Providence Health System

From Zero to Filmless

Facts and Figures

Saint Joseph Medical Center
427 licensed beds
138,000 radiology studies per year

Holy Cross Medical Center
251 licensed beds
101,000 radiology studies per year

"Go Live" Date: March 2003

Clinicians: 600+

PCs: 1,600 desktops

Storage: Fibre Channel RAID,
7 years on-site

Modalities: CT, MR, CR, XA, US,
NM, Echocardiology

RIS: Cerner ADAC MARS

Issues

Providence required an image and
information management system to
address productivity, efficiency, cost,
and competitive challenges.

Solution

Providence implemented
Philips' iSite PACS across
their two-hospital network.

Impact

Immediate diagnostic-quality
images across the network

85% reduction in film usage

76% reduction in film costs

100% mobile MRI elimination

Increased productivity
across all departments

Improved overall patient care
and increased referrals

Customer Profile

Located just north of Los Angeles, Providence Saint Joseph Medical Center and Providence Holy Cross Medical Center are two of San Fernando Valley's largest and most respected hospitals with full lines of acute inpatient and outpatient care. Their physicians, nurses, and medical staff are committed to treating patients with the most advanced medical technology available. Providence Centers of Healing include: Heart and Vascular, Women's Services, Cancer, Neuroscience, Orthopedics, Trauma, Urgent and Emergency Care, Surgery, Digestive Disorders, and Occupational Health.

Providence Saint Joseph Medical Center is the larger hospital of the two with 427 beds. Founded in 1943 by the Sisters of Providence Health System, Providence Saint Joseph is known for its use of state-of-the-art technology and their high quality, compassionate patient care.

Providence Holy Cross Medical Center is the only community hospital in California named as one of the top 50 in the country for its outstanding treatment of respiratory disorders and is also recognized for providing the best state-of-the-art technology according to the prestigious "America's Best Hospitals" rankings by U.S. News & World Report.

Combined, the two medical centers perform more than 200,000 imaging studies per year. Modalities include CR, CT, MR, XA, US, NM, and Echocardiography. Providence has implemented the ADAC Cerner MARS Radiology Information System (RIS) to manage patient information. The system has more than 600 clinicians and technologists who interact with medical images.

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The Challenge

There were many factors driving Providence to move to a Picture Archive and Communications System (PACS) environment, including: the high cost of film and film processing; shortages of radiologists and radiology technicians; and the cost and quality concerns associated with the lack of timely and available images at the point of care—most notably in the ED, ICU, and physicians' offices. Providence also wanted to decrease image storage costs, achieve more rapid patient throughput, eliminate lost images, integrate new modalities such as ultra-fast multi-slice CT scanners, decrease patient wait time, and improve overall patient care.

The Providence team began researching PACS and discovered many barriers to entry:

- Significant capital outlay
- Limiting technology and architecture
- Potential for proprietary components hindering system integration
- Cultural resistance to process redesign within and outside of radiology
- Bandwidth limitations across the enterprise
- Reluctance of referring physicians to adopt filmless care delivery

RFP Criteria

Providence selected five vendors for their PACS RFP shortlist based on industry leadership, technology, and KLAS ratings. The system needed to meet specific RFP criteria:

- Affordable
- Seamless integration with existing systems
- Scalable, dependable, and intuitive
- True enterprise-wide solution
- Advanced technical design
- Competitive ROI Analysis

The Solution

After completing the RFP review and participating in numerous site visits, Providence installed iSite Enterprise image distribution solution to address immediate imaging needs and competitive pressures from other area hospitals. Philips' no risk Pilot Program provided the team with an opportunity to learn about and experience PACS prior to making a final decision—a critical phase according to Daren Burns, PACS Manager at Providence Saint Joseph.

"No matter how much research you do, nothing beats getting hands-on experience with a system. The Pilot Program gave our department an opportunity to evaluate key modalities with respect to equipment upgrades, DICOM interfaces, physician buy-in, remote access via VPN and helped the collaborative relationship between departments," Burns said.

Implementation—Enterprise Solution

Having proven the effectiveness of enterprise distribution with Philips' Pilot Program, Providence signed a month-to-month contract that created the foundation for a successful move to a full PACS environment.

Minimal Hardware Requirements and Industry Leading Dependability

Philips' "always online" RAID solution provides one easy-to-manage server and eliminates the routing and prefetching limitations intrinsic in other systems. Philips also offers a 99.99% uptime guarantee, maintenance of all server and storage equipment via minute-by-minute Heartbeat monitoring, and off-site disaster recovery backup.

Ease of Use, Implementation, and Integration

iSite integrated seamlessly into Providence's existing network and the user interface was intuitive and easy to use. The common look

Daren Burns,
PACS Manager
Providence Saint Joseph

between the radiologist workstation and the referring physician workstation helped the departments get buy-in from physicians across the enterprise and, with no per license fees, access was available to all physicians with appropriate security privileges.

The clinicians are telling us this has been one of the best initiatives we have ever done. We didn't expect things to take off as quickly as they have and to find ourselves at 80–85% filmless is great.

Providence integrated the HL7 and ADT interfaces early in the process, enabling report access and demographic integration. Direct HL7 fields from HL7 messages provided by the ADAC Cerner RIS were mapped directly into iSite, providing a brokerless process for demographic management.

During the process, the team developed a PACS Project Charter, creating a circle of accountability to meet measurable strategic goals, including:
- 60% filmless by first year
- 80% filmless by second year
- 90% filmless by third year and onward

Providence selected a "Go Live" date of March 3, 2003. The news was communicated across the hospitals with flyers, signs, and—by far the most effective method—face-to-face meetings. Orientation began two weeks before the "Go Live" date with formal and informal training given by Philips and internal champions targeting radiologists, critical care physicians, neurologists, key surgeons, referring physicians, nursing staff, and technologists.

The Results

On March 3, 2003, Providence turned off film and realized immediate impact. Implementing a strong Web-based product and accumulating ten months of priors facilitated a seamless transition to a filmless environment. When physicians understood they could access diagnostic-quality images in the lounge, at home, or in the wards and that priors were immediately available, they became instant advocates of the system.

"In a week we had a level of acceptance and excitement that we hadn't seen before with the deployment of an application. We hit the ground running because the system was implemented on our existing network. Because of Philips' advanced core technology, there was no need for new network infrastructure or desktop PC upgrades," noted Burns.

Return on Investment Analysis

Providence is reaching and exceeding the initial goals set by their PACS Project Charter. The hospitals are realizing the efficiencies of a true enterprise-wide image and information management system and the direct effect on improving the quality of patient care.

Six Months Post-PACS ROI:
- 85% film usage reduction
- 6 minute reduction per study managed
- 100% elimination of mobile MRI charges
- 76% reduction in film printing costs
- Eliminated 7 of 10 chemical processors
- Dramatic decrease in lost films and jackets
- Reduced FTE levels
- Improved quality of patient care

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