

# KODAK DIRECTVIEW PACS

## Rural Hospital Joins the Big Leagues with the Power of a KODAK PACS/Enterprise Information Management (EIM) Solution

The power of PACS brings small and mid-size hospitals onto the same playing field with larger facilities. Just ask the staff at Rochelle Community Hospital in Rochelle, Illinois.

This 54-bed hospital implemented PACS because it wanted to offer rapid interpretation of exams—especially in urgent cases—despite the fact that a radiologist is on-site for just 12 hours a week.

Today, Rochelle Community Hospital captures digital general radiology images with Kodak DirectView CR 850 computed radiography systems, and manages and stores images with a Kodak DirectView PACS system 5 platform. Images are transmitted to radiologists located 30 miles away via a virtual private network (VPN), which facilitates rapid delivery and interpretation of exams while eliminating the need for a dedicated teleradiology system or a film courier service. This solution also enables the hospital to provide around-the-clock access to radiology reports and imaging studies for referring physicians.

In addition, the hospital employs a Kodak Carestream enterprise information management (EIM) solution to achieve disaster recovery by mirroring all data from its PACS, HIS/RIS, and other patient care systems on an off-site archive.

The new digital imaging system will save \$220,000 in its first year of operation. The hospital eliminated the need for a new film processor, as well as the purchase of film, chemicals, and other consumables. There are also savings on the IT side since the hospital is able to use the EIM server



*Rochelle Community Hospital, Rochelle, Illinois*

as an archive for information *and* images. This avoids the need to purchase and maintain separate remote archives.

During an 18-month evaluation, the hospital narrowed its PACS vendor list to two candidates and selected Kodak because of the functionality, flexibility, and ease of use of its PACS platform, its powerful suite of Web-based administration tools, and the company's reputation for providing exceptional service.

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*Scott Stewart, information services manager*

"We wanted a fully featured PACS that could easily be expanded to meet future needs. But we were equally concerned with ease of use for our radiology users and IT staff, in addition to prompt, reliable service. We selected Kodak as our PACS vendor because they came out on top in all of our primary areas," said Scott Stewart, the hospital's information services manager.

## Leading-edge PACS configuration

Rochelle's PACS solution is leading-edge technology. The hospital has a storage area network (SAN) that is partitioned to provide archive storage for PACS, HIS/RIS, and other information systems. The hospital uses a Kodak Carestream enterprise information management (EIM) solution to write PACS information to the local SAN and send a copy, within 10 seconds, to a SAN at the hospital's off-site facility via fiber TCP/IP connection. The RAID systems provide the hospital with real-time access to information stored at both locations. Information is also written to tape within one hour for long-term storage.

The Kodak Carestream information management solutions portfolio, which includes EIM, can accommodate both DICOM and other information distributed across multiple sites, storage platforms, and architectures associated with clinical and back office systems. This portfolio is powered by Kodak's VIParchive platform that virtualizes storage and supports automatic, intelligent information lifecycle management. It enables healthcare providers to add new storage technologies or devices at any time, and to implement centralized storage with a single database.

"Kodak's EIM solution keeps the two SANs synchronized, with the off-site system being an on-line mirror of the original data. In addition to managing PACS information, EIM also manages off-site storage for our pharmacy and AS/400 mainframe applications," notes Stewart. "The ability to store and manage DICOM images along with HL-7 and other files was one of the competitive advantages of Kodak's archive solution."

HIS/RIS information is also being duplicated using a MIMIX DR1 system over the same communications line.



*Debbie Kersten, RTRM, radiology manager*

Stewart added that the facility will task its EIM solution with managing other Windows-based applications in the near future. "The system is brilliantly simple. We can add new applications by simply setting up the remote RAID as a drive letter and inserting an automatic instruction to send selected data, for example from our pharmacy system, to it."

The flexibility of Kodak's EIM solution addressed many of Stewart's original concerns. "It makes sense to establish centralized management of data, especially for off-site disaster recovery. This system marries ease of use with the ultimate in flexibility."

Prior to installation, Stewart attended a PACS administration class offered by Kodak that delved into the inner workings of the system. "I was very impressed by the level of detail presented. Now that I understand the platform's design, I have added confidence in its performance."

## Improved patient care through enhanced efficiencies

At Rochelle Community Hospital, PACS improves patient care by enabling all imaging studies to be read by remote radiologists in just a few minutes, notes radiology manager Debbie Kersten, RTRM. The hospital transmits imaging studies over a secure, high-quality VPN to radiologists in Rockford, Illinois, 30 miles away.

Transmitting images from the PACS enables Rochelle to take advantage of the 24/7 service provided by the radiology group and enables shorter hospital stays for some patients, notes Kersten. "Some patients can now be discharged over the weekend because on-call radiologists can read exams and report that information to physicians. We don't have to wait until Monday for a radiologist to come on-site."

In the past, radiologists were only on-site for three-day shifts during the week. Since there was no on-site coverage during the weekend, those exams had to wait until the radiologist reported for work on Monday. The hospital's teleradiology system was also limited to selected modalities. All general



*Debbie Kersten and Scott Stewart demonstrate the close partnership between radiology and IT critical for a successful implementation.*

radiology exams conducted on film were read by on-site physicians and then couriered to radiologists for a confirmed diagnosis and report.

Pertinent prior exams are digitized and sent with the imaging study. "If we have a patient coming in with a chest complaint and we have a prior film-based chest exam, we will digitize the exam and send it to the radiologist so that he or she can easily compare the current and prior exams when making the diagnosis," says Kersten.

## Image quality improvements lead to reduced retakes

Digital image capture also plays an important role at the hospital. Two Kodak CR 850 systems capture Rochelle Community Hospital's general radiology exams. Kersten reports that the image quality of general radiology exams is improved with the use of Kodak CR systems, and that repeat exams are virtually eliminated.

She reports that her department purchased CR 850 systems because of their ease of use, widespread reputation for reliability, and their speed. "Kodak CR 850 systems are very reliable and easy to use, and its rapid processing speed enables our technologists to return quickly to care for very ill or injured patients."

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The CR 850 is the fastest single-cassette CR system on the market and processes up to 104 cassettes an hour.

Many of the hospital's referring physicians are reviewing radiology reports and imaging exams using the hospital's Web-based interface. The hospital also outputs imaging studies to CDs. A few neurologists and orthopaedic surgeons still request film, which is reliably produced with a Kodak DryView laser imaging system.

## PACS plays unique role in smaller hospitals

PACS plays a unique role in smaller hospitals that have limited access to dedicated, on-site radiology services. In facilities like Rochelle Community Hospital, converting to a complete digital imaging solution enables radiologists to review imaging studies and communicate a diagnosis in minutes—at any time of the day or night. Patients benefit from rapid diagnosis and treatment, while referring physicians appreciate the flexibility to receive images and reports via the Internet or CD.

In addition, hospital staff experience significant gains in productivity and morale as automated, electronic processes replace the filing, copying, transportation, and re-filing of film exams. The problem of lost films is also eliminated.

The IT staff gains the ability to implement convenient and efficient enterprise-wide storage management for imaging studies and reports as well as a variety of records stored in other hospital systems. These versatile storage management tools can also be applied to satisfy HIPAA regulations for off-site disaster recovery.

Initially digital imaging solutions were viewed as a way to introduce greater efficiency and productivity at larger facilities. Today, PACS is being employed by small to mid-size hospitals or those in rural areas to address the need for responsive radiology services—even when a radiologist is rarely present at the facility.



*Tim Eckerd, COO, CFO, vice president of finance*

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