



## Healthcare Provider Enhances Collaboration and Streamlines Order Entry and Delivery

### Overview

**Country or Region:** United States

**Industry:** Healthcare

### Customer Profile

Founded in 1905 and based in Richmond, Indiana, Reid Hospital & Health Care Services is a not-for-profit, 233-bed medical center serving a population of 280,000 people in Indiana and Ohio.

### Business Situation

An inconsistent desktop environment stymied collaboration and productivity, and a deployment of portable computers presented an opportunity to develop an application to simplify patient-order entry.

### Solution

The hospital deployed Microsoft® Office Professional Enterprise Edition 2003 on 1,000 desktops and an application based on Microsoft Office InfoPath® 2003 for up to 200 portable computer users.

### Benefits

- Higher productivity
- Greater collaboration
- Simplified licensing
- Ability to attract top-quality job applicants

“We think that the InfoPath user interface is more accessible, and we liked that the program works with Microsoft SQL Server 2000, which we were already running.”

*Eric Synnestvedt, Director of Information Services, Reid Hospital & Health Care Services*

Seeking to help users collaborate more efficiently, simplify software licensing, and streamline the entry and implementation of patient orders, Indiana-based Reid Hospital & Health Care Services has standardized its 1,000 desktop computers on Microsoft® Office Professional Enterprise Edition 2003 and is deploying patient-order-entry and emergent-care-order applications based on that software. As a result of the desktop deployment, the hospital's physicians, nurses, and other professional staff are sharing files more easily and using fewer help-desk resources. The hospital anticipates that the patient-order systems will save time for physicians and clerical staff, help the staff implement orders more quickly and accurately, and yield better patient outcomes.

“The robust and flexible architecture of the Microsoft Office System enables us to perform vital back-end services such as data validation and digital signatures.”

Jason Buckner, Systems Manager, Reid Hospital & Health Care Services

## Situation

Now celebrating 100 years in operation, Reid Hospital & Health Care Services is a not-for-profit, 233-bed medical center serving a population of 280,000 people in east central Indiana and west central Ohio. Based in Richmond, Indiana, Reid Hospital is accredited by the Healthcare Facilities Accreditation Program (HFAP), the Indiana State Department of Health, Medicare/Medicaid, the American Association of Blood Banks, and the American College of Surgeons Commission on Cancer.

In 2004, Reid provided acute care and rehabilitation services to some 13,000 patients and emergency-room services to some 50,000 others. These patients were cared for by a hospital staff totaling 1,500, who rely on an IT environment including 1,000 desktop computers to help them do their jobs.

As anyone at any acute-care facility will tell you, patient outcome is directly related to the ability of physicians, nurses, and other hospital staff to care for patients in an expeditious manner. In other words, the sooner a patient can be admitted, examined, treated, and released, the better off that patient is likely to be. At Reid, this truth guides not only physicians, nurses, and technical staff but also executives at all levels—including those who oversee the creation of information systems and applications so that users can work easily, efficiently, and productively.

At the same time, it's a challenge to keep those information systems and applications working optimally. Over time, installations encompassing 1,000 desktop computers almost inevitably will have multiple versions of software in use. Ironically, as new software and hardware technologies are added to the environment, it also becomes obvious that processes that used to be considered “good enough” can be made far more efficient.

IT executives at Reid faced both situations. For one thing, the hospital's desktop environment included multiple versions of Microsoft® Office programs. In addition, a deployment of portable computers and text-messaging-enabled mobile phones begged the question of how those devices could simplify the implementation of patient orders.

In the desktop environment, users working with Microsoft Office 95, Office 97, and Office 2000 could not collaborate effectively because of file-format differences. Often, the file-sharing problems prompted users to call the help desk, burdening the hospital's IT resources.

Another problem arising from the variety of desktop software was licensing. “When you are running three different versions of a product in an environment the size of ours and bringing computers online or moving them offline on a regular basis, it takes a lot of effort to be sure you are in compliance with licensing,” explains Mark Cooper, Network Manager at Reid Hospital & Health Care Services. “One staff member was spending up to 20 percent of his time just maintaining licensing certificates and running reports against them. It was a management and maintenance nightmare.”

As Cooper and his colleagues made plans to standardize the hospital's desktop environment on a single version of the Microsoft Office software, they recognized that it was also the ideal time to build applications that would use the portable computers and the text-messaging-enabled mobile phones to streamline the entry and implementation of patient orders.

Eric Synnestvedt, Director of Information Services, addresses the challenge of streamlining order entry. “The traditional process involved a physician communicating an order to a clerk by handwritten note,

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Eric Synnestvedt, Director of Information Services, Reid Hospital & Health Care Services

phone call, or voice mail,” he explains. “The clerk would then transcribe the order into the system for implementation at the appropriate department—an approach that was time-consuming, prone to errors, and vulnerable to delay.”

In terms of emergent care, getting the order into the system was only part of the challenge; the other was to efficiently communicate the order from the system to the emergent-care provider. “We had used a system that involved paging the providers, but it required them to call back for details,” Cooper explains. “We needed a system that would eliminate the need for the return call.”

### **Solution**

As Cooper and Synnestvedt evaluated their options, it was clear that the obvious choice for standardizing the desktops was to move them all to Microsoft Office Professional Enterprise Edition 2003. They also saw that one of the programs within that edition, the Microsoft Office InfoPath® 2003 information-gathering program, might be ideal for developing and deploying the patient-order-entry application.

“We briefly considered using Adobe Forms instead but decided against it because of the potential complexity of working with more than one vendor,” Synnestvedt says. He also points out that being part of the Microsoft Office System made InfoPath a stronger candidate. “We think that the InfoPath user interface is more accessible, and we liked that the program works with Microsoft SQL Server™ 2000, which we were already running.”

In fact, most of the hospital’s internal business applications run on Microsoft SQL Server 2000. Most of its servers run the Microsoft Windows Server™ 2003 operating system, although there are some installations of the Microsoft Windows® 2000 Server and Windows NT® version 4.0 operating systems.

Windows Server 2003 and SQL Server 2000 are part of Microsoft Windows Server System™ integrated server software.

A three-person deployment team at the hospital is installing Office Professional Enterprise Edition 2003 on all the desktop computers. The hospital also is deploying nearly 200 Toshiba M-200s portable computers, some of which will be replacing portable computers currently in use.

As for the applications, the hospital is using mostly internal resources for development and deployment. On the patient-order-entry application, a system analyst works closely with physicians to design the InfoPath-based forms, whose source is a database based on Microsoft SQL Server 2000. That database receives patient data from the central hospital information system through an interface engine based on industry-standard Health Level Seven (HL7) messaging. The application also relies on Web services running on Internet Information Services 6.0. In a corollary project, developers are implementing a virtual private network so that physicians can access the patient-order-entry application from their home or private office as well as at the hospital.

On the emergent-care-order application, developers are using the Microsoft Visual Studio® .NET 2003 development system, Microsoft Exchange Server 2003, and the Microsoft Office Outlook® 2003 messaging and collaboration client to deliver the order in a text message to the mobile phone of the physician, nurse, or technician who will provide the care. “This approach will eliminate the need for the return call that is required in a pager-based system, reducing the delay between the order entry and initiation of care to just a few short minutes,” Cooper says.

Systems Manager Jason Buckner applauds the decision to base these applications

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on Microsoft Office technologies. “The robust and flexible architecture of the Microsoft Office System enables us to perform vital back-end services such as data validation and digital signatures,” he says. “The architecture also enables us to provide presentation-layer benefits such as multiple data views and physician-personalized forms.”

### **Benefits**

According to Cooper, Synnestvedt, and their colleague Tim Love, Help Desk Operations Manager at Reid, the deployment of Office Professional Enterprise Edition 2003 is yielding the productivity advantages that their team hoped for when they envisioned the deployment. It is also making Reid a more attractive place to work for potential new employees, especially clinical professionals who will use the patient-order-entry and emergent-care-order applications to help them deliver care to patients in a fast and efficient manner.

### **Successful File Sharing Helps Collaboration, Productivity**

Not surprisingly, now that users are working on a single version of the Microsoft Office software, they no longer encounter the file-sharing problems of before. “A standardized desktop helps to boost productivity and collaboration and has virtually eliminated help-desk calls related to file-compatibility problems,” Love explains.

Another advantage of running Office Professional Enterprise Edition 2003 is that the Help capabilities are greatly enhanced compared with earlier versions. “First-time users are now developing Microsoft Office Excel spreadsheets and Office PowerPoint® presentations,” he says. “They’re reporting that the tools are a lot easier to use, thanks to the powerful and readily available wizards and reminders. As a

result, they’re pushing the software harder than they ever have before.”

Licensing is also much easier now that the hospital runs a single version of Microsoft Office software—and has a single enterprise licensing agreement for that software. According to Cooper, “The staff member who used to spend so much time on maintaining licensing certificates and running reports can now spend that time on tasks with direct benefit to users, such as designing and presenting customized training programs.”

### **Software Technology Attracts Current, New Staff**

Another benefit of the enterprise licensing agreement at Reid comes from a provision allowing users to install Office Professional Enterprise Edition 2003 on their home computers. “This helps them to become more familiar with the tools, use them more productively, and consequently make fewer calls to the help desk,” Love points out. “Allowing users to run the software on their home computers also is a selling point when we’re recruiting new employees. In the healthcare field, you want any advantage you can get to find and keep good employees.”

Interestingly, Cooper adds, the patient-order-entry and emergent-care-order applications could well provide the same benefit of helping the hospital attract and keep the highest-quality physicians and other clinical staff. “The applications based on the Microsoft Office System not only will help to streamline the process of entering and implementing orders, but also will make these professionals’ jobs easier,” he says. “Physicians will spend less time entering an order, they’ll be confident that it’s entered into the system accurately, and they, along with other members of the care team, will know that their patients are receiving the ordered medication or treatment without delay. This will make current employees feel

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For more information about Reid Hospital & Health Care Services products and services, visit the Web site at: [www.reidhosp.com](http://www.reidhosp.com)

especially good about working here and potential employees feel good about coming to work here, knowing that such technology is available to them.”

## Microsoft Office System

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For more information about the Microsoft Office System, go to: [www.microsoft.com/office](http://www.microsoft.com/office)

### Software and Services

- Microsoft Office System
  - Microsoft Office Professional Enterprise Edition 2003
  - Microsoft Exchange Server 2003
  - Microsoft Office InfoPath 2003
  - Microsoft Office Outlook 2003
- Microsoft Windows Server System
  - Microsoft Windows Server 2003 Standard Edition
  - Microsoft SQL Server 2000
- Microsoft Visual Studio .NET 2003

### Hardware

- Compaq ProLiant 6500
- Dell ML370 and ML380
- Dell PowerEdge 6300 and 6400
- Summit Computer Systems Whitney
- Toshiba M-200

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