

Case Study » Hospital I.T. Infrastructure

Metro Health Hospital Revitalizes I.T. Infrastructure to Support Major Campus Expansion



CDW Healthcare Provides Comprehensive Technology Solution to Enable Advanced Applications — EMR, PACS, SSO and Digital Signage

For Metro Health Hospital of Grand Rapids, Michigan, caring for patients means more than simply treating them with medical services. Treatment extends to the entire individual, and often to their families. That's why this community hospital, originally built in 1942, decided to pioneer an innovative concept — construct a complete "village" — on a sprawling 170-acre campus in the neighboring suburb of Wyoming, Michigan. This new Metro Health Village, slated for completion in late 2007, will comprise an eight-story hospital, physician offices, restaurants, commercial stores, a hotel, fitness club, parks and a day care center. To transform the single teaching hospital into the nucleus of a state-of-the-art campus would require a significant overhaul of its I.T. infrastructure. With help from CDW Healthcare, Metro Health's I.T. department successfully enabled its new electronic medical records (EMR) application, put Picture Archiving and Communications Systems (PACS) images in the hands of attending surgeons, applied single sign-on (SSO) technology to secure sensitive data and created a multifunctional digital signage solution. Underlying these innovations is a robust I.T. infrastructure composed of advanced hardware solutions from CDW Healthcare.



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Bill Lewkowski
CIO
Metro Health Hospital

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The Challenge»

Building a brand new, state-of-the-art medical campus from the ground up requires an I.T. infrastructure capable of supporting newer, more advanced healthcare applications and the massive volumes of digital data generated by these systems. While Metro Health's existing hospital had a simple PC-based network, the need to transition to a paperless/filmless environment was critical to ensuring top-quality medical services at every point of care (PoC) across the campus. Where does an I.T. department begin in the process to digitize an expansive "health village" that extends way beyond the four walls of a traditional facility? What technologies are required to assemble an end-to-end solution that must serve many masters — practitioners, patients and even visitors? This tall order would require careful selection of I.T. infrastructure components that could not only support Metro Health's current PoC applications (EMR, PACS, digital signage), but sustain the future needs of an enterprise committed to innovation on every front.



The Solution»

Early on, Metro Health engaged CDW Healthcare in the process of identifying, configuring and installing select components of its next-generation I.T. infrastructure. This included an assortment of HP server blades for the hospital's data center, as well as Wyse thin clients, LG LCD TVs and Barco display monitors. Approximately 800 Wyse thin clients (with Planar LCD monitors) were deployed to replace the previous PC network and enable Metro Health's new EMR application. SSO technology — consisting of Imprivata software and Cherry biometrics keyboards — helped to safeguard authorized workstations and secure sensitive data. CDW Healthcare was also instrumental in helping Metro Health choose 42-inch high definition flat panel Barco displays. With a native resolution of 1920 x 1080 pixels, these monitors are ideal for viewing PACS images in surgical suites, right at the point of care. Finally, 241 patient rooms were equipped with 37-inch LCD TVs connected to a network-based centralized video delivery system, from which patients can request instructional programs on demand. Metro Health also purchased an additional 90 LCD TVs for use throughout the hospital in waiting rooms and other areas so that family members can track the status of their loved ones undergoing surgery through a special code number.

The Results»

Immediate access to patient data at the point of care is now possible through Metro Health's EMR system, enabled by thin client workstations with LCD monitors from CDW Healthcare. Practitioners across the hospital and ambulatory practices, the lab, pharmacy and the radiology and cardiology departments are now equipped and empowered to access digital information and images on which to make timely treatment decisions. This has resulted in a more streamlined workflow that supports quality patient care on every front. In the surgical area, CDW Healthcare has helped Metro Health bring PACS images into closer view for surgeons to reference during procedures, leading to more accurate interpretation and patient outcomes. Hospital patients benefit from disease management and self-care videos and "edutainment" media centrally piped into rooms through LCD TVs — leaving them more informed about their conditions and the excellent care provided by Metro Health. Even visitors with family members receiving care can keep up on the latest, thanks to new digital signage in waiting areas and hallways. The role of I.T. in delivering these healthcare innovations is clearly advancing Metro Health into the Digital Age as one of the country's leading medical institutions.

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The Challenge»

It takes a village

Breaking ground to become a ground-breaking teaching hospital at the hub of a sprawling medical campus requires considerable forethought. In the case of Metro Health Hospital, it takes a village to make a village — right from the ground up. Not to be overlooked in early architectural, engineering and construction phases of this project is the need for a technology infrastructure that can support the types of innovative I.T. applications needed to provide quality patient care.

For a 170-acre campus, building the right I.T. infrastructure is no small undertaking. Metro Health's I.T. department must be prepared to continually reassess how best to leverage the power of technology to enable patient safety, wellness and disease prevention, both today and into the future. Anticipating the demands of tomorrow means managing a far-reaching I.T. implementation that will ultimately transform the hospital into a completely paperless environment.

Restructuring the infrastructure

Becoming a digital hospital requires updating, or even abandoning, old practices of managing information. Prior to the major expansion, Metro Health had been using an older PC-based network. While this approach suited the single teaching hospital, a more expansive I.T. infrastructure was needed to enable Metro Health's new EMR system and provide "anytime, anywhere" clinician access to digital patient data at any point of care across the sprawling, multi-facility campus.

Bill Lewkowski, CIO, and Art King, I.T. manager/network administrator for Metro Health, recognized that a more powerful technology infrastructure would not only support the new EMR system, but that it would allow the hospital's data center to more centrally manage advanced healthcare applications. Progressive I.T. solutions could even offer visual assistance to surgeons in the operating room as well as promote patient self-education.

"Our vision was clear, but the challenge was how — and where — to begin," Bill Lewkowski explains. "That's when we turned to CDW Healthcare for assistance with our I.T. infrastructure needs."

At a Glance

Recently named one of the top 100 teaching hospitals in the nation by *Solucient*, Metro Health is a single-hospital organization serving the greater Grand Rapids, Michigan area. The \$250 million project is currently being billed as a "health village" — a complex of clinical facilities, retail suites, private physician offices and lodging — that will extend across an integrated 170-acre campus. Designed with the needs of patients and their families top of mind, Metro Health incorporates wellness and disease prevention strategies into standard clinical care. The village concept represents a revolution in hospital design and demonstrates Metro Health's commitment to pursuing a policy of holistic, patient-focused clinical services.



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Instant retrieval and viewing of patient data is readily available, thanks to technology from CDW Healthcare.



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The Solution»

During the initial selection phases, Metro Health enlisted CDW Healthcare to help identify and implement a variety of technology solutions designed to enhance patient safety, promote better outcomes and empower physicians. The I.T. team had three key objectives:

1. Improve quality of care through “anytime, anywhere” access to digital patient data
2. Enhance surgical room processes using I.T. to assist visibility of PACS images
3. Facilitate patient education and satisfaction during inpatient hospital stays

To address these goals, Metro Health and CDW Healthcare initiated a large-scale I.T. infrastructure implementation that includes blade servers for the data center, as well as Wyse thin clients with Planar LCD monitors, LG LCD TVs and Barco display monitors.

Anytime, anywhere access

The equation is simple: Fewer hours spent on retrieving documentation equals more time focused on patient care. To increase the operational efficiency of Metro Health’s clinicians and decrease the amount of effort spent searching for paper records, Metro Health is currently installing a thin client-based workstation at every clinical system access point facility-wide — including nursing, clinical and business end-user terminals. CDW Healthcare provided guidance on the selection of the thin clients, noting that Wyse was preferable because its products could support dual-monitor displays, such as the Planar LCD monitor ultimately selected.

Built on a back-end virtualization of applications previously running on the hospital’s former PC-based network, every application that ran on the PCs will be available on the thin client. Workstations granting access to sensitive information are protected through a Cherry biometric single sign-on (SSO) keyboard solution, which requires authorized caregivers to undergo a fingerprint scan prior to accessing the network.

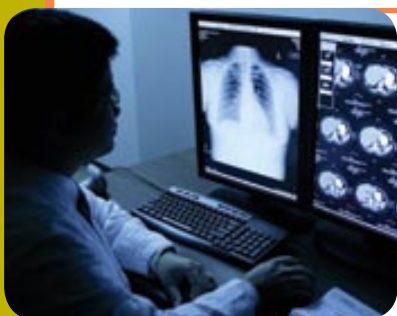
A paperless, filmless future

CDW Healthcare provided approximately 800 Wyse thin clients, facilitating a critical step in Metro Health’s path to going paperless and filmless. The new thin client solution (which is equipped with Planar LCD monitors) enables caregivers to access Metro Health’s EMR system for both hospital and ambulatory practices as well as ancillary systems such as the lab and pharmacy.

The hospital’s radiology and cardiology departments are also completely filmless, because technicians and clinical staff can retrieve and view images using a new PACS application. The use of PACS technology, coupled with Metro Health’s ongoing document management initiative, will establish a fully filmless/paperless environment within a few years.

Metro Health’s I.T. infrastructure needed to support three goals:

- » Improve quality of care
- » Enhance surgical outcomes
- » Facilitate patient education





Right at the surgical "sight"

Working with Metro Health's I.T. group, CDW Healthcare also played a critical role in outfitting the hospital's surgery rooms with 42-inch high definition Barco monitors, which have a native resolution of 1920 x 1080 pixels. These large-format view screens, which are ventless and fanless to prevent the spread of airborne pathogens, are used by surgeons to access patient images from the hospital's PACS system at the point of care. The Barco monitors also offer other features such as a protective front glass that can be easily wiped down to disinfect the LCD in the event of fluid contamination. No longer encumbered by the clumsiness of film images, surgeons are now free to direct their focus where it belongs — on the patient.

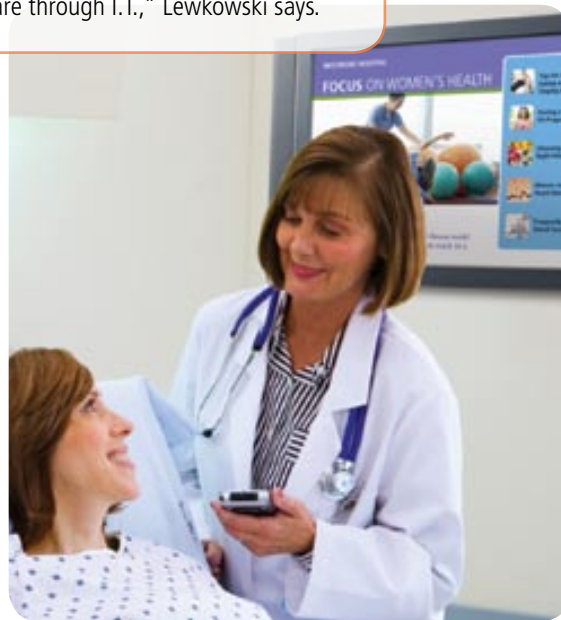
Keeping tabs on ED admissions

Additionally, Metro Health outfitted physician areas in the emergency department (ED) with wall-mounted touch-screen monitors so that they can readily check the status of patient admissions. This helps to prioritize and streamline the ED's overall workflow, ensuring that patients are being seen in a timely manner and are receiving the best care possible.

Satisfying savvy patients

Providing quality medical care is only the beginning of improving patient outcomes. The other — and often far more challenging — component is reinforcing compliance with physician orders once the patient is released from inpatient care. To facilitate patient education and provide critical information on post-procedural recommendations, Metro Health implemented a video network solution that includes the installation of a 37-inch LG LCD television in 241 patient rooms. CDW Healthcare managed the installation of all the LCD TVs in the patient rooms, as well as an additional 90 LCD TVs that are located in short-stay areas and waiting rooms for the benefit of family members.

"The benefit of digital signage is in its inherent 'edutainment' value — it serves multiple purposes and keeps our facility completely state-of-the-art when it comes to advancing patient care through I.T.," Lewkowski says.



In addition to providing a full range of TV and video entertainment options (more than 50 satellite channels), patients can access pre-recorded instructional post-operative and disease management videos on demand. Each of the LCD screens is linked to a network-based centralized video delivery system. Previously, nurses were required to track down and then transport cumbersome carts outfitted with a TV and DVD player to the patients' bedsides. Now nurses assign videos to patients based on physician orders, using a drag and drop interface from any workstation in the building. Patients can then select the "education option" on a bedside controller to watch the videos. To help ensure compliance with doctors' orders, the system also documents each time a video has been accessed and if a patient completed the viewing.

Custom configuration on command

CDW Healthcare's custom configuration services create a significant value add for Metro Health and free the hospital's I.T. staff to focus on other implementation management issues. For example, CDW Healthcare provided guidance on mounting bracket selection to optimize viewing of patient room LCD TVs and worked with the company designing the video delivery system to ensure that the monitors would comply with system requirements.



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The Results»

Adding vital value

Throughout Metro Health's I.T. infrastructure expansion, CDW Healthcare provided steady counsel and reliable service. CDW Healthcare helped Metro Health select the right technology, configured solutions to be virtually "plug and play" and offered installation services to implement the hospital's LG LCD TVs. Because Metro Health was on an ambitious timetable, it was important to team with a partner like CDW Healthcare who met this sense of urgency with utmost efficiency.

"CDW Healthcare's ability to rapidly fill orders is critically important to us; we often get next-day service for many products," recalls Art King, Metro Health's I.T. manager/network administrator.

In addition to its rapid response, CDW Healthcare offered Metro Health unique buy-and-hold capabilities. Due to the massive number of hardware units involved in the deployment, CDW Healthcare was able to release numerous, smaller batches of equipment to Metro Health over the course of several weeks.

Benefits to practitioners and patients

As the new Metro Health campus continues to unfold, the assurance of a solid, secure I.T. infrastructure supporting the hospital's latest healthcare applications underlies its progress.

The Wyse thin client workstations are a key enabler of Metro Health's EMR application, bringing care closer to the patient — right at the point of care. These thin clients promote space savings and centralized I.T. control across multiple areas of the hospital, facilitating Metro Health's drive to go paperless. The hospital's extensive conversion

"Thanks to CDW Healthcare, we've made the right initial investments in the best technology to expand our data center and sustain our I.T. infrastructure. As we go completely digital across the Metro Health enterprise, we anticipate that CDW Healthcare will be a long-term technology partner in this effort," Lewkowski concludes.

of patient records — plus the completely digital capture and storage of imaging data — has speeded caregiver access to patient information, resulting in improved clinical workflow. Using SSO to protect workstations offers increased security and safeguarding of electronic patient data and compliance with HIPAA regulations.

In the surgical suite, easy-to-use, easy-to-view Barco monitors allow physicians and staff to readily retrieve, review and input PACS images, thereby improving collaboration and communication between medical team members. At the same time, digital signage using LCD TVs in patient rooms and waiting lounges enables Metro Health to "edutain" patrons while promoting new and competitive hospital services.

Whether educating patients or empowering clinicians, Metro Health's ongoing commitment to improving the quality of care mirrors its devotion to the community it serves. In an industry hampered by lagging adoption, the innovative use of technology from the bedside to the operating room to the lab distinguishes Metro Health as a true I.T. innovator.





A healthy future for Metro Health awaits

The award-winning, personalized care of Metro Health is moving steps beyond anything found in the United States — a one-of-a-kind health village devoted to patient satisfaction. When Metro Health Hospital opens its doors in the fall of 2007, it will begin a new era in the ultimate user-friendly environment. The future of health care means accommodating patients, visitors, physicians and staff with facilities and features that help speed healing and make it easier for medical professionals to do their jobs efficiently and safely. Many of these processes are enabled by the power of information technology — solutions from CDW Healthcare that empower clinicians with confidence and bring state-of-the-art care directly to patients.



Metro Health and CDW Healthcare share a commitment to top-quality patient care — using innovative I.T. to advance safety, efficiency and accuracy across nearly every facet of the hospital.



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Partner with CDW Healthcare

Whether in the early phases of new construction or converting legacy systems to support advanced applications, your I.T. infrastructure is the backbone of your hospital's digital success. CDW Healthcare can help streamline your transition to a paperless/filmless environment with the proper tools and technologies. Your dedicated CDW Healthcare account manager — backed by a team of highly trained, certified technology specialists — brings you the expertise and resources you require. With CDW's extensive selection of brand-name inventory from more than 1000 of the world's leading manufacturers, and our on-site Configuration Center, you can rest assured that you'll get the right technology right away.

To see how CDW Healthcare can help fortify your I.T. infrastructure to enable your EMR, PACS and digital signage applications, plus many others, contact your CDW Healthcare account manager, visit us online at CDWHealthcare.com or call 800.500.4239.



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