



## MINNESOTA

### SUCCESS STORY

Glacial Ridge Health System adopted digital imaging and reduced costs by 50%.

Integrated PACS to Healthland HIS, sending electronic orders to the DICOM Modality Worklist (DMWL) to eliminate data entry errors.

Eliminated all film, chemical, courier, and other related costs.

Images automatically routed to reading radiologist. Reports turned around in hours instead of a days.

Streaming Web viewer allows ordering physician to display images and offer immediate diagnosis to patients. Online Web & mobile viewer available 24/7.

New digitizer, document scanner and CD/DVD burner automated and improved workflows.

Enabled ER personnel to respond faster to emergency patients.

All technology upgrades and updates, backup and disaster recovery, and HIPAA compliance included at no additional cost.

## Glacial Ridge Health System



### On-Demand PACS Reduces Costs by 50%

#### *PACS Adoption Results in Revolutionary Cost Savings for Rural Healthcare Facility; Integration to CPSI HIS Key to Success*

Glacial Ridge Health System (GRHS) is a rural, critical access hospital (CAH) located in Glenwood, Minnesota. Committed to providing high quality services, enhancing the quality of life and promoting healthy lifestyles for patients, clients, employees, and communities, Glacial Ridge delivers services including general medical and surgical care, obstetrics, and cardiac intensive care, and plays host to a trauma center, emergency department, and health education program.

Located in Pope County, the 19-bed hospital and satellite office serve more than 4,300 residents in the Glacial Ridge Hospital District, including Grove Lake, Chippewa Falls, Gilchrist, Glenwood, Lake Johanna, Reno, Bangor, Westport, and Leven, and the individual cities of Brooten, Glenwood, Villard, Westport, Long Beach, and Sedan. Glacial Ridge employs more than 200 people.

## GLACIAL RIDGE FAST FACTS

Glacial Ridge Health System  
10 Fourth Avenue SE  
Glenwood, MN 56334

[www.glacialridge.org](http://www.glacialridge.org)

Number of locations: 2  
Number of hospital beds: 19  
Physicians: 9  
Nurse Practitioners: 3  
Employees: 200

City of Glenwood: 2,532 residents

Glacial Ridge Hospital District:  
4,300 residents

County of Pope: 11,065

### IMAGING MODALITIES, ONSITE

- 2 CRs (digital X-ray)
- CAT scan
- Ultrasound
- Mammography

### IMAGING MODALITIES, MOBILE

- Nuclear Medicine
- MRI

### IMAGING VOLUMES:

- 6,600 studies per year
- 550 studies per month

## THE CHALLENGE

Glacial Ridge was upgrading its analog X-ray machines to digital capabilities with two new computed radiography (CR) units. As a part of its digital strategy, the hospital wanted to move from film to a picture archiving and communication system (PACS).

GRHS weighed the costs and benefits of purchasing and maintaining a PACS system in-house against subscribing to a PACS service. The key criteria included costs, integration to its existing hospital information system (HIS), turnaround time on radiology reports, ease of use and training for physicians and staff, improved workflows, and bandwidth. Glacial Ridge also faced a tight adoption timeline for the new system.

“We were all for PACS and going filmless, but getting there was a challenge. We had lived in an analog world for so long. There was so much to consider, and fear of change made us guarded,” said Jean Mattson, Radiology Manager of GRHS. “7 Medical delivered the Xi-Imaging™ Suite that achieved our goals and saved us money. Timing was tight, and our 7 Medical project manager kept the project moving to ensure on-time completion.”

## THE SOLUTION

7 Medical’s Xi-Imaging Suite offers hospitals and clinics across the nation an innovative way to take advantage of the same technologies traditionally available only to large hospitals with big budgets. Its on-demand, or Software-as-a-Service (SaaS), business model removes barriers to entry such as budget constraints and lack of clinical and technical expertise.

“7 Medical’s Xi-Imaging on-demand PACS was different than anything we had ever heard of,” said Mattson. “We didn’t know you could buy PACS as a service where you paid only for the number of imaging studies you used every month. Eliminating that huge upfront capital investment made it possible for us to have a PACS service at a monthly fee we can afford. And all the technology upgrades are included, so we don’t have to worry about getting hit with maintenance and upgrade fees after the first year. That was huge.”

GRHS adopted a turnkey PACS system without incurring costs. Critical to the project was integration of the PACS to the existing Healthland HIS (formerly Dairlyland), further automating orders and workflow and increasing efficiency.

States Mattson, “We were able to dramatically reduce costs by 50 percent over film. 7 Medical managed everything for us, and even worked with our HIS provider and

CR vendor for integration. Their expertise and support during and since roll-out has been exceptional. Training for our physicians and staff made the transition less painful than anticipated. We wish we had done it sooner.”

## **PACS AS A SERVICE**

With 7 Medical, healthcare facilities purchase PACS as a service, similar to how consumers buy Internet, cable TV or cell phone services at home. As a turnkey PACS service, 7 Medical provided everything GRHS needed including hardware, software, integration, service and support for the PACS—no upfront or ongoing capital expenses involved for hardware and software. Instead, GRHS pays an affordable monthly fee to use the PACS service, while retaining ownership of all of their data.

7 Medical’s solution includes a PACS clinical project manager to manage every step of the process, from workflow and project planning to installation, integration and testing—not to mention comprehensive training on how to use the PACS system for physicians and clinical staff. The on-demand PACS service is backed by 24/7 service and support, so 7 Medical’s clinical and IT staff are on call to respond around the clock.

## **AUTOMATED WORKFLOWS: Everyone Wins**

Prior to PACS, imaging orders were entered into the HIS and patients presented the orders to radiology for their examinations. In radiology, patient and order information were re-entered into the HIS. Exams were taken and processed with chemicals in a dark room. Films were placed in jackets and labeled, then given, along with priors, to the reading radiologist who worked onsite one day a week. Films were couriered to the radiologist daily during his four days offsite. The radiologist dictated and a transcriptionist typed the reports. Reports along with current and prior films were hand-delivered to referring physicians. Turnaround time under this manual process was three days.

To automate order entry, 7 Medical integrated the PACS to the Healthland HIS using the X-Connect™, an interface engine that integrates the PACS to any HIS, RIS or EMR. The interface engine receives patient (ADT) and order (ORM) messages from the HIS, translates that information from HL7 to DICOM format, and routes it to the DICOM modality worklist (DMWL). After completion, order status (ORU) messages are sent from the PACS, translated from DICOM to HL7 and routed to the HIS to close out the order.

With 7 Medical’s PACS and interface engine, Glacial Ridge traded in manual steps and processes for more efficient automated workflows. “The ability to send orders electronically and have them populated in the worklist at the modality significantly

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Jean Mattson  
Radiology Manager, GRHS

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*“The PACS system is easy to use and the service we receive from 7 Medical has exceeded expectations. We have peace of mind knowing our costs are predictable and that there are no surprises coming down the line,” said Mattson.*

cut down on data entry errors,” said Mattson. Images from all modalities are routed to the Xi-Gateway™, a server installed onsite and managed by 7 Medical. This server is the brains of the PACS system, providing intelligent rules for routing, storage, and retrieval of images to and from the PACS and HIS, reading radiologists, and referring physicians.

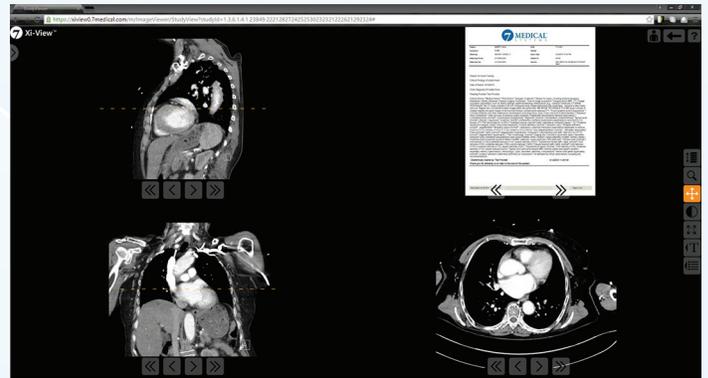
The Xi-Gateway also routes copies of images to 7 Medical’s secure, redundant data center for long-term storage, so GRHS benefits from built-in backup and disaster recovery protection. Images can be quickly and easily recovered in the case of a natural disaster like a fire or flood. The PACS also handles patient health information (PHI) in a secure manner to ensure HIPAA compliance.

Glacial Ridge also purchased a digitizer, a document scanner and CD/DVD burning. The digitizer scans films and converts those scans to digital format to be sent and stored in the PACS. A document scanner scans reports and attaches these documents to the appropriate images in the PACS. CD/DVD importing allows prior images to be opened, viewed and sent to the PACS. In turn, all images in the PACS can be burned to CD/DVD with a built-in viewer.

Glacial Ridge’s PACS service and Web viewing is also powered by a high-speed T1 connection through 7 Medical’s bandwidth partner, Zayo Enterprise Networks. Zayo is a local service provider with an MPLS private data network for voice, video, data and collocation services to rural healthcare facilities throughout Minnesota.

## THE OUTCOME: Peace of Mind

Filmless since April 2008, the on-demand PACS at GRHS supports six modalities including two CRs, CT, ultrasound, and mobile MRI and nuclear medicine. More than 75 doctors, nurses, referring



The Xi-View™ Web viewer allows physicians, nurses and staff to view patient images and reports online—anywhere, anytime.

physicians and staff are currently using the PACS and Xi-View Web viewer. “Radiology reports are turned around quicker than we ever imagined. Our doctors and referring physicians like using the Web viewer to view images and reports online,” said Mattson. “Patients like being able to see their images immediately after they’re taken, especially in the ER,” said Dr. D. Eric Westberg. “We can show patients their images in the exam room, and they can take images on CD with them to referring physicians. Very impressive.”

GRHS achieved their goals with a PACS service they can afford and that can grow with them—not to mention that is integrated to their HIS. An added bonus, the system has built-in disaster recovery protection and HIPAA compliance. Mattson adds, “The PACS system is easy to use and the service we receive from 7 Medical has exceeded expectations. We have peace of mind knowing our costs are predictable and that there are no surprises down the line.”

**To learn more about Xi-Imaging PACS, call us today.**  
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7 Medical Partner:

