



## Real-Time Data Exchange Boosts Efficiency, Raises Revenue by 15–20 Percent

### Overview

**Country or Region:** United States

**Industry:** Healthcare

### Customer Profile

Oncology Hematology Associates (OHA) of Southwest Indiana, headquartered in Evansville, has three locations from which it delivers laboratory, radiation, and chemotherapy services to cancer patients.

### Business Situation

OHA wanted to find a way to integrate its multiple business processes to improve efficiency, support collaboration, serve its patients better, and increase its profitability.

### Solution

OHA deployed Microsoft® BizTalk® Server and Microsoft BizTalk Accelerator for HL7 and connected various systems to enable the electronic exchange of patient data between business processes.

### Benefits

- Increased revenue by 15–20 percent
- Improved business processes
- Enabled easier collaboration among doctors and facilities
- Improved data accuracy
- Served more patients with existing staff

“The speed with which we have become a nearly paperless office by deploying Microsoft BizTalk Server 2006 and BizTalk Accelerator for HL7 is almost unbelievable.”

Ron Giles, Chief Information Officer, Oncology Hematology Associates of Southwest Indiana

Oncology Hematology Associates (OHA) of Southwest Indiana is as committed to workplace automation as it is to delivering advanced medical solutions. In 2005, OHA sought to integrate its applications, support collaboration, and improve patient care and profitability. OHA developed an electronic health record for its patients' charts and deployed Microsoft® BizTalk® Server and Microsoft BizTalk Accelerator for HL7. With this solution, OHA can exchange patient data—in real time—among its practice management software, its internal billing and laboratory system, and an external lab facility. OHA also deployed Microsoft Office SharePoint® Portal Server 2003 and set up a portal site for sharing information. With its collaborative solution, OHA gained improved efficiency and data accuracy. The practice's revenue and patient load have both grown by 15–20 percent in just 18 months.

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## Situation

Oncology Hematology Associates (OHA) of Southwest Indiana delivers advanced medical care—including laboratory, radiation, and chemotherapy services—for cancer patients. OHA serves patients at three locations, including clinics in Newburgh and Evansville, Indiana, and a hospital in Evansville. OHA currently has about 100 staff members, including seven physicians specialized in either medical oncology, hematology, or radiation oncology. The healthcare provider plans to bring an eighth physician into the practice in 2006.

From its beginnings in 1993, OHA has used new technology in the administration of the practice, just as it has used advances in medical technology. In October 2006, for instance, OHA purchased its own billing software to gain better management over invoicing. Because insurance companies have strict deadlines for submitting claims—or resubmitting rejected claims—the in-house system streamlined the processing of patient claims, aiding both the practice and its patients.

The successful implementation of the billing system provided the inspiration for a new goal: OHA wanted to find a faster, more efficient way to exchange patient data among the organization's various software applications and with the systems of an external lab vendor. The applications and systems that the healthcare provider relies on include:

- **Patient management software**—Third-party software that helps physicians orchestrate the delivery of patient care, including registration and scheduling. It also offers modules for supporting functions such as transcription.
- **Laboratory information system (LIS)**—A software tracking system that processes and stores information generated by

laboratory processes such as tracking a blood sample from the time it is taken until a lab report is generated.

- **Billing system**—Software that handles the charges, the claims, and the payments from insurance companies and patients. It integrates with Microsoft® Business Solutions—Great Plains® business software, now part of Microsoft Dynamics™. OHA uses several Microsoft Great Plains accounting applications to manage accounts receivable, general ledger, purchase orders, and accounts payable.

With its focus on treating cancer, OHA frequently sees patients on an accelerated basis to provide life-giving treatment. Many patients receive several treatments within a short time frame. But the only way to move data between the patient management software and the billing system was through a database-driven file transfer that only occurred once a night. And the manual process for reconciling services with billing was both time-consuming and prone to error.

OHA set a goal to increase efficiency by achieving a completely automated system with a single user interface. “We talked about moving to a paperless environment for several reasons,” says Ron Giles, Chief Information Officer at Oncology Hematology Associates. “We needed one central application to view all the data relating to the patient chart. Paper records are easier to misplace, and manually rekeying information is inefficient, so automating procedures just seemed to make sense. In a disaster, there is no good way to recover information from paper charts.” The physicians at OHA believed that they could serve their patients better if they could share information more easily and transmit and receive critical lab data faster.

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Phil Bolenbaugh, Data Manager, Oncology Hematology Associates of Southwest Indiana

## Solution

To move toward a paperless environment with automated information exchange, two developers at OHA created an application for electronic health records (EHR). The information in EHR includes a medical history, progress notes, medications, and lab and radiology reports. The EHR application was designed for use on an intranet with Microsoft Office SharePoint® Portal Server 2003. The developers used the Microsoft Visual Studio® 2005 development system and the Microsoft .NET Framework, an integral component of the Microsoft Windows® operating system, to create the EHR application and began deploying it in September 2004.

At first, the EHR application did not connect with any other system; patient information was simply scanned into the electronic medical charts. The next step was finding a way to automate the transfer of patient demographic information—such as name, address, and Social Security number—from the practice management software to the medical record and billing system.

## Considered Microsoft-based Solution

In early 2005, Giles and the IT staff began looking at Microsoft BizTalk® Server 2004, part of Microsoft Windows Server System™ integrated server software, which can link business processes involving multiple applications. The IT group also looked at Microsoft BizTalk Accelerator for HL7, an enterprise application integration solution specifically for the healthcare industry. BizTalk Accelerator for HL7 provides prebuilt support for the HL7 data-interchange standard for healthcare organizations.

OHA looked at some other options that supported the HL7 standard but chose the BizTalk Accelerator for HL7. “We felt comfortable using a Microsoft solution,” says Giles. “It is very customizable, and Microsoft

had a much better implementation of HL7 than other vendors offered.” And OHA already used other Microsoft software, including the Microsoft Exchange Server 2003 communication and collaboration server, the Microsoft Office Outlook® 2003 messaging and collaboration client, and Microsoft Office Word 2003.

## Began Integration and Customization

In late March of 2005, the two developers began working on integrating BizTalk Server 2004 and BizTalk Accelerator for HL7 with the practice management system, the EHR application, and the billing system. The developers used SharePoint Portal Server 2003 to set up an intranet for the organization. In addition, they developed connections between Word 2003 and the SharePoint site. BizTalk Accelerator for HL7 also integrates Microsoft SQL Server™ 2005—which OHA uses for database storage—with the site.

“It is amazing what you can do with the Microsoft .NET development tools,” says Phil Bolenbaugh, Data Manager at Oncology Hematology Associates. “HL7 implementations generally require some customization, but it was easy for us to set up everything exactly as our doctors wanted.”

The IT staff at OHA had some of the integration in place by May 2005 and continued to develop the solution throughout the summer. An upgrade to Microsoft BizTalk Server 2006 was accomplished quickly due to its simplified setup and built-in support for upgrades.

By October 2005, the IT group brought the laboratory information system (LIS) into the mix so that demographic data is sent from the practice management software—where it was first entered—into the electronic health record (EHR) and LIS. LIS now automatically sends lab test results to the EHR application,

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and OHA can now exchange data with its external lab vendor. BizTalk Server works with Web services, a collection of Web protocol-based applications that use XML and SOAP to provide connectivity and interoperability between systems.

#### **Expanded the Solution**

Microsoft Office Live Communications Server 2005, also part of Windows Server System, was deployed to provide presence awareness for the physicians using the SharePoint site. Presence awareness lets them know when others are available to communicate, just as it does for Outlook 2003, which the clinicians use for e-mail communications.

As part of its transition to an electronic office, OHA provided physicians with the option to use a Tablet PC when they see patients, so they can quickly make notes that can be easily sent to the EHR application. And to work on applications remotely over a network connection, OHA physicians can use Terminal Services in the Microsoft Windows Server™ 2003 operating system to gain secure access from anywhere, at any time.

#### **Benefits**

With its BizTalk Server-based solution, Oncology Hematology Associates (OHA) not only enhanced its delivery of patient care, but also increased its revenue growth by 15–20 percent. OHA integrated business processes and improved collaboration among its practitioners and staff. Real-time data communications have improved data accuracy and provided the ability to serve more patients without increasing the number of employees.

#### **Increased Revenue Growth by 15–20 Percent**

By creating the EHR application and integrating its business processes, OHA saw its revenue growth increase by 15 to 20 percent in about 18 months, along with a

corresponding rise in patients. “This is faster than the employee growth rate,” says Bolenbaugh. “We were able to sustain this rapid growth without hiring more employees.” In fact, some employees have been redeployed to focus on other important work.

#### **Improved Business Processes and Reduced Paper by 70 Percent**

The ability to use Tablet PCs, terminals, and other computers to get real-time data has transformed many aspects of work at OHA for physicians, technicians, and other staff. Doctors have up-to-date information on each patient, and the organization has reduced its paper records by 70 percent. “The speed with which we have become a nearly paperless office by deploying Microsoft BizTalk Server 2006 and BizTalk Accelerator for HL7 is almost unbelievable,” says Giles.

#### **Saved More Than Two Hours on Each Fax Transmittal**

OHA now routinely receives faxes electronically that go directly into the EHR application. And for other medical institutions that rely on older technology, OHA can fax information to them from the EHR application. “In the past, when an outside physician would request a chart, we typically spent more than two hours taking the paper record apart and faxing the pages manually,” says Giles. “Now we can send the information electronically from within the EHR application or generate a PDF file of the entire chart and send it by e-mail or electronic fax in less than three minutes.”

#### **Enhanced Workflow and Collaboration**

Doctors and staff use the SharePoint site to share information about patients and to maintain a library of previous medical transcriptions. Security is provided by using Active Directory® directory service for authentication and secure sockets layer (SSL) encryption to ensure that employees can access only the areas that they are

specifically authorized to see. The security measures help OHA share information, while staying compliant with the privacy requirements for clinical information under the Health Insurance Portability and Accountability Act (HIPAA) of 1996.

Through a connection to the demographic database, appointment schedules can be downloaded to the system so that doctors can see which transcriptions are most current and make edits or approve them. Approved transcriptions are then converted into PDF files.

#### **Provided Advantages for Patients**

The integration of Word 2003 and the SharePoint site gives the transcriptionists access to a Word document of a patient's previous visit. Vital signs information—including blood pressure, temperature, and pulse—is stored in XML format and automatically inserted into the Word document. The potential for errors is reduced because transcriptionists do not have to type the data when making a new transcription.

"The automation provides more checks and balances for the patient," says Giles. "The most recent data is there to see. Unlike a paper chart, it can't get buried." Doctors can also view trends in lab data, so they can see immediately if something in the blood is changing or critical levels of an important factor are going up or down.

In every area, accurate, real-time data helps the physicians deliver care even more effectively. OHA patients have also expressed increased satisfaction with the way the healthcare provider is serving them.

#### **Simplified the Audit Process**

One of the unexpected benefits for OHA is the ease with which electronic records can be verified. "Last year an auditor from one of our health plans came in, and we set her up with

a computer in a conference room," says Giles. "She audited 20–25 charts in just a couple of hours and left quite satisfied."

#### **Created a Solution for Future Growth**

OHA is continually adding to and upgrading its integrated systems. Giles and Bolenbaugh say that they are currently working to add several real-time alerts to their system and expect to soon add the ability to fax prescriptions directly to pharmacists.

Also, they are exploring how they can use the BizTalk Server-based solution to tie into drug-infusion pumps in the chemotherapy area, where the precise chemical mixtures are prepared for each patient. With this link, they hope to automatically record the chemotherapy data in all the appropriate places. They also hope that they can soon bring the Microsoft Great Plains accounting modules into the integration to provide a complete end-to-end solution. "Our vision of a paperless office is nearly complete," says Giles.

## For More Information

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For more information about Oncology Hematology Associates of Southwest Indiana products and services, call (812) 471-1200 or visit the Web site at: [www.ohaev.com](http://www.ohaev.com)

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Document published March 2006

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