

Digital Health

Case Study | Electronic Medical Records for Ambulatory Care

Implementing Electronic Medical Records to Deliver Better Patient Care

The Pediatric Physicians' Organization at Children's (PPOC) Hospital Boston partnered with eClinicalWorks to implement a three-year electronic medical records (EMR) initiative. eClinicalWorks' unified electronic medical record and practice management software enables PPOC practices to deliver the best possible patient care by enabling more efficient, effective, accurate, and safe pediatric medicine.

"Children's Hospital Boston is a known leader in advancing pediatric medicine," said Girish Kumar Navani, CEO and co-founder of eClinicalWorks. "We are proud to partner with their affiliated pediatric primary care practices and are working closely with PPOC members to provide a comprehensive EMR system to enhance the quality of care delivered. This system is showing substantial benefits, and will continue to offer a positive impact on the care those children receive."

Pediatric Physicians' Organization at Children's

- ▶ The PPOC was incorporated to bring together pediatricians, pediatric medical groups, and pediatric specialists at Children's Hospital Boston (Children's).
- ▶ Membership is open to all of Children's medical staff, whether based at the hospital in Boston or in communities throughout eastern Massachusetts.
- ▶ In calendar year 2009, the PPOC cared for 297,000 children and had 788,000 patient encounters.
- ▶ The PPOC includes 200 pediatricians in 73 community practices.

Challenges

- ▶ **Deliver clinical excellence.** The PPOC needed to record and share data in a secure environment so they could monitor and improve quality without adding the burdens of time-consuming, redundant data entry or IT support to their already busy work days.
- ▶ **Improve operational effectiveness.** Busy PPOC clinicians wanted to implement an EMR with minimal interruption to their workflow. This required a partner whose software could flex to meet the specific needs of individual practices instead of medical personnel flexing to fit the software.
- ▶ **Share data.** The PPOC's goal was to improve clinical decision support and the overall health of the population they serve by improving the quality of, and access to, patient data. With an eye to the future, they are planning to create points of integration with Children's EMR and lay the groundwork for delivering Personally Controlled Health Records (PCHRs).

Solutions

- ▶ **Highly customizable application benefits diverse practices.** The EMR was tailored to each PPOC practice ensuring that their specific needs were met. eClinicalWorks' adapted its unified EMR and practice management software, providing pediatric-specific dosage calculators and immunization forms, and creating custom templates as appropriate.
- ▶ **Industry standards minimize risk and leverage investment.** The PPOC adhered to standards established by the Certification Commission for Health Information Technology (CCHIT) to ensure its EMR is well positioned for additional future integration and functionality in a rapidly changing healthcare environment.
- ▶ **Software as a Service (SaaS) model frees up clinicians to focus on patient care.** A third-party vendor provided all site-specific hardware. The PPOC made training clinicians a top priority so they could be up and running as efficiently and effectively as possible. The IT staff at Children's manages centralized hosting and support, allowing PPOC practices to focus their time and energy on providing excellent patient care.

Benefits

- ▶ **Ninety percent of practices report financial gain.** PPOC practices cite productivity improvements in their billing and front offices. More accurate and complete coding lead to more consistent reimbursements. Better record keeping means fewer duplicated tests. Economies of scale in equipment purchases and centralized hosting save practices money.
- ▶ **Sixty-seven percent of practices report that the EMR implementation has improved quality of patient care.** Real-time, more accurate patient data is available to practitioners at the point of care. Mistakes attributed to illegible handwriting have been virtually eliminated.
- ▶ **Moving toward consistent, comprehensive community health records.** The PPOC collaborated with eClinicalWorks to capture and report practice data on such conditions as asthma, attention deficit hyperactivity disorder, and weight management that currently resides in a variety of locations. They are currently working on centrally managed lab compendiums to ensure consistency between practices.

"The members of the PPOC selected eClinicalWorks for their EMR because they believed that it would provide an excellent technological framework to further their mission to provide outstanding primary care to families."

- Dr. Gregory J. Young,
president and CEO of the PPOC

"The recent H1N1 vaccination protocol allowed a real world experience to demonstrate the power of an Electronic Medical Record. Practices were able to easily identify patient populations at risk and contact them, tracking their communication every step of the way in the patient's record. A short while after going live, our practices were able to realize all the advantages of the system in regards to population health."

-Darlene Vendittelli, IT Project Director, PPOC

The PPOC's EMR implementation required careful planning, tailored solutions, and supportive training.

Assessing the Situation

In 2006, the PPOC formalized its mission and organizational strategy, agreeing that clinical excellence was their top priority. It quickly became apparent that with state-of-the-art tools in place they could better support their member practices in managing quality. They aimed to close the gaps that occurred in medical records when patients were seen by different providers and to eliminate the inconsistencies that arise from paper-based systems. They knew that an EMR system would help them affect compensation from insurance companies whose contracts were based on pay for performance. Claims databases had been collecting quality data for years, but clinicians could not access it.

The PPOC decided that EMR solutions had matured significantly enough to satisfy their requirements. Still, the team knew that to make the most of their investment, they needed to do their homework. They formed a team of some 30 pediatricians and staffers who matched their needs with vendor solutions. Happily, the chair of the review committee had a background in informatics; he educated the team about the importance of standards, introduced them to CCHIT and led the literature review.

The PPOC team knew they needed a platform with strong pediatric functionality that was optimized to work in smaller, independent offices, and they sought a software vendor who was willing to collaborate with them in customizing the system to meet current and future needs. After narrowing the field down to four vendors who met their criteria, everyone agreed eClinicalWorks was the partner of choice.

Key Technologies

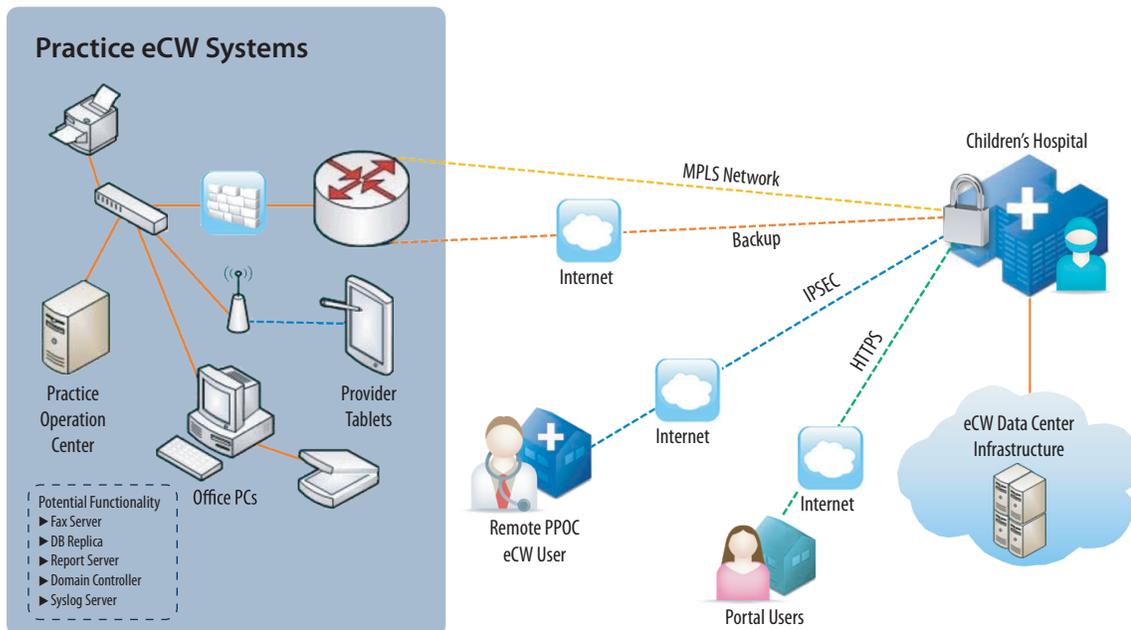
- ▶ Solution Deployment Model: SaaS, in which PPOC member practices access eClinicalWorks unified EMR and practice management (PM) software running on a Children's managed data center
- ▶ eClinicalWorks software architecture: SaaS with Children's hosting, based on three-tier architecture (using Microsoft SQLServer, MySQL, Java, and Apache)
- ▶ Data center Hardware: dual- and quad-core Intel® Xeon® processor-based Hewlett-Packard* servers and storage systems
- ▶ PPOC Hardware:
 - ▶ Quad-core Intel Xeon processor-based Hewlett-Packard servers
 - ▶ Intel® Core™2 processor-based Hewlett-Packard desktops
 - ▶ Intel Core 2 Duo processor-based Fujitsu* laptops/ tablets as mobile point of care devices

Delivering the Solution

Six of the larger practices in the PPOC's network, including one with multiple sites, signed up as "early adopters." PPOC IT staff organized kickoff calls to describe the rollout plan and define roles and responsibilities. They provided practices with the hardware and network infrastructure specifications and contracted with a third-party hardware group to conduct hardware assessments. The PPOC, in collaboration with eClinicalWorks, assisted each practice in ordering and installing software; specifying and building the environment at each site; data migration; and workflow analysis and training. They also provided site-specific IT support. Practices were connected to the centralized data center via high-speed Multi-Protocol Label Switching (MPLS) or site-to-site virtual private network (VPN).

To meet its goal of providing a unified view of patient information with seamless access through a secure portal, Children's created a robust, scalable, and virtualized infrastructure using open standards-based HP* ProLiant servers and Intel® Xeon® processors. Children's hosts and manages the data center in Needham, MA, including security, and data recovery. Each PPOC practice has a dedicated database that is centrally hosted at the data center. Children's IT staff coordinated with the hardware vendor to ensure seamless integration with the practice sites. By standardizing on Intel and HP technologies, the team has improved interoperability, reduced maintenance costs and total cost of ownership, decreased energy consumption, and created a more secure environment.

PPOC eClinicalWorks Full Client SaaS



Going Mobile at the Point of Care

In the PPOC's high-volume care delivery system, clinicians may see up to five patients per hour (more in times of need). Intel Core 2 Duo processor-based Fujitsu tablets, allow them to streamline data access and entry at the point of care without having to write down patient data and later enter it on a shared static desktop PC between patient visits. Tablets also free up valuable clinic space in care rooms. The PPOC's hardware allocation formula provides a tablet for every physician, physician's assistant, and nurse practitioner. Many practices have invested in tablets for their nurses as well.



Lessons Learned

eClinicalWorks typically goes live three months after contract signing. The PPOC elected to extend this to six months to minimize stress, allow time for comprehensive testing, and provide practices with plenty of training and support. Though the ratio of trainers to practices was frontloaded in the early days, PPOC IT staff discovered that physicians needed more structured guidance on optimizing the rollout period. While billing and administrative staff were heavily invested, many physicians attended only the required minimum training sessions early on and were caught off guard by having to simultaneously master the system while thinking about the customizations they wanted to support their practice. PPOC IT staff learned that there is always more to do to support physicians and staff in the midst of a transition like this. They have updated their implementation plan so that staff and clinicians are trained in their own practice office so that they can familiarize themselves with their own customized system.

"As the PPOC continues its path in being a leader for pediatric healthcare delivery, the Electronic Medical Record will be another tool our network can leverage for building quality care initiatives and programs, such as building a Medical Home, Clinical Decision Support Tools, and Population Health Management."

-Darlene Vendittelli, IT Project Director, PPOC

Extending EMR to Patients and Families

The PPOC and Children's have committed to aggregating health data for patients seen at both sites of care into a single personally controlled health record (PCHR), giving patients access to a more complete, comprehensive view of their medical information. Patients and their families will be able to view their PCHR through an integrated patient portal, called MyChildren's, using a single log-in. MyChildren's will create a single, secure, unified view of patient records, putting them in control of their health information. They may decide to share their information with clinicians via this technology, essentially providing physicians with an integrated source of the patient's health care information.

For more information on the Pediatric Physicians' Organization at Children's (PPOC) visit www.childrenshospital.org/ppoc.

For more information on eClinicalWorks visit www.eclinicalworks.com.

Find a healthcare IT solution that is right for your hospital system. Visit Intel's Web site at www.intel.com/xeon or contact your Intel representative.

