increase labor productivity while reducing costs.

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> The work our organization is doing with the Health Catalyst team pushes the envelope of what it means to have near real-time data at our fingertips to make operational decisions. Their technology and processes put us on track to understand the potential upstream and downstream financial impact of even the smallest decision.
>
> Catherine Codispoti, Director Clinical Planning and Financial Management
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Here's how it happened.

TEXAS CHILDREN'S HOSPITAL'S LABOR AND PRODUCTIVITY CHALLENGE

Texas Children's was moving from a reimbursement model based on percentage of charges to an APR-DRG payment structure. Like most organizations experiencing the shift to value-based care, the hospital began to see its bottom line decline. This trend created a new urgency at Texas Children's to fully understand its costs in relation to its revenues.

Texas Children's was tasked with devising a way to measure costs in comparison to revenue. Their goal was to establish and track metrics that would enable them to identify trigger points affecting the hospital's margin.

Well aware that salaries and benefits are the largest expense category for healthcare organizations—accounting for 35-45 percent of hospital costs nationwide and even 70-80 percent in some units—the Texas Children's team knew that managing labor costs could have a significant effect on the hospital's margin. They set out to develop a methodology to help them allocate labor resources appropriately to the demand for services.

Analyzing Productivity Using Work Hours per Unit of Service
As a first step in its effort to analyze labor productivity, Texas Children's established a unit of measurement. The Texas Children's team adopted work hours per units of service (WHPUOS) as the parameter for understanding how labor expenses affect margin. A unit of service—for example, a patient visit, a radiology procedure or an emergency department admission—is a way to measure service volume over a period of time. By comparing the volume to the number of hours worked in that same period, hospitals can understand how productive their workforce is. WHPUOS—actual hours worked divided by the volume for the same period—is therefore a measure of productivity.

The WHPUOS metric offers a consistent method for assessing labor needs for each unit of service. It enables organizations to flex staffing levels with volume fluctuations. The Texas Children's team determined that understanding and tracking WHPUOS would help them improve productivity, allocate resources and minimize the cost of premium labor such as overtime, agency work and call time. Tracking the metric, however, was easier said than done.

Cobbling Reports: An Inefficient, Unsustainable System for Analytics
To track WHPUOS, Texas Children's began manually pulling data from the Enterprise Resource Planning (ERP) system, the EHR and other administrative service sources. This was a cumbersome process, as hospital staff would pull from multiple systems and then attempt to sort and assemble the data into a usable format. They would then forward the data to a third-party hosting vendor that correlated the data.

This process of cobbling reports together was resource intensive—the manual data pulls alone consumed on average more than half of a full-time employee. On top of that, Texas Children's was paying hosting and support costs for the third-party solution. Even with this time- and resource-consuming process in place, timely data was never available to drive staffing decisions. In fact, the data wasn't available for analysis until a minimum of six weeks after it was captured in the source systems.

> "Health Catalyst is extremely collaborative. I've enjoyed the creative process of working with them to determine how we can make the most of our data so that we can make the best decisions for our staff and our patients."
>
> Catherine Codispoti, Director Clinical Planning and Financial Management

THE HEALTHCARE ENTERPRISE DATA WAREHOUSE (EDW) PLATFORM

Texas Children's needed a better solution, and they found it in Health Catalyst's healthcare enterprise data warehouse (EDW) platform. Texas Children's had already implemented the EDW to drive higher-quality, lower-cost clinical care. They realized that by simply running an additional analytics application on top of their existing EDW platform, they could efficiently and accurately manage labor and productivity.

Built on top of the EDW—which combines data from the EHR, time clock, ERP, and budgeting source systems—the Health Catalyst Labor Productivity Advanced Application delivers a view of staffing levels, volume and productivity across Texas Children's various cost centers. The application enables the business and unit managers to track WHPUOS efficiently and accurately. It delivers information into the hands of decision makers to help them manage their business.

Managers will be able to track performance as often as daily to see exactly how well labor is being allocated and make rapid modifications to counter scheduling problems. In the event that labor utilization outpaces volume, managers can drill further into labor data to understand utilization at the job code level.

Concrete Results
Health Catalyst's Labor Productivity application has quickly delivered measurable benefits to Texas Children's. In its first year of implementation, with the application rolled out to 65 percent of its units, the hospital has achieved:

Labor cost savings
The application has enabled Texas Children's to analyze near-real-time and retrospective data to understand its staffing patterns in relation to the demand for services. Consequently, the organization has been able to reallocate its core staff to better match demand—driving increased operational efficiency. Using the application to analyze staffing levels and ratios, the hospital is bringing labor expenditures in line with actual volumes and staffing goals.

Texas Children's estimates significant labor cost savings to date, approximately a 2% reduction in total salaries and benefits. More savings are anticipated as the operations team rolls the application out to the hospital's remaining units.

More timely insights from near-real-time data
By replacing manual processes with the EDW and the Labor Productivity application, Texas Children's is able to deliver data 66 percent faster and help drive labor decisions. Timely data enables more effective and accurate labor management than the previous approach of cobbling disparate reports from a multitude of systems to feed an offsite analytics point solution.

Increased adoption among operations managers
Only a handful of unit managers were using the third-party solution Texas Children's had adopted to assess productivity. Since implementing the Health Catalyst Labor Productivity application, the number of managers using data to drive staffing decisions has increased 500 percent. Why? The new solution's near-real-time data is significantly more relevant to managers

than data two to three months old. The application's easy-to-use dashboard helps managers visualize labor trends quickly. And the solution's proven effectiveness is driving greater accountability among managers to use data to improve their units' performance.

Capital expense elimination
By simply adding an advanced analytics application to run on its existing EDW platform, Texas Children's has been able to sunset the third-party hosted solution it had used for analyzing productivity.

Cost savings from automated data aggregation
By replacing manual data pulls with automated data integration, the EDW is driving an estimated Net Present Value (NPV) of more than $425,000 savings over a four-year period.

Data transparency in a growing organization
Texas Children's has grown substantially over a short period of time. In this environment, data transparency has become more important than ever. Making data available to operational, clinical and financial leaders across all patient care areas enables leadership to collaborate effectively, think globally and make more informed decisions about how the hospital can improve its performance. ◊

Features of the Labor Productivity advanced application include:

1. **Drill down capabilities** at the cost center level demonstrating the correlation between volume and utilization of premium labor type trends.

2. **Near real-time data** to effectively manage budgeted vs. actual volumes, enabling calculations and projections of targeted labor hours.

3. **Actual WHUPOS** compared to target over time.

4. **Customizable stratification filters** including facility, unit of services (e.g., hours/day; ED admits…); job families within unit of service; dates (monthly, pay periods, weekly, daily).

ABOUT HEALTH CATALYST

Health Catalyst is a mission-driven data warehousing, analytics, and outcomes improvement company that helps healthcare organizations of all sizes perform the clinical, financial, and operational reporting and analysis needed for population health and accountable care. Our proven enterprise data warehouse (EDW) and analytics platform helps improve quality, add efficiency and lower costs in support of more than 50 million patients for organizations ranging from the largest US health system to forward-thinking physician practices.

For more information, visit www.healthcatalyst.com, and follow us on Twitter, LinkedIn, and Facebook.