Community Health and Counseling Services accelerates delivery of HIPAA-compliant medical software with EGL.

Overview

■ ***Challenge***
When the Maine Department of Health and Human Services (DHHS) instituted a behavioral health managed care system, Community Health and Counseling Services (CHCS) needed to rapidly develop managed care modules for its electronic medical record (EMR) system.

■ ***Solution***
CHCS used IBM Rational Enterprise Generation Language (EGL) to implement a Web-based prior authorization tracking system and establish a foundation for quickly responding to evolving regulatory demands.

■ ***Key Benefits***
In fewer than three months, a small CHCS development team completed its first system with EGL more than four months ahead of the state mandated deadline. By accelerating in-house software development, the company is now better able to respond to changing regulatory requirements in short time frames.

Community Health and Counseling Services (CHCS) is a private nonprofit community-based healthcare provider of home health and mental health services in mostly rural central, northern and eastern Maine. CHCS serves nearly 7,000 adults and children annually, including adults with severe and prolonged mental illnesses who need assistance in achieving and maintaining independence while living within their communities; children and families who are in need of intensive help in dealing with emotional and behavioral problems; and persons who are homebound with serious or terminal illnesses.

Recently, Maine's Department of Health and Human Services embarked on a behavioral health managed care system. The planned changes to the state's Medicaid program, MaineCare, required CHCS and healthcare providers throughout the state to comply with new procedures and regulations. Among the first of these changes to be mandated was a requirement to track prior authorization for patient visits.

CHCS needed to implement a prior authorization system and integrate it with an electronic medical record (EMR) system that CHCS would continue to develop as regulatory requirements evolved.

The need for an in-house solution
CHCS has been developing its own software for more than 20 years as a way to keep pace with rapidly changing needs. Valerie Levy, MIS manager at CHCS, explains, "In Maine, regulatory requirements can change quickly, and we are in an industry where traditionally there has not been a lot of software available at market. To be successful, we have relied on our development team to build our own solutions in-house."

The agency's location and rapidly changing needs make it difficult to find solutions from vendors. She adds, "We are a relatively small agency that operates in fairly remote areas in upstate Maine. It is difficult to get vendors to pay attention to us. At the same time, we often have to respond to changing regulatory requirements in a very short time frame. Building a solution with the talent we have in-house is better for us than getting in at the end of the line, waiting for a vendor to build one."

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From green screen and RPG to the Web and EGL

Although CHCS decided to keep development in-house, it was clear that a major change would still be needed. Because the new prior authorization tracking system would be used by clinicians as well as the agency's billing department, the system needed to have an efficient, easy-to-use, and intuitive user interface. CHCS wanted to implement a browser-based system using Web technology that would make it easy to add functionality over time. "Our clinicians are much more comfort-able and efficient with browser interfaces than with green screens, so we needed to develop a Web-based system from scratch that was easy-to-use and navigate," says Levy. "We have been an IBM shop since the 1970s. We rely on IBM® System i™, IBM DB2® and Remote Program Generator (RPG) language for their stability and security. We have created some browser interfaces using the IBM WebFacing [solution], and we wanted to build on that work and our expertise."

While the CHCS team included highly skilled RPG developers who had developed very sophisticated green-screen applications over the years, they lacked experience in Web-based development. It would have been impossible to meet their deadline if they had to learn Java™ coding before developing the application. Levy notes, "We have one system administrator and two developers, so our IT resources are already limited and we often face backlogs for programming requests. In this environment the learning curve for Java was daunting."

Looking for a way to accelerate development using Web technology while leveraging existing assets and expertise, CHCS found IBM Rational Enterprise Generation Language (EGL), a high-level programming language that enables business developers to implement applications quickly by focusing on the business problem instead of complex underlying technologies. "One of the most attractive aspects of EGL as an alternative to Java is the ability to learn it quickly and leverage our existing RPG business logic and DB2 databases on System i," says Levy. "We have very experienced programmer analysts that know RPG very well. With EGL, we are not going to lose that strength; we are going to complement it with the ability to deploy browser-based user interfaces. EGL plugs into the IBM WebSphere® Development Studio Client environment we were already using, and it offered us a way to rapidly develop true end-to-end Web-based applications without learning Java."

Getting a running start

Once CHCS had decided to use EGL, the agency's two principal developers, Mike Soucy and Frank Keith, attended an EGL conference sponsored by IBM to get a better understanding of what they could accomplish with EGL. They followed up this initial introduction with e-learning and one-on-one training sessions. Soucy, working together with an IBM Rational® software consultant, selected a simple pilot project, a request that had been pending in the MIS department's job queue for some time. "Mike was able to quickly implement a way to look up clients moving in and out of service. It was easy to do and it worked immediately. That gave us confidence moving forward with EGL to develop browser-based interfaces for the more complex parts of our EMR system," says Levy.

Levy continues, "We had heard that you can learn EGL in 30 days. At the same time, we know that when you are starting with new technology it is easy to get stuck on some small thing. With IBM Rational support we could always get an answer quickly, so we never lost momentum." Soucy agrees, "You can learn EGL very quickly, but we did it even faster with the excellent support we received from IBM."

Rapid results

Following the success of this pilot project, the CHCS developers began developing the prior authorization tracking system using EGL. The system accesses an IBM DB2 database that maintains demographic information about each patient as well as authorizations and the number of visits. After developing the business logic in EGL, the team used WebSphere Development Studio Client to automatically generate Java code for the application, which was then deployed to an IBM WebSphere Application Server. The two developers completed the application in about 10 weeks, well ahead of the state's deadline for compliance.

Levy was impressed by the pace of development. "Not long after he got started, Mike said, 'Do you want to see something?' I went into his office and there was the application, running. It went from us just talking about it to these functional, well-formatted screens. I was truly amazed." Soucy notes that without EGL, the development effort would have been significantly longer. "If we had to learn Java and [Java Platform, Enterprise Edition] first, it would have taken us forever," he says.

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In addition to accelerating development with automatic code generation, CHCS has streamlined user interface design using JavaServer Faces (JSF) technology. "Using JSF components enabled us to present a rich user interface for our users, including checkboxes, combo boxes and so on. Our clinicians can select a particular service, payer or provider in a way that is intuitive to anyone that is familiar with Web applications. EGL and JSF made it easy to put the combo box, for example, on a page and populate it using data from our DB2 database," says Soucy.

Ensuring HIPAA compliance

The CHCS EMR system, including the prior authorization module, must comply with Health Insurance Portability and Accountability Act (HIPAA) guidelines on patient privacy. IBM System i and EGL are helping the team to ensure these guidelines are met. "We rely on the security and logging of our System i servers to protect access to patient information," says Levy.

Soucy adds, "With EGL, whenever we update or write to a database, the operation is journaled. In the past we did not always do that consistently, but now we can use the journal to audit who has accessed the file. We have a complete record of who looked at or updated any record and when, which is essential for meeting HIPAA's audit of use requirements."

A foundation for future development

While the CHCS developers had seen firsthand how easy EGL was to learn and how it accelerated Web development, ultimately the success of the project depended on meeting the needs of business users. Levy reports that the reactions have been overwhelmingly positive. "We showed the application to our internal billing office and the credit and collections manager was stunned. He really loved it."

With EGL, CHCS is now better positioned to handle the evolving regulatory demands of MaineCare. "Our first application with EGL is just the beginning of a much larger application that will link prior authorizations, referrals, medication management, scheduling and utilization reviews. As we expand the application for EMR, we now feel confident about moving forward with EGL to develop its more complex components," Levy concludes.

For more information

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