IT Makeover Transforms a Small Healthcare Clinic in Indiana

Significant Benefits Realized in Less than Three Months

Summary:

Small healthcare clinics use personal computers, servers, software, and other forms of information technology (IT) to manage their business; however, many clinics under-invest in IT and miss out on the full benefits of this technology. Community Medical Center (CMC)—a small rural-Indiana healthcare clinic where the average age of staff members is 56—recently experienced a basic IT makeover. This makeover yielded significant benefits in less than three months, and additional benefits are on the horizon. In this short time, CMC:

- Increased physician effectiveness and enhanced the overall quality of medical care;

- Decreased employee overtime, patient wait time, and patient cycle time;

- Increased the accuracy and flexibility of record keeping and patient scheduling;

- Eliminated nurse wait time for PC access;

- Reduced office clutter, increased work-space efficiency, and raised employee morale.

Community Medical Center in Shipshewana, Indiana

In the heart of the Midwest, about 50 miles due north of Fort Wayne, lies the small town of Shipshewana, Indiana. Voted "One of the Best Places to Buy a Unique Gift" by the readers of *Midwest Living Magazine*, Shipshewana is a bustling village with its own Amish community, shop-lined streets, specialty retailers, and a weekly flea market. Shipshewana is also the home of Community Medical Center (CMC), a small family-medicine clinic of 11 employees, including one physician and nurse practitioner.

It was here at CMC that Hewlett Packard (HP) and Intel Corporation decided to conduct an information technology (IT) makeover to better understand the benefits of IT in small healthcare clinics. This case study briefly chronicles the makeover, its impact on CMC's operation, and the makeover's potential for application to other small healthcare clinics across the US.

The Before Picture at CMC: More Time Waiting, Searching, and Filing — and Less Time for Patients

When Intel and HP approached CMC, this small healthcare clinic—like so many others today—had a handful of networked computers, cumbersome paper-intensive processes, and a staff committed to its patients but stretched too thin. Nearly 6% of CMC's total square footage was taken up by frequently visited shelves of patient charts. During a pre-makeover interview, Larry Kilgore, CMC's Office Manager, said, "It seems we're always looking for a chart, searching for the appointment book, or trying to locate a PC that isn't being used. We've had our eye on Electronic Health Records (EHR) for a long time, but weren't sure the investment would make sense for a small business like ours."

Dr. Christine Hamilton, the resident physician at CMC, was familiar with EHR and wireless technology from her experience in surrounding hospitals. Dr. Hamilton was eager to participate in the makeover, but she was also concerned about how her small office would manage such an upgrade in technology, especially since the average age of her staff was 56 years and all were comfortable with paper charts. CMC was using only basic IT while dealing with the growing demands of legal compliance, increasing patient volume, and competing clinics recently located nearby.

The Makeover Strategy — Leverage and Improve

The makeover strategy was to emulate what a typical small healthcare clinic would experience in making over its own operation. Where budgets are typically tight and IT expertise is limited, the makeover would need to leverage existing IT infrastructure, make appropriate investments in new hardware and software, and rely on a local service provider for integration and support.

After surveying the clinic's operation, the makeover team decided to retain most of CMC's existing PCs and printers, along with its current practice-management software and QuickBooks application running on an existing Intel-based server. The plan was to weave in a selection of new HP hardware products based on Intel technology and run the system through a secured wireless network. The team would then turn to EHR applications provider Allscripts to supply a medical-document imaging and workflow solution as a prelude to a full-featured EHR. To install, train, and support the hardware and software being provided to CMC, the makeover team looked to local service provider Bradford-Scott of Indianapolis.

Wireless Tablet PCs — Setting the Doctor Free

A key component of the IT makeover was the deployment of two HP Compaq Wireless Tablet PCs based on Intel® Centrino® mobile technology. The tablets were dedicated to the doctor and nurse practitioner of CMC. Both tablets were equipped with Microsoft Office, docking stations, full-size keyboards, and flat-panel monitors. Bradford-Scott installed a wireless network using four Linksys wireless access points and a Sonicwall firewall/router for the 3,900 square foot facility. The wireless network also enabled CMC staff to share the Sprint-powered DSL high-speed Internet connection. "The wireless network works along side our existing wired network and provides all of the security we require," reported Kilgore.

Dr. Hamilton has seen her daily routine transform under the new system: "I'm 53 years old and pretty much computer illiterate, but I still manage to do it… everything is there and easy to find… when I'm in the room with a patient and they say 'didn't we just do this test last year,'

I can turn to the tablet PC and go to that test last year and look at it right away."

Thelma Peters, a CMC nurse has noticed the impact the tablet PC has made on Dr. Hamilton: "Dr. Hamilton can take her wireless tablet with her into the exam rooms when she sees patients. She has the information readily available to her right there, and she has the lab results and everything immediately."

Desktop PCs — Increasing Nurse Productivity While Saving Desk Space

Since not all key work areas had PCs, the nurses at CMC had to walk to whatever PC might be nearby and then wait for it to become available. To address this productivity issue while also addressing limited desk space, the makeover included wireless-enabled, Intel powered, HP Compaq Ultra-slim Desktop PCs with flat-panel monitors. The ultra-slim desktops were placed at the receptionist desk, the nurse's lab, and the check-out area, where previously there had been no PCs. The productivity gains in all cases proved to be staggering for CMC: The travel and wait time of nurses was reduced, allowing them to focus on taking care of patients, while experiencing a dramatic increase in performance as compared to CMC's older desktop PCs.

Carolyn Chupp, a 64-year-old CMC nurse and healthcare veteran of 43 years, states, "I think it's helped the whole office because we all have computers now. We all have the same information at our fingertips."

A Server Powerful Enough for EHR

Because CMC's existing server lacked the performance and storage capacity for a future EHR application, the makeover team added an additional server: an HP ProLiant based on two Dual-Core Intel® Xeon® Processors with 2 GB of RAM, an 80 GB SCSI hard drive, and an SLR100 tape drive. The dual Xeon® configuration was selected to provide the scalability and reliability required for an EHR implementation: This configuration delivers a robust 64-bit-capable platform that is effective

in even the most demanding application and database environments.

Like most small healthcare clinics, CMC had no designated server room; however, the new HP server was deemed quiet, and it runs cool enough to be placed beside the existing server under the desk of Larry Kilgore.

Microsoft Small Business Server (SBS) was selected as the server operating system because of its robust Windows 2003 Server capability and Microsoft SQL Server, a prerequisite of the Allscripts software application. Microsoft SBS includes Microsoft Exchange Server, Internet Information Services (IIS), Windows SharePoint Services, Microsoft Outlook for clients, Routing and Remote Access Server (RRAS), Fax Server, Microsoft ISA Server, and Microsoft FrontPage 2003. These features give CMC future capabilities that will soon be needed, said Kilgore.

Scanners and Printers – Image Management

To accommodate the transition to a paperless operation, there was a need for a heavy-duty scanner to scan a high volume of existing patient charts, and for a lighter-duty scanner at the receptionist desk for ad hoc scanning of new patient information. Among the scanners used was an HP ScanJet Digital Flatbed Scanner. For patient-related check-in and check-out documents, an HP LaserJet printer was installed, along with an HP Business InkJet printer for the prescriptions area.

Allscripts Impact.MD – Going Paperless

With the new hardware components in place, CMC was ready for the first phase of its EHR implementation: Allscript's Impact.MD, an award winning medical-document imaging and workflow solution specially designed for small to midsize healthcare clinics. With Impact.MD, CMC's staff is able to scan patient charts and have access to all chart information from any computer in the office. Bradford-Scott completed the installation and training, which included a software interface between Impact.MD and the existing practice-management system.

In addition to giving CMC the ability to view patient charts on all computers, Impact.MD made it possible to create prescriptions electronically and send them electronically to local pharmacies. Another benefit from Impact.MD was the ability to receive laboratory test results electronically. The significant time and effort previously required to monitor and file paper-based test results can now be eliminated, allowing the work to be done electronically. CMC nurse Mary Kilgore explains the benefits of this new system: "Things that have changed in my job [include] much less paperwork and answers to labs right at my fingertips. I don't have to get up from my desk to go find a chart… those challenges are gone; it's right there on the computer. I'm using my extra time to help patients."

Using local service provider Bradford Scott as a systems integrator and bringing together the Allscripts software and HP hardware was invaluable to CMC. Larry Kilgore expressed it this way: "To have a service provider in our own backyard to bring together the hardware and software components and make everything run smoothly made all the difference in the world."

The After Picture at CMC: Already Reaping Benefits

"We're just really getting started and have a ways to go, but we've already reaped huge productivity benefits from having the system, allowing us to concentrate more of our efforts on patient care," says Kilgore, a feeling echoed by others at CMC. Clinic employees have scanned nearly 45,000 pages of patient files in less than three months. Everyone is looking forward to retrieving the space now occupied by paper charts. But some of the most important benefits are already being realized: improved operations, clearer communications, steadily increasing savings in time and money, and greater concentration on the needs of patients.

→ Installation of additional PCs has eliminated wait time for nurses and delivered an estimated 15 to 30 minutes of additional productivity per day.

→ Deployment of wireless tablet PCs has delivered an estimated 25 to 30 minutes of additional physician productivity per day and has reduced both patient wait time and employee overtime.

→ Scanning patients into the system before their appointments has delivered an estimated savings of 5 to 10 minutes per patient through reduced paper shuffling at the time of each appointment.

→ Substitution of an electronic appointment scheduler for the former paper-based appointment book has delivered improved accuracy and a savings of 10 to 15 minutes per day. Now, anyone in the office can manage patient scheduling from any PC in the office.

→ Reduced office clutter has enhanced the work environment, improved efficiency, and raised employee morale.

→ Reductions in the cycle time required to treat each patient will soon enable CMC to see more patients, increase revenue, and make more time available for personal consultation.

→ Annualized return on investment (ROI) is projected to be less than two years—even when calculations are based solely only on the street cost of the makeover, estimated decreases in nurse overtime, and conservative estimates of increases in clinic revenues.

The Next Six to Twelve Months — Even More Benefits

Three months is an extraordinarily short period of time for developing a return-on-investment scenario for this IT makeover performed at CMC by Intel and HP; however, it is clear even now that during this brief period, measurable results have been achieved. In the next six to twelve months, CMC envisions even greater productivity from streamlined operations and more efficient use of office space—all of which will lead to a higher quality of patient care, improved information accuracy, and enhanced economics. The IT infrastructure put into place at CMC will allow a seamless migration to a full-featured EHR system in the near future.

Thelma Peters, a CMC nurse, says, "In the next six to twelve months, I can see our office having much less paper to deal with. We can get rid of our paper charts, and the information will be right there on our computers, and it will give us more time to spend with the patients."

The Applicability of the IT Makeover to Other Clinics

In the words of Larry Kilgore: "If we can do it, anyone can do it." CMC—a small rural-Indiana healthcare clinic with mature staff who had little advanced technology experience—was able to embrace the IT additions and transform its office into an EHR-ready medical facility. In less than three months, productivity was increased and patient care enhanced. IntelliClear expects that in the next six to twelve months, the ROI scenario will further improve as more patients are scanned prior to their appointments, CMC personnel continue to use the technology, and further process refinements are implemented in preparation for EHR.

IntelliClear believes that in many instances, capital investment in the IT hardware, software, and services necessary to streamline a small healthcare clinic can be affordable—and quite profitable. Often the greatest challenge is the attitude of clinic management toward technology. This case study at CMC clearly demonstrates that a rural setting and staff demographics are not an insurmountable barrier to a basic IT makeover. Such a makeover can produce short- and long-term benefits—both social and economic—for a small healthcare clinic.

The true keys to makeover success are a willing staff, supportive management, excellent and appropriate IT solutions for the environment, a phased implementation, and an experienced local service provider. "I think we still have a ways to go, but with HP and Intel technology, we'll definitely get there," says Dr. Hamilton.

About IntelliClear (www.intelliclear.com)

IntelliClear is a market research and business consulting firm committed to the delivery of actionable market intelligence to the global IT community. IntelliClear's role as a consultant to Intel and HP in the CMC IT makeover was to identify, survey, and interview healthcare firms for makeover qualification; aid in the design of the new IT infrastructure; record before-and-after metrics; facilitate the makeover installation; and write the final case study for publication.