Training Strategies:
EHR Deployment Techniques

Introduction

This investigation and analysis of training strategies for adopting electronic health records (EHRs) is the third in a series of tactically oriented issue briefs arising from the California Networks for EHR Adoption (CNEA) initiative. The CNEA program was begun in 2006 to speed adoption and lower the overall cost of electronic health records (EHR) in California community clinics and health centers (CCHCs).[1] In August, 2008, eight grantees representing four models of EHR deployment were funded to advance the adoption of EHRs in the safety net and to share their experiences. Through this health IT collaboration, an array of services is provided to support the adoption of EHR and other applications. The CNEA models/grantees include:

1. **National network.** Build or leverage existing EHR networks, often national in scope, to provide for individual or groups of clinics in California. Grantees:

   - Open Door Community Health Center (ODCHC) in partnership with Our Community Health Information Network (OCHIN)

   - Next Generation Health Network (NGHN)

2. **Clinic consortia.** Work with California clinic consortia to expand their existing EHR product and implementation services to at least three of their members. Grantees:

   - Redwood Community Health Coalition (RCHC)

   - California Rural Indian Health Board (CRIHB)

3. **Multi-site expansion.** Support multi-site clinics to expand adoption of their existing EHR product and implementation services to at least three additional clinic sites. Grantees:

   - Golden Valley Health Centers (GVHC)

   - Shasta Community Health Center (SCHC)

4. **Hospital-based regional extension.** Work with local hospitals to extend their existing EHR product and implementation services to CCHCs in a region or service area. Grantees:

   - San Mateo Medical Center (SMMC)

   - The Children's Clinic, Serving Children and Their Families (TCC), Long Beach, California

For additional information about the CNEA initiative and the collaborative models of adoption, please see "Speeding Adoption of Electronic Health Records in Community Clinics" from the California HealthCare Foundation at www.chcf.org.

Training Overview

The extensive training that is required to teach staff and providers to use an electronic health record (EHR) system is one of the larger costs of implementation and an important opportunity for realizing the transformation in care delivery that EHRs can bring. This issue brief explores some approaches to training, their influence on the implementation strategy, and the ways they can streamline workflow and standardize policies and procedures. While training is often most

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intense in the weeks and days before the transition—or "go live"—all CNEA grantees found that without continuous, structured follow-up training, the benefits of EHR are never fully realized.

Investment vs. Expense

Finding time for training staff and clinicians involves trading off an early loss of productivity and revenue against a smoother and faster transition. Ideally, schedules are cleared in advance for intensive training just before the EHR goes live, and for additional training and practicing after the go-live date. This practice time is critical; several CNEA grantees found that expecting clinicians to practice their skills without actually giving them administrative time to do so was wishful thinking.

The cost of training for EHR implementation should be regarded as an investment rather than an expense because, without it, organizations risk spending money on EHRs without realizing the benefits. Investing in the training of a core group of internal staff members on all aspects of the system pays large dividends for a network and health center.

Nonetheless, the initial costs are often unanticipated and seem to hit particularly hard in the midst of payments for software licenses, vendor services, and hardware and network upgrades. Training costs include:

- Closing the clinic, reducing appointment availability, or re-assigning workloads during training;

- Accommodating reduced productivity for some months after go-live.

- Hiring temporary staff to fill gaps;

- Finding, renting, and scheduling training facilities;

- Building out a training center internally;

- Providing food, paying overtime, and incurring other expenses for weekend training or data-entry sessions;

- Providing time and resources to adjust work processes and templates in response to issues that arise from training;

- Paying overtime so that providers and staff can catch up on their work in the evenings;

- Developing or customizing training materials, manuals, or instructional videos.

Training staff and clinicians to use the EHR is never an entirely separate process from the implementation strategy and plan. Therefore, instead of training staff on all the

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Super Users: Key to Success

Identifying and training super users and clinical leaders will create a core of knowledgeable staff members familiar with the clinic's processes and with the requirements (and advantages) of the electronic health record. Some super users should have clinical experience; all of them should be trained fully on EHR functions to understand the impact on the entire data flow.

Training super users early is crucial to being able to champion the process of change throughout the organization, providing both clinical and technical perspectives. They can shepherd the analysis of existing workflows and the configuration of an EHR to achieve the best fit with the health center's needs and client base.

Early training also provides insight into the kinds of training that will be most effective for end-users, making it both more specific to their job function and more efficient. Super users can act as easily accessible mentors, providing front-line, ongoing support and training.

There should be at least one super user at each clinical site and these new responsibilities need to be written into their job descriptions. Many EHR vendors offer a discount in maintenance fees if the clinic has "certified" super users and trainers within their organization.

EHR functions at once, it can be effective to separate training and implementation into the different functions. For example, a clinic organization might initially train providers and staff in the use of e-prescribing, e-referrals, and electronic lab orders. Once that part of the EHR is working smoothly, training could move on to include more complete chart documentation. The best strategy depends on how the organization has approached change in the past, on the clinic staff's level of comfort with computers, and on how much the organization can afford to pull staff from their jobs for training at any one time.

Who Does the Training?

While training provided by the software vendor is important, it is unlikely to be sufficient. In general, the CNEA grantees found it necessary to supplement vendor training and, in some cases, take full responsibility for end-user training. The vendor will know the product, but may not understand the needs of a particular clinic, or of specific providers and the patients they see. Clinics, in particular, have unique reporting and billing needs that vendors struggle to support with products designed for private practices. Most EHR applications are highly configurable so that they can meet the needs of many different types of providers, specialties, and care settings. With that configurability comes complexity, which is often best understood by vendor personnel.

An effective training approach often takes advantage of the vendor's training for a designated core group of "super users." These are staff members trained to configure the system (i.e., populate, order, or filter drop-down lists, define clinical decision rules, and determine when alerts appear) and then to provide front-line support to other users in the clinic. Super users organize much of the rest of the training internally, where network staff or clinic super users take over. In this way, the trainees can learn and practice with the customized forms and templates best suited for a specific client population. This approach marries the knowledge of how the EHR works with how the EHR will be used at the health center.

Vendor personnel are expensive to bring onsite and their time needs to be used wisely. Changes in provider schedules or last-minute emergencies can wreak havoc on a carefully designed training schedule. For this reason, many vendors are now offering distance-based or computer-based training via the Internet. This type of training is well suited for communicating the basics of the system's features and functions and for allowing flexibility to individual providers and staff to access training. There is no substitute for hands-on training with a live instructor, however, and the sooner organizations can "train the trainers" in their own organization, the more flexible and cost effective the training will be.

An important consideration in designating internal super users and trainers is that training is not a single event; it is an ongoing process. Dr. Robert Moore, medical director at RCHC and Clinic Ole, describes this process: "There's training, implementation, a little more training, a little more implementation, and continued training over time. This process is critical, especially as new modules are rolled out and as clinical leadership identifies issues that need to be fixed or tweaked."

While the responsibility for training often lies with information systems (IS) or information technology (IT) staff, CNEA grantees have found that clinician-to-clinician training is more successful with certain parts of the EHR. Dean Germano, CEO of Shasta Community Health Center noted, "Implementation of EHR pushed our organization into putting more resources into training. We established a full-time clinical nurse trainer, an RN, who's responsible for the clinical piece, and we have an LVN and a medical director who work with our informatics department to make sure the training meets the needs of the organization. We do less classroom-based training now and a lot more one-on-one or very small group training, because that's what people need. And the clinicians in particular do not want to be in a classroom for two hours. They all learn at a different rate and so you just have to start accommodating those nuances."

Training as a Means for Data Conversion

Data from existing patient charts will need to be extracted and propagated to the EHR, along with appointments, billing codes, etc.[2] It is often effective to make this task part of the training by devoting several days to having the appropriate staff enter the information into the EHR. For example, several of the CNEA grantees found that having clinicians abstract the data was invaluable in terms of the integrity and relevance of the information that ended up in the EHR. It also gave clinicians a thorough understanding of how the EHR worked, fostered buy-in, and allowed clinicians to give informed feedback on the design of templates and forms. Similarly, once front office staff have entered all the appointments into the EHR, they will have a good mastery of that part of the system. Often, closing the clinic for a day, or working intensively over a weekend, proved to be the best way to accomplish this data-entry task.

Scheduling long days or weekends for front office staff to input appointments, clinicians to input patient data, and back office staff to input billing codes is a great way to get different functional groups up to speed on using the EHR. It often works well to prioritize inputting data on patients that are chronically ill and those with co-morbidities. Data on other patients can be added to the system as they schedule appointments. The health center will need access to data on the chronically ill first, and inputting that data will show what is not important to abstract from the paper chart, as well as what is important. There is no substitute for working with real data for evaluating how the forms and templates in the EHR work for the practice. Similarly, such intense work with the new system will help users to know what they are going to want out of the system, and changes can be made accordingly, before the full implementation of the EHR.

Three Training Strategies

Role-Based Training

Training is most efficient when it is organized according to function, and trainees are most attentive when the training is directly related to the work they do. Because it is tailored to the specific EHR functions that end-users will be performing on a daily basis, the super users familiar with these duties are most effective as trainers. For example, a clinical trainer has great credibility with clinical trainees and can answer specific questions about clinical documentation, templates, computerized physician order entry, and similar functions. Customized training materials developed after the system has been configured—with the health center's preferences and forms—are much more effective than the generic workbooks offered by vendors.

End-users in training need to be comfortable with the use of computers. CNEA grantees often administered a general computer skills assessment prior to role-based training so that computer literacy could be addressed, making the training less stress-inducing. Competency exams administered after role-based training and at several points following go-live can serve to pinpoint individual training needs, create accountability for data accuracy, enforce organizational standards, and identify trends in training effectiveness.

Process-Based Training

Although role-based training is fundamental to learning the new system, the need for process-based training will inevitably surface, because learning how to use a new system will raise issues of workflow. For example, training on e-prescribing is as important as training on the new, technology-enabled medication refill process. The former may involve only providers, but the latter will also involve medical assistants and call center staff and/or nurses. All staff involved in the process will need to understand their responsibility and the hand-offs that occur.

Process training provides the opportunity to update and standardize policies and procedures, to make sure that new responsibilities are captured in updated job descriptions, and to incorporate best practices into the care team's training. Processes will change and evolve as end-users learn to integrate the EHR more deeply into daily operations. Surfacing these issues during training sessions rather than in the course of a busy clinic day will ease the burden and anxiety many staff members feel during the initial transition to EHR.

Mock-Clinic Training

To provide end-to-end, integrated process training, many CNEA grantees elected to close the clinic entirely for a mock clinic, or dry run, of a typical clinic day. This exercise lasted anywhere from four hours to two full days immediately preceding go-live. Administrators often played the role of the patient, going from check-in to exam to check-out. Modeling different types of patients—routine preventive care and well-child visits to patients with several chronic conditions—helped providers and staff understand how the integrated care process would be changing. Having a debrief session at the end of these mock clinics (and for several days

during the initial go-live period) allowed staff to discuss which processes worked well and which needed further refinement.

Some multi-site health centers were able to rotate staff into their pilot clinic for a shift or for several days to train in a live environment. Clinical champions or mentors at the pilot site proved to be very effective in providing peer-to-peer training and easing the transition for a site-by-site EHR rollout strategy.

Insights from CNEA Grantees

The experiences of CNEA grantees and their clinics provide some insights into training strategies and the lessons learned.

- At San Mateo Medical Center, 75 to 80 individuals were trained as super users to help with all implementation tasks and to support end-users at 14 clinics. In addition, 15 "champion" super users were given extra training to support the implementation team. "They're like the EHR SWAT team," noted Chief Medical Informatics Officer, Mike Aratow. Some of the champion super users traveled to sites where the EHR was going live, with the goal of having at least ten support staff at each site.

- RCHC took quality improvement (QI) approach to training and implementation. CEO Nancy Oswald said, "Before they can be trained on the product, health centers need to be trained on the opportunities for redesign. EHR implementation disrupts how everything is done, and thus provides a unique opportunity to see how the EHR tool can be used most effectively. Assisted by a training team consisting of an IT staff member trained in the product, a QI staff member to address process flow, and the health center site manager, everyone starts by doing 'as is' workflows; this gives them the knowledge that what they do is part of a larger workflow that will have to be accounted for in the EHR." Framing this as a QI

Training Part-Time Providers, Volunteer Providers, and Locums

Many health centers rely heavily on part-time providers, volunteers, visiting specialists, and locum tenens to cover the demand for services. Training these providers on complex EHR features and functions can be challenging in that they may only use the system on an occasional basis.

Most CNEA organizations found ways to allow these providers the opportunity for training if they wished, or to use traditional paper documentation that is either scanned into the EHR or entered by medical assistants or nurses subsequent to the visit. Templates can be built for specialists that ease the documentation burden for them. Pending orders can be entered by nurses or medical assistants and approved by either the part-time provider or supervising physician.

project "leads us naturally to process improvement," added Oswald.

■ Golden Valley's CIO, Ray Parris, described how their training strategy is tightly interwoven with their two-phase implementation strategy. "In Phase I, we train the providers and staff how to use the e-prescribing system," he said. "We then allow the providers to advance toward 100 percent e-prescribing over no more than nine weeks— although this usually happens faster." While the providers are getting up to speed, training in additional duties continues for the support staff. "Our goal is get the support staff ready to support the provider staff when Phase II begins. During this phase, providers begin full charting, advancing toward 100 percent charting over 12 weeks."

■ Stacy Watkins, deputy director of operations for Open Door, described the health center's EHR "dress rehearsal" conducted the day before go-live. "It's a half-day session, where we close down and have fictitious patients in the form of our administrators. We go though the entire patient visit process, from registration to exam room to check-out." After ODCHC's first go-live experience and mock clinic, where the "patients" had very complex conditions, the organization decided that a ramp-up of increasingly complex patients may be more effective training. Accordingly, the first visit would be a patient with a cold and a medication prescription. The second visit would be a patient who required an exam, a diagnosis, and a lab order or medication. The next patient would be a well-child check-up or an annual exam on a patient with a chronic condition. Most providers were able to see two to three patients per four-hour mock clinic, and at the end of the day there was a debrief. "What worked? What didn't work? Did things print where they should? Did everyone have the permissions they needed to do their job the next day? That took a lot of anxiety out of the go-live."

Conclusion

Electronic health records are tools to help a clinic or hospital succeed more fully at its mission of providing the best care for its client population. Like other types of health information technology, implementing an EHR will prompt discussions about best medical practices, and about expectations for the shared use of the data collected. As a result, the training process will have an impact on many aspects of the organization, far beyond the technology itself. EHRs change the quality of patient care as well as the way care is delivered and recorded. A strategic approach to training can turn those changes into opportunities for improvement, and can help staff and providers negotiate the anxiety that always accompanies change.

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ENDNOTES

1. The Blue Shield of California Foundation (BSCF), the California HealthCare Foundation (CHCF), and the Community Clinics Initiative (CCI), a joint project of the Tides Foundation and The California Endowment, are funding this project.

2. For a comprehensive exploration of the chart abstraction process, please see CNEA issue brief "Chart Abstraction: EHR Deployment Techniques," California HealthCare Foundation, March 2010 at www.chcf.org.