HealthCatalyst
ignite change

Texas Children's Hospital:
Texas Children's uses Healthcare Data Warehouse to Slash Reporting Costs

HEALTHCARE ORGANIZATION
Children's Hospital

TOP RESULTS

- 67% average savings on labor costs for EDW-generated reports

- Average time to build reports declined from 97 hours to under 30 hours

- 25% faster turnaround of reports

PRODUCTS

- Late-Binding™ Data Warehouse

- Foundational Applications

- Discovery Applications

- Advanced Applications

SERVICES

- Installation Services

- Improvement Services

CLIENT BACKGROUND:

To address the challenge of the impending transition to value-based reimbursement, Texas Children's Hospital launched a quality and safety initiative in 2006 to develop a comprehensive and integrated enterprise-wide data management infrastructure. The first step was to implement an electronic health record (EHR) to collect raw clinical and financial data from across the enterprise.

> "Our clinicians thought that the EHR would be a silver bullet to get the data they needed for quality improvement and operational reporting and they blamed IT when the information wasn't forthcoming. … Implementing an EDW should really be an appendix to the implementation of an EHR because the surge of data is just unbelievable and the appetite for it is huge.
>
> Myra Davis, M.E., Senior Vice President of Information Services

Although the EHR has proved tremendously valuable as the means of digitizing care across the hospital, Texas Children's IT leaders soon discovered that the newly digitized clinical data was hard to extract and combine with other data

> "[Health Catalyst] is really the utopia of visualization, having a true score card that combines our clinical, financial, operational and patient outcomes so we can see how we're performing not only against our own goals, but also to benchmark against the industry."
>
> John Henderson, Director of Enterprise Systems

sources in a timely manner. Clinicians and quality teams still lacked access to meaningful information they could use to guide clinical quality interventions and improvements.

"Our clinicians thought that the EHR would be a silver bullet to get the data they needed for quality improvement and operational reporting and they blamed IT when the information wasn't forthcoming," recalls Texas Children's Senior Vice President of Information Services Myra Davis, M.E. "The comment I would hear is, 'I can't get the right data from them,' or 'they don't understand what I need from them.' It created nothing but frustration."

For her part, Davis was frustrated that the IT department was quickly becoming a "report factory" for the rest of the hospital. She and her team soon identified the ability to leverage their healthcare enterprise data warehouse (EDW) to aggregate and make usable all of the data from the hospital's disparate IT systems. "Implementing an EDW should really be an appendix to the implementation of an EHR because the surge of data is just unbelievable and the appetite for it is huge," says Davis.

Beginning in September 2011, the hospital worked with Health Catalyst to implement an enterprise data warehouse (EDW) designed to unlock meaningful data trapped in the EHR and other applications to meet clinicians' expectations. This was not to be a typical EDW, but rather a healthcare EDW with a Late-Binding™ architecture.

Once Texas Children's connected with Health Catalyst, the path to implementing the EDW was a short one. In less than three months, the hospital's EHR data was flowing into the EDW. Just another three months after that, clinicians were using EDW-generated information for the organization's first clinical improvement initiative.

It wasn't long before Texas Children's IT team realized the benefit of the new solution was even greater than expected.

....

CLIENT STORY:
The end of the "report factory"

Today, Texas Children's IT team uses the EDW to create near real-time reports from data that was previously siloed within the EHR, enterprise resource planning (ERP) applications and other business systems. The speed of the EDW report-writing process has exceeded expectations. John Henderson, Director of Enterprise Systems for Texas Children's, says the average time it takes an analyst to build a report has declined from 97 hours for an EHR-generated report to 29.3 hours for a report generated via the EDW. Average delivery time, defined as the time it takes from when someone submits a request for an EHR report to the time a report is delivered, is trending downward as well, from a previous window that exceeded 120 days to a current time frame of less than 90 days – a 25 percent improvement.

Those improvements translate into significant cost savings. On average, each EDW report costs Texas Children's 67 percent less to build than an EHR report.

Given that the hospital was previously generating an estimated 1,300 EHR reports per year at an average cost of $4,832 per report, the savings are substantial.

Moreover, Henderson estimates that each EDW visualization delivers, on average, 10 times the value of EHR-generated reports. The quality difference is due largely to the relative complexity of the data produced by the two report types. EHR-generated reports, such as daily patient lists, provide a static one-dimensional view of the data. To get a broader view and answer more questions, clinicians need to request on average nine additional reports. By contrast, the EDW's use of data from multiple applications combined with its powerful analytics delivers drill-down and trending capabilities. Users can analyze the data from multiple perspectives without requesting additional reports.

Explains Davis, "Before the data warehouse, if someone in the organization wanted data from IT to answer a question, they would submit a report request and there was this back and forth that was so frustrating for the clinicians, who really didn't want to have to communicate with us. Now with the data warehouse as a hub with near real-time data, the clinicians can all see the data at the same time and they can very easily spot the data they're looking for."

The combination of fewer report requests and faster reporting time has made a world of difference for the IT department. Reports that once took weeks or even months to prepare can now be generated in days, and sometimes hours. Rather than spending all their time responding to an endless queue of report requests, department analysts now are able to function in their intended role – uncovering patterns in data to reveal the most productive operational and clinical improvements. Thanks to these improvements, business partner satisfaction with the IT department has increased dramatically.

"The days of the report factory are over," says Henderson. "Our analysts now can use the EDW to drill down and find the information they need, instead of having to piece together static EHR reports into an Excel document. We now have a single 'source of truth' that has expedited the budgeting process and driven more robust information delivery across the organization."

Adopting a dual approach

Encouraged by the ease of report generation with the EDW, Texas Children's has begun to distinguish between the types of reports best generated by the EHR versus the EDW, and to dramatically limit the former. The hospital has found there are still some uses for the EHR's basic reporting tools.

IT resources also are shifting. Many members of the EHR reporting team are either being reallocated to new initiatives or learning the EDW platform. This shift is enabling Texas Children's to "deliver on vision" initiatives such as Texas Children's new Center for Women and Children. Within the next year, the number of EDW users at Texas Children's is expected to triple — at the very least.

"Previously, we were focused on clinical programs, and quality and outcomes improvement. We now have a dual approach that focuses on both outcomes and operations," Henderson notes. "Our future goal is enhancing the operations reporting program so that our clinicians will have a full-blown suite of healthcare

analytics that incorporate not only operational metrics by each unit, but also financial, clinical and patient satisfaction.

"It's really the utopia of visualization, having a true score card that combines our clinical, financial, operational and patient satisfaction outcomes so we can see how we're performing not only against our own goals, but also to benchmark against the industry," he adds.

"We were on this journey for seven years, and it didn't get us anywhere close to what we're doing today with Health Catalyst, let alone what I expect we'll be doing in five years," he says. "Finding the right partner to help us figure out how to implement a healthcare EDW and engage the organization in quality improvement has been the key to our success." 🔥

Sample EHR Report
Static, one-dimensional view

Overall Summary
Summary of reason cancelled

	Cancelled	
Total	**17361**	**100%**
Other	8273	47.7%
Patient	3519	20.3%
No reason given	3297	19.0%
Provider	447	2.6%
Feeling better	428	2.5%
Insurance issue	268	1.5%
Family emergency	188	1.1%
Lack of transportation	183	1.1%
TeleVox	173	1.0%
Scheduling Error	148	0.9%
Patient already seen	91	0.5%
Clinician or resource	80	0.5%
Treated elsewhere	52	0.3%
Triaged by nurse	50	0.3%
Scheduled from wait list	36	0.2%
Patient too ill	24	0.1%
No show	23	0.1%
Hospitalized	16	0.1%
Moved out of town	16	0.1%
Cancelled vai patient portal	13	0.1%
Admissions department delay	5	0.0%
Parent (s) cancelled surgery	5	0.0%
Financial	4	0.0%
Operating room closed	4	0.0%
Order error/unavailable	4	0.0%
Dismissing	3	0.0%
Weather	3	0.0%
Consent not signed	2	0.0%
Instrument unavailable	2	0.0%
Unhappy with services	2	0.0%
Deceased	1	0.0%
Metal internal	1	0.0%

Sample EDW Report

1. **Easy to understand** graphical representation of the information.

2. **Filters that enable** the information to be quickly sorted by date, location, provider and other criteria.

3. **Tabs for viewing** more detailed category information, e.g., cancelled appointments and no show appointments.

4. **Drill down capabilities** into the category to provide more detailed analysis. This example shows a Pareto view of the cancellation reasons.
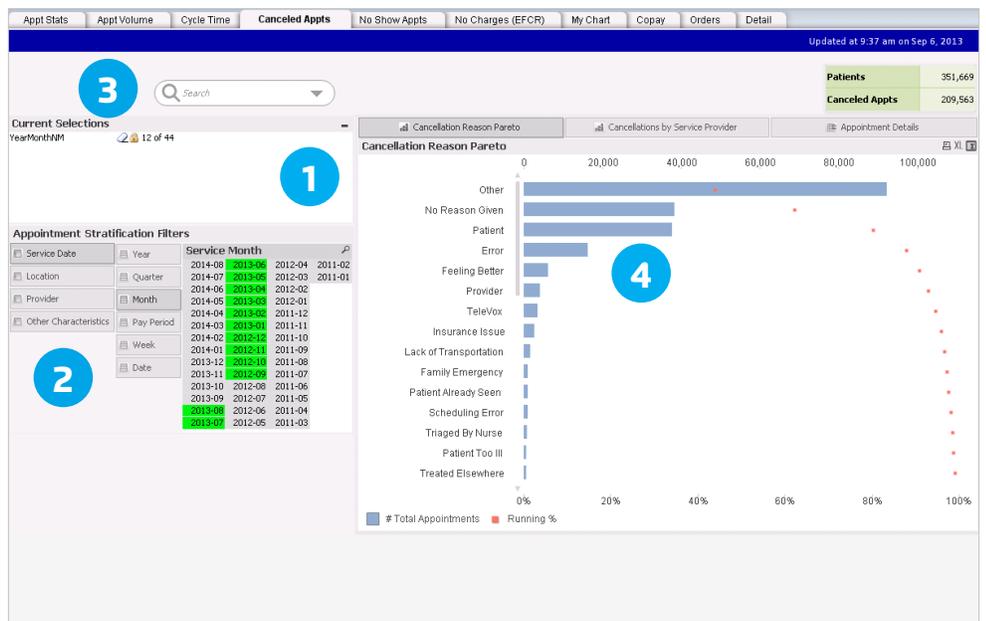
ABOUT HEALTH CATALYST

Based in Salt Lake City, Health Catalyst delivers a proven, Late-Binding™ Data Warehouse platform and analytic applications that actually work in today's transforming healthcare environment. Health Catalyst data warehouse platforms aggregate and harness more than 3 trillion data points utilized in population health and ACO projects in support of over 22 million unique patients. Health Catalyst platform clients operate 96 hospitals and 1,095 clinics that account for over $77 billion in care delivered annually. Health Catalyst maintains a current KLAS customer satisfaction score of 90/100, received the highest vendor rating in Chilmark's 2013 Clinical Analytics Market Trends Report, and was selected as a 2013 Gartner Cool Vendor. Health Catalyst was also recognized in 2013 as one of the best places to work by both Modern Healthcare magazine and Utah Business magazine.

Health Catalyst's platform and applications are being utilized at leading health systems including Allina Health, Indiana University Health, Memorial Hospital at Gulfport, MultiCare Health System, North Memorial Health Care, Providence Health & Services, Stanford Hospital & Clinics, and Texas Children's Hospital. Health Catalyst investors include CHV Capital (an Indiana University Health Company), HB Ventures, Kaiser Permanente Ventures, Norwest Venture Partners, Partners HealthCare, Sequoia Capital, and Sorenson Capital.

Visit healthcatalyst.com, and follow us on Twitter, LinkedIn, Google+ and Facebook.