



## Hospital-wide Portal Links Departments to Improve Staff Collaboration, Patient Care

### Overview

**Country or Region:** United States

**Industry:** Healthcare

### Customer Profile

Children's Memorial Hospital in Chicago is the only hospital in Illinois that is exclusively for children. Licensed for 270 beds, it has 1,100 pediatric specialists with expertise in 70 specialties.

### Business Situation

Children's Memorial's original portal solution did not integrate with the hospital's newly deployed Active Directory® service—nor did it facilitate enterprisewide collaboration and communication.

### Solution

Children's Hospital deployed Microsoft® Office Professional Enterprise Edition 2003, including Microsoft Office InfoPath® 2003 and Office SharePoint® Portal Server 2003.

### Benefits

- Improves productive teamwork
- Improves access to appropriate information
- Bridges communication gaps between departments
- Provides an enterprisewide communication solution
- Increases patient throughput

“We use the Microsoft Office System and SharePoint Portal Server 2003 to streamline workflow and collaborate better. We are increasing productivity and improving patient care.”

Pat Mulville, Director of IT Services, Children's Memorial Hospital

Children's Memorial Hospital in Chicago, Illinois, provides care within 70 medical specialties for critically ill children. In an effort to unite a complex organization, the hospital deployed an enterprise portal solution, but that portal was costly to maintain and did not integrate with Active Directory®. Children's Memorial replaced it with a Microsoft® communication and collaboration solution based on the Microsoft Office System, and deployed Microsoft Office SharePoint® Portal Server 2003 and Microsoft Office Professional Enterprise Edition 2003. The new solution's ease of use is prompting staff members throughout the hospital to create collaborative solutions of their own—freeing up time to work more productively, either directly with patients or in support positions. As a result, Children's Memorial is a more cohesive, efficient organization.

“Using Windows SharePoint Services and the Microsoft Office System, we increased MRI patient throughput from 550 a month to 735. We’re providing better care to more patients—with no over-time and no extra staff.”

Eric Gasber, R.N., Prescreen Nurse, Medical Imaging & Nursing Sedation Team, Children’s Memorial Hospital

## Situation

Since its founding in 1882, Children’s Memorial Hospital in Chicago, Illinois, has focused on the needs of children and their families. Children’s Memorial believes in a multidisciplinary, child-centered approach to providing care. For 11 years, it has been ranked as one of the nation’s top children’s hospitals by *U.S News & World Report*. Also home to the Children’s Memorial Research Center and a pediatric residency program, Children’s Memorial serves as the primary pediatric teaching hospital of Northwestern University’s Feinberg School of Medicine.

Like most urban hospitals, Children’s Memorial is a complex entity with a plethora of clinical departments, where more than 1,100 pediatric clinicians work in 70 medical specialties to provide care to critically ill children. Spanning a wide geographical area, Children’s Memorial has a large campus in Chicago with two additional city sites, four suburban outpatient centers, and seven outreach partner locations. Although the hospital’s core staff level averages around 3,800 employees, seasonal fluctuations, summer resident programs, a floating nursing staff, and a body of contractors bring the total number of people working at Children’s Memorial to approximately 5,000.

Children’s Memorial has long recognized that IT can help reduce the complexity of its organizational structure and streamline the flow of information between individuals and healthcare teams to increase productivity and ultimately improve the quality of care.

In 2001, the hospital purchased a first-generation portal solution to give staff members throughout the hospital single sign on access to 70 front-line, clinical-care applications in a Citrix environment. However, the solution did not provide roles-based access to information, nor did it integrate with the hospital’s infrastructure.

## Communication Gaps

Paper-based workflow and communication gaps motivated the IT department to provide a corporate intranet. However, the portal that the IT department created did not live up to the hospital’s expectations for an enterprisewide collaboration and communication solution. “Our portal was costly and inflexible,” says Pat Mulville, Director of IT Services at Children’s Memorial Hospital. “Every time we wanted to change something, we had to pay the company’s consultants to do the work for us. Consequently, we made few changes. The portal existed mainly as a mechanism to deliver the applications in Citrix. We couldn’t use the portal for what it was intended: to deliver targeted information to the right employees, provide content management and collaboration capabilities, and promote the free flow of information throughout the hospital.”

Children’s Memorial still had isolated line-of-business applications and a work force that struggled to communicate by relying on ad hoc telephone calls, traveling between campuses, and even just talking in the hall. The portal’s poor content management capabilities meant that the hospital’s 1.5 million documents resided in many different network shares. The IT department spent a lot of time working with complicated logon scripts in order to ensure document security in an environment consisting of numerous shared network drives. Employees had a difficult time finding and accessing the information they needed.

As a result, interruptions to workflow and impediments to teamwork abounded throughout the hospital. One example is provided by Eric Gasber, R.N., a Prescreen Nurse who works closely with the Medical Imaging & Nursing Sedation Team to pre-screen patients and arrange appointments for magnetic resonance imaging (MRI) or cardiology tests. Gasber is responsible for

filling out the Prescreen Form (PSF), which collects all required information about the patient, before scheduling a test.

“I’m the conduit between the patients and their families and the nurses, physicians, and specialists who administer the sedation for our young patients and the tests themselves,” he explains. “I often have to walk upstairs to confer with nurses and doctors, and if I don’t have the information they need, I have to go back and get it, or make more calls, and connect with the doctor later. This was a big obstacle to my success because it pulled me away from my primary role of screening children, educating families, and notifying clinical staff of any alerts or concerns about the patients.”

And in the Human Resources (HR) department, Christina Dietz, Director of Human Resource Information Systems and Communication, oversaw the manual processing of 300 Personnel Change Notice (PCN) forms a month, or 150 every two-week pay period. The Web-based forms were filled out online by managers throughout the hospital to report any changes in the status of their employees to HR. However, once the forms were submitted to HR, they had to be printed, verified, and then entered into the hospital’s payroll system by the HR Information Systems (HRIS) Analyst, who regularly spent 80 percent of her day working on this task.

“Sometimes I would help process the forms, because they involve a lot of follow-up,” says Dietz. “If the data didn’t make sense—for example, a manager had submitted a pay raise that exceeded our compensation guidelines—we would have to phone or meet with that manager’s HR consultant to verify the data. It could take up to a week and a half to process these forms, and if we missed our biweekly deadline, it could affect the budget for staffing levels.”

### **Lack of Integration with Active Directory**

The portal’s shortcomings became even more evident after the hospital deployed the Microsoft® Windows Server™ 2003 operating system, which is part of Microsoft Windows Server System™ integrated server software, and migrated to the Active Directory® service. Because Active Directory provides a central repository for information for the hospital’s entire infrastructure, it aligns access to network resources with assigned roles in the hospital’s organizational structure. However, the portal did not integrate with Active Directory.

“With pressure to comply with HIPAA [Health Insurance Portability and Accountability Act of 1996] requirements, we defined several hundred different roles for our employees, resident doctors, contract workers, and others. The roles specify the appropriate access to applications and data,” says Mulville. “We needed an intelligent portal that would integrate these roles into a collaboration and communication solution to seamlessly connect users, teams, and knowledge stores across the entire hospital.”

### **Solution**

Children’s Memorial had been working on the Active Directory migration with its long-time technology partner, Project Leadership Associates (PLA), and turned to PLA for guidance on the portal solution. PLA recommended deploying Microsoft Office SharePoint® Portal Server 2003 and other components of the Microsoft Office System, including Microsoft Office Professional Enterprise Edition 2003 and the Office InfoPath® 2003 information-gathering program. PLA recommended running the Microsoft Windows® XP Professional operating system on the desktop.

“In the healthcare field, Children’s Memorial is on the forefront of the integration of all

“Nothing happens in isolation in a hospital. We are thrilled to see how people with no IT training at all are using Microsoft collaborative technologies to create their own solutions.”

Pat Mulville, Director of IT Services, Children's Memorial Hospital

systems into an Active Directory environment,” says Kevin LaFollette, Managing Consultant and Senior Project Manager at PLA. “SharePoint Portal Server 2003 is a key component of the hospital's integrated Active Directory environment. Instead of spending a lot of money to get its original portal to work, the hospital opted for a ready-made integration with its directory structure.”

Children's Memorial already had deployed Windows Server 2003 and therefore had acquired Windows SharePoint Services, an integral component of Windows Server 2003. Windows SharePoint Services enables individuals and teams to set up sites so that they can collaborate and manage documentation. SharePoint Portal Server 2003 connects those sites, people, and business processes to facilitate information sharing and communication across the hospital.

Office Professional Enterprise Edition 2003 is currently deployed on 25 percent of the hospital's desktops; however, a full rollout is expected by the end of August 2005. “The key for us is integration,” says Mulville. “SharePoint Portal Server 2003 provides a hospital-wide information management and communication framework that integrates with the roles and security levels we have defined in Active Directory. Office Professional Enterprise Edition 2003 integrates the desktop with the portal, giving employees Web-based access to everything that they need, all through the familiar programs in the Microsoft Office System.”

Office Professional Enterprise Edition 2003 will provide significant integration with Windows SharePoint Services sites through shared document workspaces that appear in a task pane within Microsoft Office Word 2003 documents. Employees will also be able to extract live data from the portal to the Microsoft Office Excel® 2003 spreadsheet software, and share calendars in the Office

Outlook® 2003 messaging and collaboration client.

Integrating SharePoint Portal Server 2003 into the hospital's Citrix environment and replicating the single sign on capabilities required some customization, but PLA rose to the challenge. “PLA's expertise with SharePoint Portal Server 2003 was apparent,” says Mulville. “They teamed up with the Microsoft Center of Excellence in Chicago and the folks from Citrix to develop a new solution that ties the two environments together.”

The hospital is rolling out a pilot of the new portal, called The Point, to a group within Electronic Medical Records and is planning a full-scale deployment by the end of the summer of 2005.

## Benefits

Children's Memorial expects its new communication and collaboration solution to improve productivity by expanding the abilities of employees to work together and by bridging communication gaps that affect the continuum of care. “We use the Microsoft Office System and SharePoint Portal Server 2003 to streamline workflow and collaborate better,” says Mulville. “We are increasing productivity and improving patient care.”

## Putting Information to Work

Once the collaboration solution is fully deployed, every Children's Memorial employee logging on to his or her computer will be routed to The Point, so the portal can be used as an organization-wide communication tool. Employees will also have single sign on access to the appropriate clinical applications. As PLA and Children's Memorial send the hospital's 1.5 million documents to the portal, employees will benefit from easy, centralized access to the information they need, while the IT staff can more easily

**Table 1. Microsoft Connected Productivity Solution Benefits**

<b>Patient Statistic</b>	<b>Manual Prescreening</b>	<b>Automated Prescreening</b>
Average cardiology patient throughput	8 cases per month	8 cases per week
Percentage of cardiology tests completed	50%	More than 90%
Average MRI patient throughput	550 per month	735 per month

manage information access rights through the portal's intuitive tool set.

"SharePoint Portal Server and Active Directory simplify the administration of rights and security for our fluctuating work force—for example, the 300 residents we get every summer—yet ensure that people have access to the resources they need," says Mulville. "We are a teaching hospital, and our physicians are also faculty members at the Feinberg School of Medicine. The portal will improve information sharing between faculty and residents. Faculty can set up personal sites for their own research and public sites for students to access curriculum materials. We are even thinking of setting up public-facing sites for our patients and their families."

Document versioning and check-in/check-out features, available through Word 2003, make sharing and collaborating on information simple processes. "We have set aside 2 terabytes' worth of storage to house our documentation on the portal," says Mulville. "Our employees will be able to easily access, organize, and search our collection of documents. Before, our information stores were wasted because they were so difficult to find."

#### **Helping People to Work Together**

Gasber is using Windows SharePoint Services and InfoPath 2003 to improve communication significantly with his coworkers and to automate the process of prescreening patients for medical-imaging tests. With

virtually no training from the IT department, he created three SharePoint sites—one that he uses to track the work he does to prescreen patients and coordinate case planning, a second that enables Cardiology department members to coordinate their schedules, and a third that lets nurses in Medical Imaging keep patient and family notes. Within each site, Gasber built unique views so that each staff member sees only the information that he or she needs.

"Providing online spaces for communication and personalized views has eliminated communication gaps and created a whole new level of efficiency in providing these complicated tests to our young patients," says Gasber. "Now I can instantly communicate patient risk factors that I have uncovered during the prescreening process to the relevant clinician. Nurses can use their site to make a note that a child likes an IV to be in the left arm instead of the right, knowing that this information will show up on the day the patient arrives and staff will be ready. Microsoft technology is helping us provide more responsive, patient-centered and family-centered care. Our satisfaction ratings are improving."

In addition, Gasber re-created the PSF as an InfoPath form, thereby replacing paper documents, which sometimes got lost as they passed from his office to staff members in the Cardiology and Medical Imaging departments. In the InfoPath forms, he fine-tuned prescreening questions and took advantage of built-in data validation to increase the accuracy of the patient information collected. The forms are stored on his site, but because they contain XML data, their content can be reused later for different purposes. "One of my goals is to track the screening information to analyze how many patients successfully complete the tests and how many don't, and figure out why," says Gasber. "This study was difficult to conduct when everything was

paper based, but now I'm planning to use Excel 2003 to present the results graphically for better analysis."

It's clear that Gasber's efforts are already making a huge difference to the success rate for both MRI and cardiology tests. (See Table 1.) "While using Windows SharePoint Services and the Microsoft Office System, we increased MRI patient throughput from 550 a month to 735," confirms Gasber. "We're providing better care to more patients—with no overtime and no extra staff."

In the Human Resources department, Dietz expects to see similar benefits when she uses InfoPath to replicate the PCN form. Working with PLA, she is piloting the project with 30 managers across the hospital. Because InfoPath features built-in data validation, any PCN form that contains an irregularity is automatically routed to the HR consultant for verification. This completely relieves Dietz and the HRIS Analyst from the burden of checking and following up on all the forms. What's more, managers will get a personalized confirmation for every PCN form that they submit.

"When the InfoPath-based solution is fully in place, my HRIS Analyst will free up approximately 30 percent of her time so she can work on more productive data analysis," says Dietz. "Previously, anyone could access a PCN form; now we will be able to build different levels of security within the portal. This solution looks so successful that we are going to create an InfoPath form to bring our Performance Appraisal process online. Today, our Compensation Analyst manually creates a spreadsheet and updates the rating for each of our 3,800 employees, and then we upload the spreadsheet into the HR/Payroll system. She's looking forward to being relieved of this task and working on projects more commensurate to her job description, such as

addressing issues and partnering with other departments as a consultant."

Children's Memorial has set in place a powerful, easy-to-use foundation for enterprisewide collaboration. "Nothing happens in isolation in a hospital. We are thrilled to see how people with no IT training at all are using Microsoft collaborative technologies to create their own solutions," says Mulville. "Whether it's setting up team worksites, automating workflow between departments, or creating new ways to communicate with patients' families, the result is better coordinated, more responsive patient care."

## For More Information

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For more information about Project Leadership Associates products and services, call (312) 441-0077 or visit the Web site at: [www.projectleadership.net](http://www.projectleadership.net)

For more information about Children's Memorial Hospital products and services, call (773) 880-4000 or visit the Web site at: [www.childrensmemorial.org](http://www.childrensmemorial.org)

## The Microsoft Office System

Microsoft Office is the business world's chosen environment for information work that provides the software, servers, and services that help you succeed by transforming information into impact.

For more information about Microsoft Office System, go to: [www.office.microsoft.com/en-ca/default.aspx](http://www.office.microsoft.com/en-ca/default.aspx)

### Software and Services

- Microsoft Office System
  - Microsoft Office Professional Enterprise Edition 2003
  - Microsoft Office Excel 2003
  - Microsoft Office InfoPath 2003
  - Microsoft Office Outlook 2003
  - Microsoft Office SharePoint Portal Server 2003
  - Microsoft Office Word 2003
- Microsoft Windows Server System
  - Microsoft Windows Server 2003 Enterprise Edition
- Microsoft Windows XP Professional
  - Technologies
    - Active Directory
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- Microsoft Center of Excellence

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- Project Leadership Associates

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Document published June 2005

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