



## MINNESOTA



### SUCCESS STORY

On-demand PACS saves time and money, and boosts the bottom line at Boynton Health Service.

Cost-effective solution providing pay-as-you-go pricing—no large up-front capital or ongoing maintenance costs.

X-Connect™ interface engine integrated to existing EMR to electronically send orders and receive radiology reports.

Turnkey PACS service including clinical project manager and team for implementation, integration and PACS administration.

Traded manual, time-consuming processes for efficiency and productivity gains through automated workflows.

Web viewer delivers high 2D/3D image quality with anytime, anywhere access.

Built-in backup, disaster recovery and HIPAA compliance.

## University of Minnesota Boynton Health Service



### On-demand PACS Completes Digital Strategy

*Student clinic goes digital to cut costs 30% and automate workflows while improving quality of care*

Good health is essential for long-term academic, occupational, and personal success. Creating a healthy community by working with students, faculty and staff of the University of Minnesota to achieve physical, emotional and social well-being is the mission of Boynton Health Service. The clinic takes pride in meeting the health care needs of the University community with compassion and professionalism.

Located next to downtown Minneapolis, the clinic has provided medical care, health education, and public health services to the University for more than 90 years. Logging more than 100,000 patient visits each year, the clinic provides services including general medicine, urgent care, mental health, immunization and allergy, physical therapy, nutrition, massage therapy, dental, gynecology, internal medicine and optometry. There is also a lab, X-ray and pharmacy on site.

## BOYNTON HEALTH SERVICE FAST FACTS

University of Minnesota  
Boynton Health Service  
410 Church Street SE  
Minneapolis, MN 55455

[www.bhs.umn.edu](http://www.bhs.umn.edu)

Number of locations: 2  
Physicians: 16  
Certified Nurse Practitioners: 5  
Physician Assistants: 6  
Employees: 346

Patient Visits per Year: 100,000+  
Undergraduate Students: 40,572  
Graduate, Professional and  
Other Students: 25,527

City of Minneapolis: 382,618  
Hennepin County: 1,140,988

### IMAGING MODALITIES

- 2 CRs (digital X-ray)

### IMAGING VOLUMES:

- 3,200 studies per year
- 267 studies per month

## THE CHALLENGE

Boynton Health Service had been planning to go digital for years, and implemented the plan in mid-2008 with the purchase of two digital X-ray (CR) units from Konica. At the time, the Konica sales executive recommended 7 Medical's picture archiving and communication system (PACS) to complete the clinic's digital strategy.

As a midsize clinic, Boynton Health Service needed to manage several critical factors:

- System costs, ongoing annual maintenance and upgrades
- Switching from manual to automated workflows
- Implementation, integration and PACS administration
- Integration to an existing electronic medical records (EMR) system
- On-site and remote viewing and reading of images

## THE SOLUTION

**On-demand Cuts Costs Immediately.** Boynton Health Service was purchasing two Konica CRs and had a limited budget remaining for the PACS. 7 Medical's Xi-Imaging™ PACS solution is based on a Software-as-a-Service (SaaS) business model. The on-demand model made it possible for Boynton to pay a low monthly fee for the PACS service based on the number of studies it uses each month. Budget was less of a factor because the cost of the PACS service was half the cost of film, chemicals and related materials—and there were no upfront or ongoing capital expenses.

“We didn't know about on-demand and what 7 Medical had to offer. We thought we would have to buy our own PACS, or lease space from another facility. We didn't know there was a company out there that could take care of the entire PACS service for us,” said Ann Bohl, Radiology Manager of Boynton Health Service.

With 7 Medical's on-demand PACS, all service, 24/7 support, technology upgrades, maintenance and updates are included in the monthly fee for the life of the contract. Costs are predictable, and Boynton Health Service no longer worries about pricey fees for annual maintenance, upgrades or updates. By managing and containing costs, the clinic was able to positively affect its bottom line.

**Automated Workflows Key to Efficiency.** Prior to PACS, Boynton Health Service had an existing NextGen EMR system, but all radiology workflow was still manual and paper-based. Radiology orders were printed out on paper, X-rays were developed on film using

chemicals in a dark room and brought to the ordering provider. Later, the X-rays were gathered by radiology staff and hand delivered to a radiologist for interpretation. The radiologist dictated his findings and a transcriptionist typed the reports. The process was manual, time-consuming and it could take days to get the finalized results into the EMR.

“Workflow is where 7 Medical really shined. Their PACS service automated every step of our workflow, making it faster and easier to do everything. Through a collaborative effort between Boynton’s MIS department and 7 Medical, we even integrated the PACS to our EMR. Besides sending patient and order information electronically to the PACS, we can launch the Web viewer and access the PACS right from our EMR. That is a huge advantage for the physicians and staff. The images can be read immediately instead of waiting until the providers are done and we have picked them up,” said Bohl.

**Electronic Routing of Patient and Order Information.** Boynton Health Service chose to integrate the PACS service to its existing EMR. Doing so allowed them to send information electronically from the EMR to the PACS through the X-Connect interface engine. The EMR sends HL7 messages carrying patient demographic information (ADT messages) and order information (ORM messages). The interface engine receives and translates these HL7 messages to DICOM and sends the messages to the DICOM modality worklist (DMWL) on the two CRs.

**DICOM Modality Worklist (DMWL).** Orders sent electronically from the EMR to the X-Connect interface engine show up on the DICOM modality worklist on the CR workstations at the modalities. X-ray technologists select orders from the worklist and perform the patient exams. The X-ray images are captured on CR cassettes, which are then placed into CR readers to be digitized. Digital image files are routed from the CR to the Xi-Gateway™ server installed on site.

**Intelligent PACS Gateway Server.** The Xi-Gateway is the “smarts” of the system, providing intelligence and rules for the routing and management of patient images to radiologists for reading. Images are stored temporarily on the gateway, which can be configured to hold images for as long as required.

**PACS Archive and Disaster Recovery.** The Xi-Gateway also routes a copy of each image to the PACS archive in 7 Medical’s secure, off-site data center for long-term storage. The robust PACS archive allows users to search and retrieve images anytime. Images are also routed to a secondary data center to ensure redundancy.

---

*“We didn’t know about on-demand and what 7 Medical had to offer. We thought we would have to buy our own PACS, or lease space from another facility. We didn’t know there was a company out there that could take care of the entire PACS system and service for us.”*

Ann Bohl, Radiology Manager  
Boynton Health Service  
University of Minnesota

---

*“Workflow is where 7 Medical really shined. Their PACS service automated every step of our workflow, making it faster and easier to do everything. Through a collaborative effort between Boynton’s MIS department and 7 Medical we even integrated the PACS to our EMR. Besides sending patient and order information electronically to the PACS, we can launch the Web viewer and access the PACS right from our EMR. That is a huge advantage for the physicians and staff,” said Bohl.*

---

**Anytime, Anywhere Web Viewing.** Xi-View™ allows physicians, radiologists and staff to securely view patient images in 2D/3D high resolution over the Web from any computer anywhere with Internet access—from the clinic, at home or any other remote location.

“Providers are pleased with the fast in-clinic time for obtaining and viewing images. Often the image is back on my task list even before the patient has time to walk back to my exam room. The images are accessible from our EMR, and we are able to magnify, alter contrast, and reverse images as we evaluate them initially,” said Dr. Deborah Sandberg, Medical Director at Boynton Health Service.

**Electronic Radiology Reports.** Radiologists can read images on-site or off-site. After dictating their findings, a transcriptionist types the reports in electronic format. Reports are then routed by the X-Connect interface engine back to be stored in the patient record in the EMR. “We have a contract with a local radiology group for reading the films, and the Xi-Imaging PACS allows for rapid turnaround of reports,” said Dr. Sandberg.

**CD/DVD Importing and Burning.** Before, opening prior images from CD was hit or miss. 7 Medical’s on-demand PACS solution automatically comes with CD/DVD importing and burning functionality. The built-in viewer allows physicians and staff to easily open and view images on CD/DVD. Likewise, it’s easy to burn images onto CD/DVD so patients can take with them to referring physicians.

## THE OUTCOME: More PACS for Less

Boynton Health Service was able to complete its digital strategy with a full-service PACS solution at half the cost. The clinic went completely filmless in January 2009. The 7 Medical PACS is integrated to two Konica CRs, supports more than 250 studies each month, and is easily scalable for growth. The physicians,

radiologists and referring providers enjoy anytime, anywhere access to viewing patient images online. More important, the clinic has traded in manual, time-consuming processes for automated workflows that save time and money.

“After we found 7 Medical, it just made sense. It was the best solution for us because the PACS service came with 24/7 service and support. 7 Medical provided the implementation, integration and PACS administration. We did not have the resources internally to do this. Their project team was available, friendly, and very easy to work with,” said Bohl.

Bohl continued, “We couldn’t believe how affordable it was. In fact, 7 Medical’s price per study model made the cost of the PACS service perfect for our budget. After implementation, their service and support has been invaluable as we acclimate to our new workflow.

Feature/Functionality	Before PACS (film)	Xi-Imaging PACS
Imaging costs	Hard costs for film, chemicals, jackets, courier	Costs cut by 30%
Workflows	Manual, time-consuming	Automated, fast
Orders	Manually printed	Electronic (EMR)
Integration to EMR	No	Yes
DICOM Modality Worklist	No	Yes
Electronic image routing	No	Yes
Off-site Archive	No	Yes
Scalable for growth	Varies, difficult	Easy, unlimited storage
Web viewing of images	No	High, 2D/3D Anytime, anywhere
Radiology reports routed electronically	No, slow turnaround time, 4-8 hours	Yes, back to EMR within minutes/hours
Built-in disaster recovery	No	Yes
Built-in HIPAA compliance	No	Yes

To learn more about 7 Medical’s on-demand PACS service, call us today.

800.440.7119 | [info@7medical.com](mailto:info@7medical.com) | [www.7medical.com](http://www.7medical.com)