Electronic Health Records in Ophthalmology: Case Study on Successful Implementation at The Eye Center of Central PA

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Electronic Health Records (EHR) is a subject that has been controversial within medicine and especially within ophthalmology. Vendor claims of improved efficiency, "paperless" office environments, and government reimbursement too often fail to meet expectations among physicians and administrators. The federal government, however, has mandated conversion of paper charts to digital records with a set of incentives ("Meaningful Use") as well as penalties (via reduced Medicare reimbursements starting in 2015). Recent survey data have shown adoption of EHR systems in ophthalmology approaching 30% of practices.[1] *Key reasons adoption has not been faster include low satisfaction overall with the process and/or impact on the practice.*

This report aims to clarify misconceptions about EHR and show how it can be successfully integrated into a busy ophthalmic environment. Under direction from Medflow, Inc. (Charlotte, NC), SM2 Strategic was asked to observe and document how one practice – The Eye Center of Central PA – planned and implemented EHR. They went "live" with EHR in the spring of 2010 for their clinic and in late 2010 in their ASC. Their experience during this first year of EHR illustrates the benefits to doctors, technicians, administrators, and patients of transitioning from a paper to a digital record. Through their story, ophthalmic practices considering EHR will better understand the need for such a system, what EHR does and does not do, and the most important steps to achieve success while avoiding the traps that have made EHR unsuccessful in some environments.

Figure 1: At-a-Glance: The Eye Center of Central PA

Headquarters: Lewisburg, Pennsylvania
Specialties: Cataract, Refractive, General
3 MDs
10 ODs
3 Physician Assistants
100+ staff
13 locations
55,000 patient visits per year
3800 cataract cases per year

Why Get EHR and Which Vendor to Choose?

The Eye Center of Central PA sees 1,200 patients each week across 13 locations and one ASC (see Figure 1). In 2009, CEO Robert Lamont began the process of defining the practice's needs prior to selecting a vendor: "We did our due diligence when selecting an EHR system because of the many unhappy administrators and physicians that were out there telling us their horror stories about how their practice abandoned the hope of EHR and lost time, money and patient and staff confidence." Lamont added, "The large patient volume across our multiple locations set a high requirement when contemplating moving away from paper. Like every piece of technology in the practice, we wanted our EHR system to improve efficiency and patient care and be readily adopted by all of our employees."

Early in the planning process, Lamont hired a full-time Director of Information Technology who would be responsible for implementation. Together, they determined that they wanted every person using EHR to be "functional on day one," a challenging goal in a practice with 3 MDs, 10 ODs, 3 PAs and more than 100 staff members. After interviewing several vendors, they chose Medflow's EHR system based on three key factors:
1) exclusive focus on eye care and the intricacies of the ophthalmic specialty, including coding, image storage and screen design;
2) realistic proposal that clearly defined the timeline and budget;
3) interest of company executives in assisting with Meaningful Use efforts.

"I hear everyday from colleagues who are frustrated with their EHR," remarked Scott Hartzell, MD and partner in the practice. "It hasn't slowed me down and in fact makes me more efficient. We firmly believe that success with EHR depends on which vendor you choose."

"Beware of Shiny Objects"

Indeed, part of the success at The Eye Center of Central PA can be attributed to the leadership style of the practice. "At some point, MDs need to step back and look at their management model. Even though I co-own the practice, I don't manage it." Hartzell says that most doctors like "shiny objects" such as lasers and micro-instruments and this makes he and his colleagues easy to deceive when it comes to less tangible purchases such as software. "The software becomes something you use much more than any single device or surgical tool. This is one decision not to be made just by the doctor(s)."

Dr. Hartzell and colleague Daniel Fassero, MD both use EHR during every patient encounter, often with a scribe to perform data entry, allowing the doctors to have greater face-to-face interaction with patients in the lane. "I was pleasantly surprised how EHR allowed me to be even more attentive to what's going on with my patient in the moment," remarked Fassero. "There's more listening and less looking for data."

From Day One to Year One

The Eye Center of Central PA was initially concerned about some employees' ability and desire to move to the new EHR platform. Their data (summarized in Figure 2) show that employees have fully embraced EHR. While some struggled at first, not a single employee resigned due to EHR. Training on the system began several weeks before going live, and all doctors and staff were trained during that time period to allow for rapid adoption across the entire practice. Several employees received additional training support, and new employees joining the practice are shadowed with a similar goal of becoming proficient within one day. Recent employee surveys confirm The Eye Center of Central PA's goals: "None of our doctors want to go back to paper charts, and the staff seemed terrified when I asked them if they'd consider going back to paper charts because EHR has made their work life better," commented CEO Lamont.

At age 62, Lynn Walmer, MD had never used a computer at home or at work prior to EHR. "When I first heard about EHR, my mind-set was, 'do I have to?' Now, I love it. It's better than dictation and forces me to be a better doctor." This comment reflects informal conversations with employees during the site visit to The Eye Center of Central PA. IT Director Scott Peterson summarizes the EHR process as "not doing anything new, just different." While the workflow changes, the clinical testing does not. "What's new is becoming familiar with visual cues such as colors on the screens," added Peterson. The design approach of the Medflow system has been to put everything on a single screen (rather than tabbed or indexed to different screens), which the staff at The Eye Center of Central PA has found to more closely resemble how tasks were processed in the paper environment. Extensive research done in the field of software design shows that staying on a single screen and varying size/color/placement of text reduces time to perform a computing task, while clicking to separate screens is more difficult and increases user error.[2]

"We think the patient experience is better because there is no confusion or time lost interpreting handwritten notes. Because all the information is in one place, we have more time for education," commented Amy Hamm, Director of Operations.

Carrots and Sticks, Courtesy of the Federal Government

The Federal Government has created incentives for adoption of EHR as well as penalties for failure to adopt. Practices that adopt EHR and can demonstrate that it is being used properly can receive reimbursement totaling $44,000 per doctor (MD and OD). The requirements are clearly defined and measurable under guidelines known as ***Meaningful Use***. The Eye Center of Central PA was the first ophthalmic practice in the United States to achieve this status and has received its first reimbursements (which will take place over five years). "The dollars are the 'carrot' that helps offset the initial costs; we believe we were able to achieve this because of the unique approach and capabilities of the Medflow system," commented IT Director Scott Peterson. Peterson's expertise also proved instrumental in bridging the gap between traditional clinical documentation and the new requirements. His knowledge allowed Medflow to design a standard workflow for eye care physicians that allows them to easily achieve meaningful status reimbursement; hundreds of doctors are currently engaged in the process.

In reality, the practice believes that tracking all the requirements for Meaningful Use has helped them reach an even higher level of patient care. "The data that need to be tracked are all relevant to measuring and improving clinical outcomes," noted Dr. Hartzell. "It's hard to put a price tag on that, and its value goes far beyond the government reimbursement."

In contrast, practices that fail to digitize their paper charts will incur a penalty, with a 6% reduction in Medicare reimbursement beginning in 2015. While many practices remain skeptical about being paid for meeting the Meaningful Use criteria given the government's prior failure with not having a good track record with paying providers for the PQRI incentive, the current mandate will succeed, according to CEO Lamont: "We have proven that a practice can comply and will get paid. The program works as advertised."

DISPELLING THE MYTHS OF EHR

There are several prevailing myths regarding electronic health record systems that need to be addressed:

Myth 1: ***"Paperless"***

An EHR greatly reduces paper generation and movement, but does not eliminate it entirely.

Myth 2: ***"It does the thinking for us"***

An EHR does not replace common sense. You still must "document what you do" as has been the case in a paper environment.

Myth 3: ***"It reduces head count"***

EHR shifts head count to more valuable tasks and away from more menial tasks (e.g., pulling charts) but doesn't reduce need for employees.

Myth 4: ***"Our older patients won't like it"***

The Eye Center of Central PA has a typical ophthalmic population of elderly patients. Over 60% of their patients use the e-mail reminder capability. One 82 year-old patient smiled as he told the practice, "I prefer the electronic chart too! It is better. You weren't expecting that answer from me."

Myth 5: ***"There aren't enough benefits to make it worth the effort"***

In addition to operational efficiency, EHR serves to prevent missed charges or incorrect billing. It also allows the physicians remote access to medical charts when away from the office. CEO Lamont also has discovered one side benefit not originally envisioned. One example is the ability to rapidly measure the impact of any new device or procedure brought into the practice. "We can quickly assess usage and clinical workflow by querying our EHR database. This takes just a few minutes and was simply not practical to do in a paper environment."

From Clinic to ASC

Integration into their surgery center was deferred to ensure the clinic was running smoothly on EHR. "We felt that implementing the clinic was the top priority and we wanted to have our undivided attention to getting this process moving forward before we took on the ASC. We were nervous about many of the 'unknowns,'" said Lamont. The Eye Center of Central PA's surgery center performs 40-50 cataract surgery cases on a typical day, with the surgeon alternating between two operating suites. Medflow is used via laptop terminals in preadmission, just outside the operating suites, within each suite, and at patient discharge. The system pulls information from the clinic module for each surgical patient, including surgical planning notes and calculations as well as informed consent documents. IOL packaging can be scanned directly to the patient record. Surgeons sign off on each case using an electronic signature pad next to the laptop. Charting is done in real time versus the paper method of gathering information, writing, organizing documents, and then filing for future retrieval. "Information now comes to us rather than us having to go to it. This has been a paradigm shift in our surgery day," remarked Dr. Hartzell. Although Hartzell and team routinely do cataract cases in 5 to 6 minutes, the tenor in the surgery center is calm and resembles a well-choreographed ballet. "It's about efficiency, not speed," he added.

Jane Zimmerer, RN, director of the ASC, remarked how much smoother each day also goes with the "back end" functions such as chart checking. While the ASC staff has always done 100% chart audits, this process is now much easier and streamlined using EHR and a checklist-driven system. Similarly, they have much greater control over the process to close out each case: Because all data are entered real time via "click and go" features in the software, there is no delay for dictation, transcription, review or signature. "Information flows with the patient," remarked Zimmerer. "We were always timely and efficient. EHR did not slow us down a bit, as our times stayed the same or slightly improved. Medflow for the surgery center is a very user friendly program for nurses, allowing them to evaluate and spend more time with the patient, which directly improves our patient care."

Impact on Practice Value

Surgeons who are considering selling their practice must take into account the impact of EHR on the overall value of the practice. Investing in an EHR may seem like it can be deferred to the new owner; however, that deferral will result in an immediate discount in value of a practice that is still "on paper." A young surgeon looking to buy or buy-into an ophthalmic practice will quickly understand the benefit of entering a modern and efficient environment that has already gone through the effort to automate much of the drudgery of documentation.

More importantly, such a practice risks losing patients who discover the benefits of being examined in a practice with digital records. This creates a vicious cycle that has the potential to destroy future goodwill (i.e., by accounting standards). Going forward and investing now to migrate to digital records reduces this risk considerably and puts the practice in a more attractive position when it comes time to put it up for sale.

Control of the Single Biggest Variable: Paper

Surgeons typically strive to identify and eliminate those variables that can adversely affect a surgical outcome. In terms of management and workflow within an ophthalmic practice, it helps to view paper itself as a major variable that impacts practice performance. Elimination of paper at different interaction points - new patient history (handled by Sophrona's plug-in module to the Medflow system), diagnostic imaging, the examination, surgical planning, surgical documentation, and billing – contributes to greater efficiency in the delivery of care. Each and every process and function that can be digitized eliminates time that can then be used for more value-added tasks. Take billing as an example: Pre-EHR, a staff member was required to hand-key the billing information from a paper chart into the practice management billing system. Using EHR, this happens automatically, saving time as well as risk of errors in coding and data entry. Indeed, bringing paper under control is perhaps the biggest opportunity to eliminate bureaucracy within the busy ophthalmic practice.

Summary

For the ophthalmic practice in search of an EHR, choosing the right product solution can seem a daunting task. Fortunately, the American Academy of Ophthalmology has issued a set of guidelines that defines the essential as well as desirable (i.e., optional) elements of any system being considered as part of the process of migrating from paper to digital records.[3]

In the case of The Eye Center of Central PA, this practice serves as a role model for those practices who are considering and/or hesitant regarding adoption of electronic health records. They have proven that taking a planned approach, with the right expertise on staff, allowed for a smooth implementation that has all doctors and employees embracing the system. Their practice culture, along with selection of the right vendor, are the two critical factors for success in the transition from paper to digital charts.

The impact on the patient experience and the employee experience has been overwhelmingly positive. The Eye Center of Central PA believes that having a digital environment increases their competitive strength, and the gains in efficiency have positioned the practice to be able to handle the growth they anticipate in the coming years.

Their choice of Medflow as vendor is indicative of their desire to work with a company that is looking down the road and has a deep understanding of the unique challenges facing ophthalmology in both the physical world (i.e., clinic and ASC) as well as the virtual world of electronic health records.

Figure 2: Impact of EHR on Workflow

	Before EHR	After EHR
# of Charts pulled per day for use in satellite locations:	300 per day	15 per day
Time required to…		
Pull charts	5 hours/day	Less than 1 hour
Generate a referral letter	days	immediate
Sign off on a surgical case	days	immediate
Time between surgical case and billing claim submitted	2-3 days	same day
Average Days to Collect	45	28
# of Employees in Billing Function	3	2
# of Employee Resignations due to EHR	–	None
% of Employees that would prefer to abandon EHR and return to paper charts	–	0%

[1] *Electronic Health Records Member Survey,* published by the American Academy of Ophthalmology, June 2009

[2] Lohr, S. *Seeing Promise and Peril in Digital Records.* The New York Times, July 17, 2011

[3] Chiang, M., Bowland, M. et al. *Special Requirements for Electronic Health Record Systems in Ophthalmology*, Ophthalmology, August 2011

AAO Establishes Standards for EHR

To help alleviate confusion, the AAO has spent the past five years studying the EHR environment in order to properly advise ophthalmic practices. The Academy's Medical Information Technology Committee has now issued a "checklist" to help in the decision process of selecting a system for electronic health records. There are 17 essential and 6 desirable features that cover documentation, vital signs, medical/surgical management, and imaging devices.

All 23 features are designed to drive standardization throughout the profession and help practices achieve Meaningful Use for reimbursement under the HITECH Act.

More information: www.aao.org