



## Transition to Microsoft Business Intelligence Improves Hospital's Ability to Make Mission-Critical Decisions.

### Overview

**Country or Region:** United States

**Industry:** Health Care-Provider

### Customer Profile

Seattle Children's is a medical community comprised of Seattle Children's Hospital, Seattle Children's Research Institute and Seattle Children's Hospital Foundation. It serves as the pediatric and adolescent academic medical referral center for Washington, Alaska, Montana and Idaho – the largest region of any children's hospital in the country.

### Business Situation

Processes to integrate data from key transactional systems including Cerner, Epic and Lawson were time consuming and inefficient.

### Solution

Microsoft Business Intelligence provides Seattle Children's with a streamlined information system, and the ability to operate in a data-driven environment.

### Benefits

- Improved care services
- Improved decision making
- Reduction in healthcare delivery costs
- Streamlined back office systems
- Scalable technology for future expansion

*"The only way we as a support service will evolve, is if we have the information we need to make the right decisions. The dashboard will enable us to sustain our gains and accelerate through our strategic plan."*

*Charles Hodge, VP and Chief Procurement Officer, Seattle Children's*

Seattle Children's is a Hospital, Research Institute and Foundation that provides comprehensive medical care for some of the region's most complex pediatric and adolescent cases.

Children's consists of a 254-bed facility and several separate regional clinics that, together, accommodated over 314,000 patient visits in their 2010 fiscal year. Today, Children's serves as the pediatric and adolescent academic medical referral center for the largest landmass of any children's hospital in the country (Washington, Alaska, Montana and Idaho). Plans to expand the facility are currently underway.

To be able to make informed, key business decisions, and further its mission of preventing, treating, and eliminating pediatric disease, Children's, with the help of Hitachi Consulting, transitioned to a Microsoft® Business Intelligence platform. Today the hospital is leveraging multiple Microsoft technologies, including SQL Server™ 2008 R2, SharePoint® 2007 and Office PerformancePoint® Server 2007.

**Microsoft®**

## Situation: Seattle Children's Hospital

Seattle Children's Hospital was founded over 100 years ago to meet the unique physical, emotional and developmental needs of children from infancy through young adulthood. Through the collaboration of physicians in nearly 60 pediatric subspecialties, Children's is able to provide inpatient, outpatient, diagnostic, surgical, rehabilitative, behavioral, emergency, and outreach services.

Before 2008, Children's was using several separate business and clinical systems to retrieve data necessary to answer key business questions. "Children's had spent a lot of money on several complex information systems. The systems were necessary to do business and provide medical care, but when it came down to being able to answer complex and multi-dimensional business or clinical questions, our processes were too long, and required too many people to be involved," said Drexel DeFord, Senior Vice President and Chief Information Officer.

Different solutions are used to access data from Cerner, Epic and Lawson. While the systems are very fragmented, the operational, financial, and clinical questions are not. Ted Corbett, Children's Director of Knowledge Management adds, "The questions we're asked are complex and no single system we have in-house is able to address them completely. While there are reporting tools from each system, most questions require a holistic view across the organization and integration across multiple systems. Before adding the MS BI solutions, all of these processes were

manual, time consuming and fraught with errors."

Only a handful of analysts with specialized skills were able to access each of these key systems to perform queries and write reports. As a result, the process for generating reports and responding to requests was labor-intensive and slow. Often, it would take six to eight weeks to retrieve and synthesize the requested information. By the time it was ready for review, much of the data would be either outdated or moot.

With over 900 inquiries submitted from a multitude of hospital departments each year, and only six to 10 analysts able to handle the load, the backlog of requests continued to expand over time. These requests only represent the tip of the iceberg, compared to the true data needs of the organization. To work around the delays, many individual departments created siloed databases and spreadsheets. These were often unreliable and broke on a regular basis, which only compounded the problem, and produced multiple versions of the data truth.

As a result of the inefficiency, business, administrative, and clinical users were frustrated, valuable IT resources were wasted, and hospital leaders were forced to base key business decisions on limited data. Those users needed a better solution.

Given these challenges, Children's needed to find a better organizational strategy for information management, and to reform the way it handled its business intelligence.

"My challenge to our team was to devise a relatively simple way to integrate data from multiple systems; then offer that data in a summarized way that end-users could use to drive continuous performance improvement," said DeFord. "The solution had to be easy to use, customizable by end-users, and better, faster, and cheaper than anything the company had tried in the past."

To help redefine how information is delivered, Children's started their journey with an initial project of developing rich dashboards to improve inpatient management operations. The primary goals of the project were to expedite the process of delivering relevant and core information to hospital personnel, and empower end users with tools to become self-sufficient in their queries. Another goal was to provide senior leadership with current and consistent data required to assess trends, evaluate existing processes and make actionable decisions to improve patient access, reduce costs and improve safety.



### *Solution*

Because Children's needed a more reliable, robust, architecture, dashboards and reports, as well as familiar

technology with a low cost of ownership, Children's chose the Microsoft Business Intelligence (BI) stack for its new platform.

To guide the implementation of Children's BI program, which included SQL Server 2008 R2, SharePoint 2007, and Office PerformancePoint Server Children's engaged the help of global BI experts at Hitachi Consulting. Hitachi Consulting was able to accelerate the execution of Children's BI solution using a customized version of Hitachi Consulting's holistic and proprietary HFusion methodology for designing, developing, and deploying solutions on the Microsoft BI platform.

To satisfy Children's specific needs, Hitachi Consulting worked collaboratively with Children's Knowledge Management resources to iteratively define business requirements and consistent metrics for the dashboards. This involved creating visual mock-ups to help business users and senior leadership validate requirements and to envision the end result of the solution. In addition, Hitachi Consulting provided the programmatic and technical expertise to architect, develop and deploy the Microsoft BI solution.

Children's has deployed its Microsoft BI solution in stages, beginning with the delivery of core Admits, Discharges, and Transfers (ADT) metrics and dashboards to support Inpatient Management. This solution was later enhanced with the integration of key revenue cycle and billings measures. One of the most exciting changes has been the addition of supply chain and procurement data and dashboards to offer increased visibility into the operations and costs of the hospital's Demand Flow program.

*“The use of technology from Microsoft has enabled Children’s to fundamentally change how we extract data, turn it into information and use it to support our efforts to improve the quality of care we deliver. Timely access to a holistic view of our physician’s performance helps improve quality throughout Children’s.”*

*David Fisher, SVP, Medical Director*

Given the ease and satisfaction with these solutions, as well as the success of the Children’s and Hitachi Consulting partnership, Children’s has plans to roll-out Microsoft BI solutions for more departments and data as its needs evolve.

### *Benefits*

As a result of implementing Microsoft BI, Children’s is not only able to *manage* its information, but *leverage* it as well.

#### **Expedited Delivery of Key Measures Information through Centralized Dashboard**

By consolidating key measures data into a centralized dashboard solution, Microsoft BI has helped Children’s retrieve and deliver information pertaining to length of stay, number of admissions, number of discharges, transfers and top diagnoses in a painless and cost-effective manner.

In addition, information inconsistencies that were once a symptom of a fragmented system have been eliminated, as all personnel now derive results from the same, current data.

#### **Streamlined Physician Profile Analysis**

Children’s is a leader in the implementation of the Continuous Performance Improvement (CPI) methodology within the healthcare industry, a technique originally developed by Toyota to improve auto manufacturing processes. Children’s adaptation of this manufacturing methodology involves continually striving to eliminate waste throughout the organization, leading to better safety, care quality and efficiency for patients and families as well as those who do the clinical work. One example of this is the

process to measure and report on physician performance. Such measurement is fundamental to improvement. Members of the Quality Improvement team used to spend about four months per year manually extracting data for unique physician quality profiles for 1,200 physicians. This manual process, though providing valuable information, represented tremendous waste in the system and a great opportunity to apply CPI principles. Joint Commission regulatory changes prompted the need for physician quality profiles every six months. Due to the time required to gather the information, Children’s choose to use CPI principles and improve their data extraction processes.

By leveraging core Microsoft BI tools, the Knowledge Management team used skills developed in prior projects to completely automate this process, enabling the Quality Improvement Department to produce physician quality profile reports on-demand and meet the new Joint Commission regulatory requirement of providing the physician profile reports every six months. This not only has reduced the manual time needed to produce a report, but allows this valuable information to be provided as frequently as it is needed to support quality care. David Fisher, Senior Vice President and Medical Director adds “The use of technology from Microsoft has enabled Children’s to fundamentally change how we extract data, turn it into information and use it to support our efforts to improve the quality of care we deliver. Timely access to a holistic view of our physician’s performance helps improve quality throughout Children’s.” This solution uses Integration Services to integrate data from several core systems including Epic, SoftMed (transcription)

MSOW (physician credentialing), Cerner and CenterPoint (E-Feedback).

### **Empowers Senior Leadership to Make Key Business Decisions**

Microsoft BI gives hospital leadership concrete and up-to-date data from which to formulate solutions to existing problems, create action plans for the future, and improve business development. End users can query data with ease, to gain better insight into facility needs and cultivate strategies for improving patient care.

### **Enables Business and Clinical End Users to be Self-Sufficient**

Hospital personnel from all departments will eventually be able to immediately access information and perform their own queries without extensive assistance from the Knowledge Management Department. As a result, job satisfaction and workflow are improved.

### **\$3 Million Reduction in Supply Chain Expenditures**

Using Microsoft BI, the Sourcing team was able to develop an innovative system to ensure that tools and supplies are available throughout the organization when needed. Children's also now has better visibility into its spending and buying patterns, vendor relationships and supply versus demand. This system has helped reduce both shortages and hoarding of supplies, and has led to an annual reduction of approximately \$3 million dollars spent on excess inventory, special orders and time to process supplies.

### **Streamlined Revenue Cycle Analysis**

Before the implementation of the Microsoft BI solution, reporting analysts were inundated with queries pertaining to revenue data, including charges and

reimbursements, as they relate to patient types, procedures, diagnoses and other unique patient details. Today, the solution allows power users in many different departments – Surgery, Diversity, Revenue Cycle, Strategic Planning, Finance, Knowledge Management and Administration – to search, view and analyze complex revenue, ADT and coding information to eliminate waste and drive operational improvements.

### **Integration of Data Improves Analysis**

Children's built an integrated data repository to answer key business questions much more efficiently. With multidimensional, integrated data, the surgical services team is able to better understand OR utilization resulting in the ability to improve utilization and throughput. The up-to-date combination of data from Epic and Cerner enables increased analysis not previously possible.

### **Facilitation and Management of IS Requests**

Through the use of Reporting Services and Microsoft SharePoint, IS personnel can access an interactive dashboard created to provide immediate information on open service tickets, broken computers and enhancement requests, thereby facilitating workflow and minimizing end user frustration.

### **Reduction in Overhead Expenses**

Prior to the implementation of Microsoft BI, Children's was spending too much time and money on internal resources for each report generated in response to a user request. With the addition of the self-service options Children's has been able to eliminate excess waste and reduce the cost of asking similar questions by more than 90%. This

reduction has allowed analysts and developers to focus on more value-added analysis.

#### **Scalability**

Microsoft Business Intelligence provides Children's with a scalable model that can handle large volumes of simultaneous queries and will accommodate its plans for future expansion.



#### **The Future**

Over the next few years, Children's plans to continue to enhance its business intelligence efforts, as its facility expands, and needs evolve.

Children's has immediate plans to increase self-service access to data, and a long-term goal of broadening the Microsoft Business Intelligence Platform to include solutions for clinical standards, patient safety, quality measurement reporting, research and visual systems.

Every quarter, new functionality and pieces are being added to its business intelligence solution, with the intention of ultimately thriving in a thoroughly sustainable, data-driven environment.

#### **Conclusion**

As Seattle Children's continues to grow to accommodate the vast needs of its expanding client base, Hitachi Consulting and Microsoft will be key partners in its mission to prevent, treat and eliminate pediatric disease.

## For More Information

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## Microsoft Server Product Portfolio

For more information about the Microsoft server product portfolio, go to: [www.microsoft.com/servers/default.mspx](http://www.microsoft.com/servers/default.mspx)

### Software and Services

- Technologies
  - Microsoft SQL Server 2008 R2
  - Microsoft SharePoint 2007
  - Microsoft Office PerformancePoint Server 2007