Japanese Regional Hospital Boosts Efficiency with Enhanced Data Integration

Overview

Country or Region: Japan
Industry: Healthcare

Customer Profile

Saiseikai Kumamoto Hospital provides low-cost medical care and coordinates public-health activities in Japan's Kumamoto region. The hospital specializes in internal medicine and acute-care services.

Business Situation

Hospital management wanted to implement a new IT infrastructure that would help boost efficiency through better integration of clinical, administrative, and financial data.

Solution

Saiseikai Kumamoto Hospital is implementing the Microsoft® Connected Health Framework to integrate its various IT systems and databases.

Benefits

- Data integration across multiple systems
- Reduced IT costs
- Fewer data errors
- Foundation for future growth

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> Ryonosuke Matsushita, Manager, Healthcare Information Systems Office, Saiseikai Kumamoto Hospital

Saiseikai Kumamoto Hospital is a major healthcare provider in southern Japan. To efficiently provide high-quality services while cooperating with other regional healthcare providers, the hospital uses IT to manage data and optimize operations. When it was time to upgrade to a fully integrated IT infrastructure, Saiseikai Kumamoto Hospital chose to implement the Microsoft® Connected Health Framework, driven by Microsoft BizTalk® Server 2006 R2. With the new infrastructure, the hospital's IT staff are able to better integrate clinical and administrative data from across the organization, while keeping acquisition and maintenance costs reasonable. As it moves into 2009, the hospital is using its new IT environment to strengthen business intelligence, encourage detailed information sharing, and adapt to industry standards.

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Situation

Saiseikai Kumamoto Hospital is a major healthcare provider in the Kumamoto region of southern Japan. The hospital provides advanced services to the region via the "center system," in which specialists in cardiology, neurology, and gastroenterology practice team-based healthcare. The hospital's occupational physicians provide basic examinations in its preventative-care center, and specialists provide follow-up care in the stroke center and cardiovascular center. The hospital also provides urgent care to the region with cardiology-dedicated ambulances and a 20-bed intensive care unit. In 2007, the hospital opened an outpatient cancer treatment center to further extend its reach in the community. As part of the Social Welfare Organization Saiseikai Imperial Gift Foundation Inc., the hospital has been serving the Kumamoto region since 1935.

Ryonosuke Matsushita, Manager of the Healthcare Information Systems Office at Saiseikai Kumamoto Hospital, explains the facility's operating philosophy: "Since moving operations to the current location, we have enhanced our facilities and our specialization in acute care. The hospital's motto is 'never refuse emergency care.' To maintain a system of accepting patients 24 hours a day, 365 days a year, it is essential that we operate efficiently. If all beds are full, this will interfere with our ability to smoothly accept emergency patients. Also, to provide more advanced medical care, we are actively incorporating the 'center system.'"

Behind these efforts is close integration with other regional healthcare organizations. "We are not a comprehensive medical facility, so we need to cooperate closely with other providers," says Matsushita. "For example, our recently-opened outpatient cancer treatment center was created to alleviate an important need in our region. We saw an opportunity to reduce the total medical cost burden by allowing inpatients and outpatients to receive expert treatment and consultation close to their homes."

Choosing a Flexible, Cost-Effective IT Environment

Providing cost-effective healthcare requires efficient operations and thoughtful purchasing decisions. Management at Saiseikai Kumamoto Hospital is focused on using IT to help boost efficiency, while always remaining conscious of expenses. Mr. Matsushita explains, "We have introduced several new IT systems in the past few years, such as an electronic medical-record system and an automated ordering system. However, we rarely purchase comprehensive out-of-box solutions. We are careful about what hardware and software components we purchase. By considering individual licensing costs, we can reduce useless spending and adopt the needed technology at a reasonable price."

After a broad search for new IT systems, the hospital narrowed its search to a Microsoft® application environment. "In determining which products to choose, we considered several IT solutions. However, most of those packages were too specialized for the healthcare industry," says Mr. Matsushita. "Our new infrastructure was to be used by human resources, accounting, clinical services, and other departments, so one of our requirements was that it should make use of cutting-edge technologies pertaining to all enterprises. Most of the technology solutions we considered were either too specialized, or could not be easily adapted to a hospital environment. We wanted to construct a versatile platform for the entire organization."

Hospital management was also attracted to Microsoft products because of the ease of license management via Microsoft Enterprise

Agreement , the reliability of the Windows Server® 2008 operating system, and the ability to provide smooth integration with applications in the 2007 Microsoft Office system. The IT staff also determined that Active Directory® Domain Services would be essential for identity and access management. With these considerations in mind, the hospital agreed to a Microsoft Enterprise Agreement in July 2007.

Solution

Saiseikai Kumamoto Hospital is implementing the Microsoft Connected Health Framework to integrate its various IT systems and databases. Technology applications include an internal portal for information sharing, electronic medical records and ordering systems, a medical examination system, and a picture archiving and communication system (PACS). The Connected Health Framework is an architectural approach to developing health information networks with common business and technical design definitions. It is providing Saiseikai Kumamoto Hospital with a blueprint for the seamless utilization of data using Microsoft server technologies and Microsoft Office applications.

Seeking Universal Data Integration

The Connected Health Framework uses Microsoft BizTalk® Server 2006 R2 as the primary engine for uniting the hospital's various mission-critical systems. "We wanted a structure that would be able to provide universal data integration. With conventional databases, a change in the software version often caused integration challenges, even among the same products. But, with BizTalk Server, the data is integrated without having to worry about this," says Mr. Matsushita.

To assist with the migration to the new system, Microsoft had more than 10,000 pages of English-language technical documents made available in Japanese

between February and August 2008, and an additional 10,000 pages of reference materials are being translated through June 2009. However, "because this was the first time developing a system with a Microsoft application platform, there were some difficulties," says Masahiko Sakaki, President of Next Care Systems, a long-standing partner who took part in the construction of the hospital's IT system. "Although there was extensive technical information available, there were no key points telling me how to create the system we needed, so I couldn't clearly visualize it."

Mr. Sakaki continues, "However, a workshop held by a member of Microsoft Consulting Services was extremely effective in clearing up our questions. Microsoft Consulting Services staff illustrated the key points using case studies, which was very productive. For us on the design side, we were able to broaden our technical understanding, and I think we strengthened our image in the eyes of the hospital staff who worked together with us."

The design of the new hospital IT system officially began in April 2008. Mr. Sakaki describes the process: "With regard to BizTalk Server, we are currently working on the integration among the electronic medical record, ordering, clinical examination, human resources, and accounting systems."

Benefits

Adopting the Connected Health Framework and deploying BizTalk Server is helping Saiseikai Kumamoto Hospital provide a more integrated and user-friendly IT environment for its staff, at a manageable cost. And while current operations are running more efficiently, management is planning to use its new technology to help the hospital more fully adopt industry operating standards.

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Ryonosuke Matsushita, Manager, Healthcare Information Systems Office, Saiseikai Kumamoto Hospital

Integrating Systems and Reducing Costs

"The system based on BizTalk Server has the highest cost effectiveness of any system we considered," says Mr. Matsushita. "The biggest question for us was system integration costs. By better matching the document information and providing an easy-to-learn environment for various vendors, the speed of development can be increased and system integration responsibilities can become more broadly shared."

According to Mr. Matsushita, using BizTalk Server to provide data integration without having to worry about the software version will also make it possible to enhance integration with other medical facilities in the region. "If the data was written to standard CSV [comma-separated values] files regardless of the database version and transferred to BizTalk Server, it limits the workload of the implementation vendor. In fact, there are cases where the estimated implementation costs have been reduced by 20 percent," says Mr. Matsushita.

Fewer Data Errors

Another anticipated benefit is the improvement in error handling. "In the original system, data migration and integration has been performed by IT staff at night, and in some cases errors were discovered the next morning, interfering with the use of the system," says Mr. Matsushita. "If BizTalk Server can update data automatically, errors are likely to be reduced. Also, using BizTalk Server can help us pinpoint the location of any data errors, and provide a structure for quick recovery such as sending e-mail notification when an error occurs."

Reliable Technical Support

The Connected Health Framework and BizTalk Server are creating anticipation for development of new IT systems, but just as important is the Microsoft support system. "In the past, there were multiple cases in which we were not able to support our hospital-based users because our contacts at foreign vendors ended up leaving their companies. But in the case of Microsoft, we don't expect this to occur," explains Mr. Matsushita. Adds Naohiro Tomokita, Department Manager Representative of the Fukuoka Branch Technical Department in the Sales Division of Softbank Technology Corporation, "Microsoft support is very courteous."

Looking Forward: Adapting to Industry Standards and Creating New Applications

Saiseikai Kumamoto Hospital is planning to use BizTalk Server to integrate data from PACS, which is based on Health Level Seven (HL7) industry standards, with the hospital's electronic medical record chart system, which is not compatible with HL7. "Adapting to HL7 standards is the right strategy for us," Mr. Matsushita explains. "In April 2007, we began operation of filmless PACS, which primarily uses still images. Our conventional imaging systems, such as video PACS for coronary angiography examinations and echocardiograms, use various types of media and diagnostic reports, and it is essential that we coordinate the data with our electronic chart system. With BizTalk Server, we can perform the data integration easily."

In addition to this task, the hospital is working on the following projects using the Microsoft licenses procured with a single Microsoft Enterprise Agreement:

- Saiseikai Kumamoto AiR (SKAiR), an internal portal using Microsoft Exchange Server 2007 and Microsoft Office SharePoint® Server 2007. The e-mail system began operation in November 2007, and the Web portal in April 2008.

- Electronic application system using Microsoft Office InfoPath® 2007, expected

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to begin in 2009.

Kenji Matsuo, Manager of the Systems Solutions Department at Bless Corporation responsible for the hospital's IT infrastructure construction, adds: "This is the first time we have constructed a system using Microsoft products, and it has been a rewarding experience. Personally, I believe the reliability of Windows Server 2008 has improved over previous versions of the product."

"Most of the content for SKAiR that had been in the works has already been released. But that is not all," says Mr. Matsushita. "There are also ongoing projects focusing the entire efforts of the hospital, such as outpatient heart surgery. Currently, even if we have an idea of the total number of procedures being performed, we cannot check the number of procedures by certain conditions, such as the number of outpatient heart surgeries. If we cannot make use of the results and other information of a project once it is finished, the project is a waste. In the future, we look forward to strengthening our business intelligence and encouraging more detailed information sharing."

Saiseikai Kumamoto Hospital has only just begun taking advantage of the Connected Health Framework, bringing HL7 compliance into view and enabling the integration of data from mission-critical systems to an information sharing portal. Using BizTalk Server and other Microsoft products, Saiseikai Kumamoto Hospital hopes to create a data integration system that will be viable 5 to 10 years in the future.

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For more information about Saiseikai Kumamoto Hospital, visit the Web site at:
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