Business overview

A division of the University of Miami’s Miller School of Medicine, the University of Miami Clinical Enterprise Technologies (UMCET) department designs, delivers, and supports a network of business and clinical information systems for the university’s medical facilities. Among these is the University of Miami Medical Group (UMMG), which provides healthcare services, research efforts, and education to a broad and diverse population through 19 clinical departments and more than 30 specialties.

UMCET systems provide support to clinically focused physicians and staff involved with patient care, research, and education. In addition, UMCET supports business customers who manage healthcare claims transactions to ensure that patient information is handled confidentially and efficiently for payment of healthcare services. “Our systems are meant to enhance the university’s academic and research vision while implementing significant improvements in the quality, safety, and success of the UM clinical enterprise,” said Elizabeth Rockowitz, UMCET executive director.

Challenges

In order to provide the highest quality patient care, physicians and other healthcare providers need quick, easy access to current and complete information about the patient’s medical history. While the majority of healthcare providers still rely primarily on paper records, a growing number are now putting significant resources behind the development of electronic medical record (EMR) systems. In fact, the US government has mandated that all hospitals transition to a shared EMR within the next ten years.

For all its potential to improve the quality and efficiency of healthcare, the concept of an EMR as a completely integrated, easy-to-access source of comprehensive patient information has been elusive for most healthcare providers. EMR implementation has proven especially difficult for institutions as large and decentralized as UMMG, whose sites are located throughout metropolitan Miami. “Even within the confines of our own hospital, we faced considerable challenges in standardizing the medical records used across each clinic,” said Rockowitz. “For example, we had many different versions of a patient consent form, all of which included the same basic information.”
UMMG’s previous attempts at implementing electronic health records have not been completely successful, with user acceptance being one of the primary roadblocks. “Practitioners are not going to use a system if it slows them down or makes their jobs more difficult,” said Rockowitz.

EMC solution

“Our experiences have shown that EMR implementation is a very difficult undertaking and one that is best done in small steps,” said Rockowitz. Therefore, UMCET chose to take an incremental approach towards a full-scale EMR by implementing CaneCare—a hybrid medical record system that provides UMMG physicians with an electronic patient chart that can be accessed from any location using a web browser.

At the heart of CaneCare is EMC® Documentum® ApplicationXtender® and its companion product, EMC DiskXtender®. Together, the products form an easy-to-use electronic solution for organizing, managing, and archiving all clinical documents, files, and other patient care information, with fast, security-controlled access to information through Microsoft Windows or web-based clients. The CaneCare User Interface was built using the ApplicationXtender Web Services API (ApplicationXtender Services) to provide web-based access to the clinical repository and to manage the clinical documentation while EMC DiskXtender archives the scanned images.

“We selected the EMC ApplicationXtender suite because it provided a complete document management platform from which to develop CaneCare,” said Oscar Perez, UMCET IT director. “The platform makes it easy to manage the different parts of our health record using different lookup tables and security models. We were also impressed with EMC’s sophisticated scanning functionality and tools for automatic importing of documents and extraction of data elements from the documents.”

Added Martin Hadida, CaneCare’s lead software developer, “I have always considered EMC to be a strong leader in the document management industry. Their tools have been easy to customize and extend to suit a variety of different needs. As a software developer, I also appreciate how EMC has kept up with emerging technologies such as Web Services.”

An integrated, comprehensive record of patient care

The CaneCare system is an example of an emerging trend in next generation software, called composite applications, which are custom built in-house by leveraging existing mission-critical systems. ApplicationXtender receives patient data from a wide range of sources and in a wide range of formats, including data from UMMG’s registration system, scanned paper forms, and Microsoft Word documents such as progress notes from the hospital transcription system.

“Such integration is paramount at today’s hospitals in which practitioners employ best-of-breed applications for each specialization, and yet they demand one system where all this information is aggregated and presented in a simple fashion,” said Perez. “We made use of standards such as HL7 and Web Services to integrate these specialized applications into CaneCare.”
When a patient visits a UMMG hospital or clinic, data from the patient’s paper chart is scanned, indexed, and appended to his or her electronic chart within 24 hours. At the same time, CaneCare archives patient data from other UMCET applications such as the transcription system and those supporting ancillary departments such as lab and radiology. UM care providers have on-line access to this information on a secured, “need-to-know” basis to help protect patient privacy. The system employs sophisticated checks and balances to guarantee the accuracy of the data and improve patient safety.

To address the inconsistencies in medical forms used by different clinics throughout the UMMG network, UMCET developed policies and procedures to standardize the process of creating and approving a form for CaneCare. Now, clinicians and administrators can access a single website to locate the standardized forms, print them, or order them in bulk.

**Widespread acceptance through ease of use**

Unlike traditional software systems that practitioners resist using because they inevitably slow them down, CaneCare has been very well-received due to its ease-of-use and functionality that is in high demand. “By building the application ourselves, we were able to create a highly customized user experience. We strived to let our practitioners drive the design of the CaneCare application from very early on in the project,” said Rockowitz. “The result is a system that caters to the clinicians’ specific needs and is intuitively easy for them to learn and use.”

By having ApplicationXtender Web Services API installed, UMCET IT was able to implement a highly-customized user interface with, for example, advanced sorting and filtering functionality. This functionality allows doctors to quickly and easily gather data about their patients, such as previous treatments they have received and where the treatments were given. Doctors can also set up custom filters, automatically saved as user preferences, to enable them to instantly find the documents that are most applicable to their specialty.

“We needed a partner that would be able to react quickly to our needs, and EMC delivered! EMC provided a stable and reliable platform on which we could deliver a customized solution for our physician community that would fit well within their process flows.”

Oscar Perez, IT Director

“The many advantages that CaneCare brings to the practice have resulted in a substantial increase in the number of physicians using the system compared to our previous solutions,” said Rockowitz. “This is a giant win for today’s medical industry, in which there is considerable resistance to change on the part of practitioners.”

**Leveraging the Web for ease of implementation and universal access**

Since ApplicationXtender is a web-based product built on Java technology and easily deployed with Java Web Start, UMCET was able to simply implement CaneCare using in-house resources. New functionality as well as application updates can be rolled out much more quickly than traditional vendor-driven software. “Since our first go-live only 18 months ago, we’ve been able to release seven new updates of the CaneCare system. This means we’re able to fix patient safety issues quickly, which helps us satisfy our compliance office,” Perez said. “An added benefit to the web-based nature of the system is that our users can run CaneCare on their Windows or Apple computers at work or at home, without the need to install additional software.”
Summary

Based on EMC ApplicationXtender and DiskXtender, CaneCare has enabled UMCET to make significant progress towards achieving a fully-realized electronic medical record for the hospitals, clinics, and other facilities that make up the University of Miami Medical Group. The success of CaneCare has paved the way for other hospitals and clinics to follow suit, and plans are in place to extend the system to other teaching hospitals in Florida. “Our long-term goal is to create a common patient record across the major health institutions in the State of Florida by sharing our experience and our tools with other sites,” said Rockowitz. “The EMC solution has helped us transition to a full EMR at a gradual pace, allowing sufficient time to tackle the inherent challenges with due diligence.”

“We needed a partner that would be able to react quickly to our needs, and EMC delivered! EMC provided a stable and reliable platform on which we could deliver a customized solution for our physician community that would fit well within their workflows,” added Perez.

About EMC

EMC Corporation is the world's leading developer and provider of information infrastructure technology and solutions. We help organizations of every size around the world keep their most essential digital information protected, secure, and continuously available. We are among the 10 most valuable IT product companies in the world. We are driven to perform, to partner, to execute. We go about our jobs with a passion for delivering results that exceed our customers' expectations for quality, service, innovation, and interaction. We pride ourselves on doing what's right and on putting our customers' best interests first. We lead change and change to lead. We are devoted to advancing our people, customers, industry, and community. We say what we mean and do what we say. We are EMC, where information lives.