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Accelerating Performance Improvement and Implementing Health Reform

Signature Leadership Series

Health Care Leader Action Guide on Implementation of Electronic Health Records

July 2010

CHIME College of Healthcare Information Management Executives

HRET HEALTH RESEARCH & EDUCATIONAL TRUST In Partnership with AHA

About HRET
Founded in 1944, the Health Research and Educational Trust (HRET) is a private, not-for-profit organization involved in research, education and demonstration programs addressing health management and policy issues. HRET, an American Hospital Association affiliate, collaborates with health care, government, academic, business and community organizations across the United States to conduct research and disseminate findings that shape the future of health care. Visit HRET's Web site at www.hret.org.

About CHIME
The College of Healthcare Information Management Executives (CHIME) is an executive organization dedicated to serving chief information officers and other senior health care IT leaders. With more than 1,400 CIO members and over 70 healthcare IT vendors and professional services firms, CHIME provides a highly interactive, trusted environment enabling senior professional and industry leaders to collaborate; exchange best practices; address professional development needs; and advocate the effective use of information management to improve the health and health care in the communities they serve. For more information, please visit www.cio-chime.org.

Disclaimer: This guide is intended for educational purposes only. Consult a qualified expert when implementing an electronic health record.

EXECUTIVE SUMMARY

The purpose of this guide is to provide hospital chief executive officers and other members of the executive team with a basic understanding of the challenges of implementing an electronic health record. The guide is organized into high-level categories that executive teams should consider in planning and implementing an EHR.

This guide does not fully address the EHR selection process or meaningful use certification. When the meaningful use final rule is announced and fully understood, CHIME and the AHA will provide more specific guidance that will complement the information in this guide. For specific questions, please contact hpoe@aha.org or staff@cio-chime.org.

The high-level categories that CEOs should consider include:

Gather the Executive Team
The success of any EHR implementation hinges on an inclusive executive team, including a CIO, CMO, CNO, CFO and COO. Many organizations are creating new positions of chief medical/nursing information officers to gain clinician acceptance.

Develop a Strategic Plan
Information technology should be considered as a tool to achieve organizational goals. Leaders need to look at their overall strategic plan and include technology as a way to achieve objectives.

Perform Gap Analysis
To plan for implementing an EHR, the organization should measure where it currently stands in implementing technology and where it needs to go.

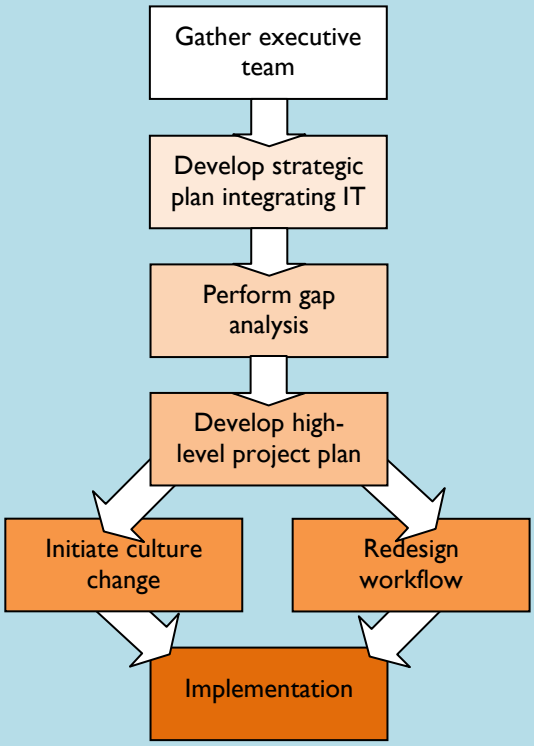
Develop a High-Level Project Plan
Committee members can drill down and establish timelines for implementation.

Initiate Culture Change
Culture change can make or break an EHR implementation. Having individuals own a piece of the plan can enlist their support of an electronic health record system implementation project.

Redesign Workflow Processes
An EHR should not automate already broken processes. This is an opportunity to establish new processes to improve overall patient care.

Implementation
Training and ongoing support will smooth the transition from paper to electronic health records. Upfront planning is crucial for successful implementation.

Implementation Roadmap — EHR Implementation



TIPS

Tips on Gathering a Team

- While the CIO is the point person to achieve meaningful use objectives, HIT initiatives will affect all aspects of hospital operations. Thus, there is an obvious need for visible backing from the CEO and other senior executive team members to assure success.
- The CIO and CFO should form a close working relationship. The IT needed to achieve meaningful use will require large capital outlays and involve ongoing support expenses.
- Encourage CIOs to participate in educational activities that increase their understanding of HITECH/ARRA provisions. In addition to federal initiatives, state plans are also expected to vary, so CIOs should be urged to get involved in initiatives that help them stay abreast of specific rules for their state.
- The senior IT executive should play a lead role in authoring and updating an IT strategic plan that supports overall organization strategic operating plans, including necessary components for meaningful use.
- The CIO also should be involved in efforts to keep the entire organization informed about the progress of a new system and progress toward achieving meaningful use. For example, the CIO can develop a task force charged with attaining meaningful use and grants, and have them report directly to the board.

TIPS (continued)

Planning Tips

- The IT plan is part of the foundation for the organization's pillars—quality, service, finance, people, growth, community.
- Use existing committees, such as an EHR steering committee, in assessing the current state and creating a desired future state. Or form a cross-functional committee, such as a meaningful use subcommittee, to address achievement of these objectives. One hospital organization has gone so far as to create a meaningful use czar and team dedicated only to this task.
- Task senior executives to get involved in aspects of the assessment where appropriate – for example, the chief medical officer can help assess current clinical systems and what needs to be done to improve them.
- Conducting gap analysis is not merely determining what technology is or isn't in place. It also involves assessment of corporate readiness for change, and requires a game plan to assess people and processes.
- Measure progress, gaps and work to be done on a scorecard or "readiness matrix" that visually presents the work that lies ahead.

Culture Tips

- Communication from the CEO sets the tone of the project, lays out the projected steps, and links it to the overall vision of the hospital.
- Project champions should be tasked with communicating progress to their departments.
- Physician communication requires special attention and effort. For familiarization and information briefings, use staff newsletters, focused e-mail, handouts, meetings with medical staff and office managers, and office visits.
- Absolute transparency and honesty are critical to maintaining credibility.
- Organizations need to provide a non-threatening way of providing feedback after implementation.
- Milestone events, such as go-lives and achieved targets, merit celebrations.

INTRODUCTION

For more than a decade, hospitals and health systems have been working to realize the promise of health information technology (HIT) to provide safer, more effective and less expensive care. While there have been numerous success stories, many organizations are still in the early stages of implementing HIT to improve care and lower costs. Realizing the true promise of HIT, especially electronic health records (EHRs), is harder than it looks.

The Health Information Technology for Economic and Clinical Health (HITECH) Act under the American Recovery and Reinvestment Act (ARRA) of 2009 established a set of incentives and penalties for adoption and use of certified EHR systems. The ultimate vision is to improve the quality and value of American health care. In essence, however, HITECH has created a 2015 deadline for hospitals and physician offices to implement a certified EHR system and meet a set of "meaningful use" requirements to avoid Medicare payment penalties. Before 2015, HITECH provides Medicare incentive payments for those hospitals that can demonstrate meaningful use of a certified EHR system. Some hospitals and physicians may also be eligible for Medicaid incentive payments that will be administered by the states. CMS has estimated that between $14 and $27 billion in incentive payments will be distributed over ten years. The actual spending, however, will depend on the number of hospitals and physicians that qualify.

Even before HITECH, hospitals were building EHR systems and recognizing their potential to improve patient safety and efficiencies in care delivery. Implementing these systems is a time- and resource-intensive process. Thus, the timelines established by HITECH and the regulatory requirements for implementation may prove challenging for hospitals.

In addition, most of the incentive payments will be made retrospectively. Because of this, many health IT leaders are warning hospital CEOs that federal funding should not the primary goal of implementing an EHR.

"We developed a seven-year strategic IT plan back in 2007," says Kimberly Kalajainen, vice president and chief information officer, Lawrence & Memorial Hospital, New London, Conn. "After careful analysis, we plan to stay the course and not attempt to rush our implementations in a hasty attempt to receive incentive payments. The total cost of our project (clinical and business IT solutions) is $32 million. The ARRA reimbursement is estimated at $6 million. The ROI is about $3 million. Hence, we are staying the course and not looking to accelerate."

Separate incentive payments are available for hospitals and physicians.

What is an Electronic Health Record?

The Electronic Health Record is a longitudinal electronic record of patient health information generated by one or more encounters in any care delivery setting. Included in this information are patient demographics, progress notes, problems, medications, vital signs, past medical history, immunizations, laboratory data and radiology reports. The EHR automates and streamlines the clinician's workflow. The EHR has the ability to generate a complete record of a clinical patient encounter—as well as supporting other care-related activities directly or indirectly via interface—including evidence-based decision support, quality management and outcomes reporting.

Healthcare Information and Management Systems Society's EHR definition

After the original legislation was passed, Congress approved additional legislation that extends the incentives to hospital-based ambulatory-care physicians. Other hospital-based physicians that provide primarily inpatient services, such as radiologists, pathologists and anesthesiologists, are still excluded.

As with any government program that promises federal funds, a number of conditions must be met to qualify for payments:

- Payments can be made only to eligible hospitals and eligible providers, as defined by legislation. Expanding eligibility to cover other providers will take additional legislation.
- Providers must use certified technology to qualify for payments. Separately, the federal government has issued rules that establish a temporary certification program. This temporary program will be replaced by a permanent certification program. Only EHRs certified through this new federal process, which will begin in the fall of 2010, will qualify.
- Providers will be required to demonstrate "meaningful use" of electronic health records. CMS has proposed requirements in each of five areas:
    - To improve quality, safety and efficiency, and reduce health disparities;
    - Engage patients and families in their health care;
    - Improve care coordination;
    - Improve population and public health; and
    - Ensure adequate privacy and security of health information.

The proposed version of the rule establishes a standard of what constitutes meaningful use of electronic health records, involving 23 objectives for hospitals and 25 objectives for physicians. The proposed rule also included new quality measures that must be calculated using EHR systems. Among the proposed objectives are:

- use of computerized physician order entry;
- maintaining up-to-date problem and medication lists;
- providing patients with an electronic copy of their health information upon request
- having the capability to exchange clinical information with other providers of care; and
- having the capability to provide electronic syndromic surveillance data to public health agencies.

The objectives are expected to increase in difficulty over time, with additional requirements added in 2013 and 2015. The final rule on meaningful use was not available at the time of publication of this guide, but is expected by August.

As noted above, payments made through the Medicare program will be made retrospectively, after a provider has already borne costs in purchasing and installing the EHR system and supporting infrastructure. For some hospitals and physicians, funds will also be available through state Medicaid programs, including funds in the first year to support adoption, installation, and upgrading of certified EHRs without having to meet the meaningful use requirements. The Medicaid program, however, is optional for states and is limited to hospitals and physicians that meet specific thresholds of Medicaid patient volume.[1]

[1] The Medicaid patient volume thresholds are generally 30 percent for physicians (less for pediatricians) and 10 percent for hospitals (less for children's hospitals). Be sure to consult the final rule to verify the thresholds that apply to you.

HITECH also approved a number of grant programs to facilitate adoption of health IT and health information exchange (HIEs). Two of those programs will be implemented primarily at the local level. Regional Extension Centers (RECs) will provide technical assistance to primary care physicians and some small, rural hospitals on how to select and implement an EHR. The state-level HIEs will promote and guide development of exchange models within individual states.

It is very clear that the implementation of electronic health record systems and the fulfillment of federal requirements to receive stimulus funds will be complicated. CEOs and other senior executives will need to work together to successfully adopt the technology and manage the changes that these systems bring to an organization.

Where to Begin

Implementing an EHR may seem like a daunting task. After all, such systems are expensive. Also, HITECH payments will be made retrospectively, so providers cannot count on these funds for such upfront costs as purchase, implementation and training.

> "We do not focus on the 'meaningful use' requirements as a separate initiative. We have merged those requirements into our larger advanced clinical systems strategy and simply highlighted those areas that address meaningful use. The meaningful use requirements are the 'low water mark' for advanced clinical systems."
>
> Mary Carroll Ford
> Vice President and Chief Information Officer
> Lakeland Regional Medical Center, Lakeland, Fla.

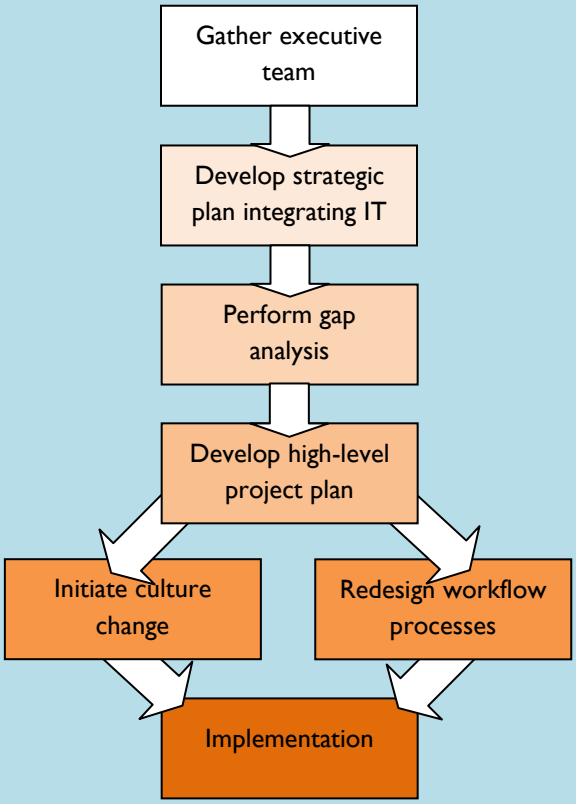
Furthermore, the EHR affects nearly all aspects of care delivery. EHRs should be viewed as a tool to revolutionize care systems though workflow redesign and optimization. Workflow redesign will require change, which requires a clear vision linked with strong leadership and a shared commitment to action by all users—nurses, physicians, pharmacists, lab, radiologists, and even patients.

To successfully implement EHRs, hospital leaders, especially those in the C-suite, should focus on the strategic direction of the hospital and incorporate EHRs where and how they provide the most benefit. They need to "rally the troops" to gain buy-in and user engagement. And they need to secure proper funding. Successful implementation of EHRs must be built on a solid foundation of planning and execution, along with discipline across the entire organization for several years.

> "The creation of the HITECH Programs will 'build the foundation for every American to benefit from an electronic health record, as part of a modernized, interconnected and vastly improved system of care delivery.'"
>
> U.S. Department of Health and Human Services HIT Website

This guide outlines an implementation roadmap that can assist hospital leaders in taking a disciplined approach to EHR planning.

Implementation Roadmap — EHR Implementation



Source: Adapted from *Rules of Engagement: Proven paths for instilling, then installing a CPOE approach that works*. © 2006 NAHIT publication

GATHER THE EXECUTIVE TEAM

Because the electronic health record is a massive investment and changes the way care is delivered in hospitals, the CEO needs to start with two important steps at the very beginning of the EHR journey:

1. Educate the board to gain necessary support.
2. Create an executive team to formulate and communicate the EHR vision.

Board support is essential because an EHR implementation requires a tremendous amount of capital, time and culture change. In addition to understanding the general provisions of the federal meaningful use and certification requirements, trustees need to be regularly updated on implementation progress. They also should understand that the EHR investment is not a typical IT investment. The CEO needs to communicate how this investment will improve quality of care, create efficiencies and help the organization meet its overarching vision.

In implementing an EHR system that achieves meaningful use objectives, the biggest risk to organizations is that leaders will rush to implement systems. In their haste, many essential aspects of planning and strategizing may be overlooked. Shifting an organization to a new mode for capturing, sharing and maintaining patient information requires extensive involvement of the entire senior executive team from the very beginning. Gathering this group—including the chief operating, financial, medical, nursing, information and human resources officers—to define the EHR vision is essential because this team will be responsible for communicating with and engaging employees and physicians.

An EHR will affect most workflows in an organization and, therefore, all entities must have input at the very beginning of planning. Each of the executive officers must have a role in connecting the electronic health record's value to the organization's overall vision. Planning should focus on improving the quality of care; technology should be viewed as a tool to achieve this goal.

The National Center for Healthcare Leadership offers some examples of value statements that can be used in communicating the value of EHRs across the organization:

- Enhanced access to and improved continuity of care
- Physician connectivity and support to physicians in maintaining a work/life balance
- Reductions in malpractice liability exposure
- Protection of patients from harm
- Improvements in operational efficiency
- Support of facility and service expansion

It is crucial that the full executive staff has an overall view of the organization's IT strategic direction and knowledge of EHR implementation so that they can provide support to the CIO, coordinate efforts effectively across the organization, interface with the board and other constituencies within the hospital, be an advocate with the medical staff, and be able to discuss the organization's vision and tactics involving EHRs intelligently in public.

Role of the CIO

The CIO will be at the apex of your organization's drive to achieve meaningful use. "Senior management is counting on meeting meaningful use [objectives] in the first year," noted a CIO at a New Jersey hospital. "It is my responsibility to make that happen."

CIOs play a key role in analyzing an organization's readiness to meet meaningful use objectives, determining a game plan and claiming as much of the HITECH stimulus reimbursement as possible. With meaningful use objectives coming into focus, CIOs have a better idea of what they specifically have to do to achieve these targets for using electronic health records. Planning has become clearer as a result and has grown both more complicated and crucial.

For example, the linkage of meaningful use to reimbursement will involve financial considerations, and CIOs will need to interact with the financial office to understand cost report timing and to minimize the impact of EHR purchases on cash flow, which could hamper many organizations because of the large expenditures involved.

Other areas of concern for CIOs in the meaningful use era include:

- HITECH and HIPAA security regulations, which will raise the ante on protecting sensitive patient information.

- IT strategic planning updating, as needed, to achieve meaningful use.
- Vendor communication to ascertain where IT suppliers are in providing products that will meet meaningful use objectives.

Many CIOs also are their organization's experts on meaningful use requirements, not only understanding their implications for the organization, but also being able to frame any discussions and facilitate plans to achieve objectives. Shifting responsibilities make this an exciting time for CIOs, who find they have new expectations in reporting to other senior executives and the CEO. Growth in responsibilities also is moving some CIOs out of their comfort zones, particularly those who are more task-oriented. The current environment requires top information executives to embrace new responsibilities, many of which will require additional training, and tighter integration with and support from the CEO.

New Roles—CMIO and CNIO

The enormity of the challenges involved in implementing electronic health records— particularly the need to gain clinician participation and support—is prompting some organizations to create positions for specialized executives who can work in both the caregiver and IT realms.

Many organizations are turning to a chief medical information officer (CMIO). In addition, some are looking to add a chief nursing information officer (CNIO). Estimates suggest that about 2,000 hospitals or health care organizations have CMIOs; similar data are not available for CNIOs.

Key job responsibilities for CMIO and CNIO roles include:

- Serving as a liaison between IT and clinicians to communicate issues and challenges
- Involving clinicians with the IT process, including vendor selection, gaining their support
- Acting as a change catalyst, motivating and reinforcing clinician behavior change
- Assisting in education
- Designing and testing information systems
- Improving workflow by developing order sets, standardizing care plans and designing clinical decision support
- Facilitating and managing design validation and implementation support
- Reporting (outcomes and quality) based on digital records
- Documenting and broadcasting realized clinical benefits

CMIO and CNIO roles can help organizations implement EHRs under the tight timelines hospitals will face in meeting meaningful use objectives. However, organizations can successfully implement EHRs if they have a CMO or CNO who is open to taking on some informatics responsibilities or if an organization has several physician champions, sponsors or partially funded roles in IT to provide critical insight, feedback and leadership.

Organizations with one or both of these positions say they meet different needs. CMIOs assist organizations with physician adoption and leadership, while CNIOs help organizations achieve success in outcomes reporting, quality reporting, workflow improvements and data assessment, and generally allowing the nurses' voice to be heard in the implementation process. The CMIO role, in particular, has evolved over the years, away from merely serving as a liaison between medical and IT staffs. Now, CMIOs are getting more involved in technology decisions and helping use data derived from clinical records to develop improvements in care delivery.

Whether these executives hold formal CMIO/CNIO titles or not may not be important if an organization has talented, credible clinicians who happen to have significant IT knowledge. In any event,

hospitals will need to have a plan in place for bringing clinician involvement and support to its EHR implementation.

Some hospitals have decided not to create CMIO or CNIO positions. Yet where CMIOs or CNIOs have not been added, organizations generally agree that a key to success is having physician and nursing leadership, typically provided by named individuals regardless of title. Many hospital executives say that CMIO or CNIO roles are invaluable because they provide additional leadership that increases clinicians' willingness to use EHRs. CMIOs and CNIOs bring the most value to an organization when they partner with the information systems department to enable the transition from paper to digital records.

Strong proponents of the CMIO position say it is crucial in implementing an EHR, and that small hospitals should try to fill the role, even if only on a part-time basis. These proponents say the CMIO is a key leader and officer for the entire organization and plays a key role in workflow design and optimization, which provide the bulk of return on an EHR investment.

"Our executive team has been very supportive of my efforts to make this IT project the number one priority for the entire health system. That decision was the defining moment for this organization's ability to meet the developing requirements for national health care reform. I work closely with the CEO and the rest of the executive team on all of the communications to the medical staff and employees. Being part of the executive team is necessary to enable this type of success."

Dave Roach
Vice President and Chief Information Officer
Kadlec Health System, Richland, Wash.

Team Tips

- While the CIO is the point person to achieve meaningful use objectives, HIT initiatives will affect all aspects of hospital operations. Thus, there is an obvious need for visible backing from the CEO and other senior executive team members to assure success.
- The CIO and CFO should form a close working relationship. The IT needed to achieve meaningful use will require large capital outlays and involve ongoing support expenses.
- Encourage CIOs to participate in educational activities that increase their understanding of HITECH/ARRA provisions. In addition to federal initiatives, state plans are also expected to vary, so CIOs should be urged to get involved in initiatives that help them stay abreast of specific rules for their state.
- The senior IT executive should play a lead role in authoring and updating an IT strategic plan that supports overall organization strategic operating plans, including necessary components for meaningful use.
- The CIO also should be involved in efforts to keep the entire organization informed about the progress of a new system and progress toward achieving meaningful use. For example, the CIO can develop a task force charged with attaining meaningful use and grants, and have them report directly to the board.

DEVELOP A STRATEGIC PLAN

Strategizing about EHRs includes examining current organizational strategic plans. The implementation of EHRs cannot be viewed as simply a project or the work of the information technology department. Rather, it needs to be the foundation of an organization's pillars—quality, service, finance, people, growth, community. The strategic role of EHRs in the organization needs to be explicitly spelled out so that everyone in the organization is aware of the connection. Concrete metrics need to be attached. Further, the executive team needs to understand the connection so they can communicate and engage staff and physicians.

With the executive team assembled, leaders need to develop the plan of how the EHR will help an organization achieve its goals. An EHR won't improve patient safety on its own, but it will help improve communication, which then can be linked to improved safety. A clear connection needs to be developed to achieve a successful implementation.

EHRs also are expected to affect many health care business relationships in communities, as physicians increasingly look to hospitals for help in adopting EHR systems and as organizations face increased demands to share health care information with other providers and with patients. How these goals fit into the organizational plan needs to be examined.

Further, meaningful use objectives can provide a general guide for hospitals that want to determine where they need to be to qualify for stimulus funds under the HITECH Act. However, organizations must consider different routes before arriving at that final destination – many are using different approaches in implementing IT, depending on their individual strategies, cultures, markets and structures. For example, an academic medical center in a competitive metropolitan market is likely to have different applications, infrastructure, vendor-supporting and technology management practices than a freestanding suburban hospital with different mission-centric objectives, community and medical staff dynamics, and abilities to fund IT.

With the convergence of HITECH planning as well as health care reform, many hospitals are aware of the increased stakes involved in health care IT. They are dedicating more resources to support assessments of the current IT state, what the organization wants to achieve in the coming years, and the IT resources that are needed to get there.

In sum, the push to implement electronic health records will cause significant change in many aspects of care delivery, and the cost of implementation and degree of coordination required to achieve success will involve regular attention and participation from an organization's CEO and senior executives. Provider success in achieving meaningful use will serve as a foundation for upcoming payment reform.

PERFORM GAP ANALYSIS

Hospitals typically have a wide variety of applications in place, and leaders need to assess what they have and what meaningful use will require of them. It is essential for an organization to determine where it is in the journey to implement electronic health records and how much further it needs to go.

Conducting a gap analysis – assessing the difference between the current state of readiness and the future ideal state – is sometimes viewed as purely a function of IT, with top information systems

personnel leading the analysis and then quantifying current and future technology needs that will be required to meet organizational goals.

For many organizations, it is natural for the chief information officer to take the lead role in conducting an assessment of current technology. In many cases, an organization's top IT executives interact with or lead steering committees that provide broader guidance for EHR direction in an organization.

However, CEOs are playing a variety of roles in this assessment phase. At the very least, IT executives should report their findings to the CEO and the board on a regular basis. In other organizations, CEOs are aligning themselves as key partners in the process, and other members of the senior executive team are brought in to provide feedback and increase buy-in. Having responsibility for IT discussions reside with an oversight committee, defining meaningful use as part of a larger initiative, or blending it into a strategic plan helps to place meaningful use discussions into a larger context.

Oversight committees may take on various forms, and there may be several active groups in which dialogue occurs with the intent to form consensus among different EHR stakeholders. HITECH may be viewed as its own program for progress tracking, or it may be seen as tactical requirements that are handed off to EHR-related project managers. Clinical adoption through meaningful use, in its broadest sense, is the key success factor of all EHR-related initiatives, and organizational change efforts to support it should be pervasive.

DEVELOP A HIGH-LEVEL PROJECT PLAN

It is not just a simple matter of determining what technology needs to be in place to meet objectives and qualify for stimulus fund payments. Increasingly, the term "governance" is being linked to overall IT implementation, maintenance and management. IT planning is attempting to answer the following questions:

- What is the governance model?
- What is the capacity for change?
- What are the idiosyncrasies that are unique to our organization?
- What are our particular needs and political landscape?
- How do these needs align or compete with other needs?
- Does our portfolio align to our mission and current business and clinical objectives?
- What can we do to manage risk with such a "busy" portfolio?

The perception and history of successes, accomplishments and failures; the relationships that are in place or not in place; and the skills within IT are all important components of any planning that occurs in getting EHRs to a particular future state.

This is also the time to identify project champions representing each population that will be affected by an EHR implementation—nursing, pharmacy, radiology, clinical services. These individuals will spend a significant portion of their time on the project, identifying roadblocks and keeping executive management updated. Getting these individuals engaged at this point gives them the ownership necessary to implement upcoming changes.

Selecting an EHR

The first step in selecting an EHR vendor is to examine current IT capabilities and infrastructure in the organization and then develop a list of needs. Again, involving physicians and other clinicians early in the

selection process is essential to prevent user resistance. Further, being transparent with updates and decisions with other employees will go a long way toward easing anxiety and frustration.

> "My current senior team expects a game plan and review of where we are today and what we still need to do to make meaningful use a reality in 2011. The most important role I currently have is to maintain the IS strategic plan, provide leadership, change as needed, be cost-effective and stay focused so the plan is executed in a successful manner."
>
> Richard Mohnk
> Chief Information Officer
> HealthAlliance Hospitals
> Fitchburg and Leominster, Mass.

There are numerous factors to consider when selecting a system, so doing the proper preparation is necessary. User demonstrations are necessary and will highlight any clinical assumptions built into the product. A thorough examination of current hardware and what will be required to make the system functional with clinicians will need to be examined. Items such as handhelds, tablets or desktops should be included.

Planning Tips

- The IT plan is part of the foundation for the organization's pillars—quality, service, finance, people, growth, community.
- Use existing committees, such as an EHR steering committee, in assessing the current state and creating a desired future state. Or form a cross-functional committee, such as a meaningful use subcommittee, to address achievement of these objectives. One hospital organization has gone so far as to create a meaningful use czar and team dedicated only to this task.
- Task senior executives to get involved in aspects of the assessment where appropriate – for example, the chief medical officer can help assess current clinical systems and what needs to be done to improve them.
- Conducting gap analysis is not merely determining what technology is or isn't in place. It also involves assessment of corporate readiness for change, and requires a game plan to assess people and processes.
- Measure progress, gaps and work to be done on a scorecard or "readiness matrix" that visually presents the work that lies ahead.

INITIATE CULTURE CHANGE

After the technology goals are aligned with the strategic plan and the executive team is assembled, it is time to work on culture and workflow processes, two essential steps that will determine the success of an EHR implementation.

Organizational culture embodies everything in an organization — assumptions and beliefs, values, models of behavior, rituals, practices, symbols, heroes, artifacts and technology. With IT implementation, especially an effort as all-encompassing as an EHR, hospital CEOs and other members of the C-suite will need to spend a significant amount of their time on culture change. Their job will be to help employees and physicians connect the dots between the EHR and the actual goals it will achieve. This is why it is

essential that the C-suite team have input in the change management activities that will take place. If they are invested in the change process, then they will be much more effective in convincing other staff of the possibilities.

Before embarking on any change management plan, CEOs need to conduct a readiness assessment to identify a starting point. Questions should address the following issues:

- Staff knowledge and understanding of patient safety and clinical effectiveness issues
- Current levels of automation in existing workflows
- Current levels of users' computer skills
- Other organizational initiatives under way that could compete for time and resources[2]

Change is facilitated by trust and concern for other people, flexibility and innovation, policies, procedures and information management. If a group believes the specific technology effectively supports values that are significant to it, the group is more likely to support that technology. Conversely, if the group believes the technology will have a negative effect on its goals, the group will oppose the change. A general approach that emphasizes goals, guiding principles, fundamental concepts and principles of design process may make it easier to adopt the technology and tweak it as necessary.

At first, C-suite members need to focus on communicating the message and creating the sense of urgency for change, two of Kotter's eight steps in the change process (see box).

Eight Steps to Transforming an Organization

- Create urgency
- Form powerful coalition
- Create vision for change
- Communicate the vision
- Remove obstacles
- Create short-term wins
- Build on change
- Anchor the changes in the corporate climate

Source: Kotter, John P., (1996) *Leading Change*, Harvard Business Press

Employees and physicians need to be convinced of the benefits of the EHR system and its impact on efficiency and goal achievement. Similar to any implementation that has the potential for creating a great deal of change in an organization, the key to success is having every user believe that they own the technology.

"The technology champion is a manager who lobbies for project acceptance and who lobbies for resources needed for implementation. The activities of a successful technology champion reduce employee resistance to the innovation and obtain access to resources."

Linton, J., *Implementation Research State of the Art and Future Directions*, Technovation, Vol. 22, Issue 2, Feb. 2002, p64-79.

Board members and the CEO should be broadcasting the importance of the EHR in achieving the organization's vision. Other members of the C-suite team are responsible for communicating the message to their division/department leaders and gathering their input about how to achieve EHR goals. If the

[2] Adapted from *Rules of Engagement: Proven paths for instilling, then installing a CPOE approach that works*. (2006) NAHIT publication

board, CEO and C-suite team are successful, they should have created an army of managers who are excited about EHR possibilities. Out of this group, project champions should be identified in each division/department.

Clinician Buy-in

Many EHR capabilities will change the way nurses, pharmacists and technicians currently perform their work. Therefore, success depends on their acceptance of the EHR into their daily work lives. Most people have established preferences for the ways they do their work, and variation from these preferred practice patterns will take more time, at least in the beginning.

Leaders need to be completely honest about the upcoming learning curve. Executive leaders need to communicate to staff that new processes take time to learn, but also make the connection between the new processes and the benefits, such as improved care, more time with patients, and better work/life balance. As with any work, satisfaction comes with knowing that the work has purpose and meaning.

Any type of change runs into roadblocks at some point. This is why clinical champions need to be identified. These individuals will play a key role in conveying the benefits of change. At the beginning of project planning, they should provide input into designing new workflow processes and providing support to other employees. Senior management needs to communicate with this group through emails, newsletter and face-to-face meetings. Communication efforts need to be ongoing and their concerns need to be taken seriously. Failure to engage and keep champions engaged will almost certainly spell disaster. Each champion from every division should own the EHR.

Physician Buy-in

Because of the unique relationship between hospitals and its physicians, getting physicians to accept and utilize new technology is often a challenge. Yet, their cooperation is essential to success. Communication and transparency will go a long way in making the case for new technology, as does trust. Electronic health records will change the way in which all physicians practice, so leaders must involve them from the beginning, obtain their ongoing input and feedback, and incorporate their views and preferences into new workflow processes.

> "We use regularly recurring 'town hall' meetings with proper time allotted for questions and answers. We also try to be absolutely transparent to all employees who are curious or anxious about the changes. On the hospital and clinical side, we try to listen more to their concerns and needs and 'back in' those inputs into our ongoing planning sessions."
>
> Curt Kwak
> Chief Information Officer
> Providence Health & Services, 26 hospitals located in Alaska, California, Montana, Oregon and Washington

The physician champion must be a trusted medical staff colleague. He or she must remain a "practical zealot" throughout the most challenging of times during the EHR implementation lifecycle. At the same time, he or she needs to be a key change agent, knowing how to demonstrate empathy while motivating physician behavior change in ways that are in tune with the organizational culture, and have the authority to act.

Communication is Key

An essential tool for gaining staff buy-in is communication. Hospital leaders should use every vehicle at their disposal—newsletters, emails, intranets, and town-hall and smaller meetings. Open lines of communication will promote the transparency necessary to gain staff EHR ownership. Leaders need to be honest upfront and address issues, such as increased staff time to learn the new system. An effective

communication plan should be aimed at various audiences over the entire span of a project—from initial communication with the board, to ongoing publicity throughout the organization, from implementation announcements to reports of follow-up enhancements and additional training.

Initial messaging from the CEO, board and others in the C-suite sets the tone for the importance of an EHR project, and they should continue to emphasize that message throughout the duration of the project. IT leaders can also participate in the larger effort of communicating with the staff, physicians and community. Marketing and communication staff can augment EHR communication efforts.

Frontline users crave communication that reinforces the perception that IT staff or project team members will be available when the switch is turned on for a new system. Communication needs to continue after implementation so that concerns and issues can be addressed.

Culture Tips

- Communication from the CEO sets the tone of the project, lays out the projected steps, and links it to the overall vision of the hospital.
- Project champions should be tasked with communicating progress to their departments.
- Physician communication requires special attention and effort. For familiarization and information briefings, use staff newsletters, focused e-mail, handouts, meetings with medical staff and office managers, and office visits.
- Absolute transparency and honesty are critical to maintaining credibility.
- Organizations need to provide a non-threatening way of providing feedback after implementation.
- Milestone events, such as go-lives and achieved targets, merit celebrations.

REDESIGN WORKFLOW PROCESSES

Much focus needs to be placed on workflow redesign as IT will create the impetus to improve current processes. An EHR should not just automate paper charts. Rather, improved processes should be created and then automated. The processes will reflect the IT results; sub-optimal processes will create sub-optimal results.

A key element in workflow redesign involves understanding the steps in each process and how they connect with one another and relating that back to the organization's goals. It starts with process mapping to determine the actual workflow; don't assume that just because a process is written out on paper that it is actually performed that way by the caregivers. Unseen barriers may have created workarounds that are the new "standard" workflow. Observing the actual processes will help to implement changes that make sense to the frontline worker.

After the steps in the actual workflow are identified, it is time to redesign the processes, keeping in mind how IT can be used as a tool to automate certain steps. At this point, the Plan-Do-Check-Act

cycle can be effective because it uses data to understand the problem, evaluates and refines the solution over time, and standardizes the new processes.

When redesigning the steps in the workflow, it is imperative to get input from frontline workers. Ideally, clinicians, employees and physicians should design the new processes, with the IT team giving input on what the technology can automate and what needs to be included in the EHR to qualify for meaningful use. The team should try to develop a new system of doing things through the use of HIT.

Examine each major process—medication refills, appointment requests, lab reviewing, prescription writing, patient demographics and so on—and write its current steps out on a flow diagram. Then, examine the capabilities of the EHR system and how it can improve the process. Teams should challenge all assumptions and limitations. Some existing workflows will not be needed, and some others may be added. The front-line user needs to understand why processes are added or removed and how it will help them achieve the organization's goals.

Not all EHR processes will be quicker and more efficient. Don't insist that people switch from an efficient paper process to a less-efficient HER-based process just for the sake of automation. Sometimes, however, a slower EHR process can pay off in other ways. For example, progress note documentation with an EHR is slower than using dictation. However, by documenting directly in an EHR, notes are readily available to be shared with patients or consultants, or the notes can be used for immediate review of those patient-care questions that arise before a dictation would normally be ready. Additionally, while some processes may take longer, the time can be recouped in terms of quality of care. Physicians may be able to access data from their homes in the middle of the night, enabling them to make better, timely decisions.

Finally, all processes need to be redesigned with the customer in mind—the patient. Don't design for efficiency because the unintended consequence will be that you are removing steps that add value to the patient. In hospitals, patient value comes from having the right information at the right time to assist the clinicians in making the best decision regarding the patient. Implemented correctly, an EHR can dramatically improve communication among providers.

IMPLEMENTATION

After workflow analysis is done and a change management plan is started, it is time to start training and then implement the actual IT component. The communication plan needs to stress that while some new work processes might take longer or are more cumbersome with the EHR system, patient care will be improved. Training and support must be provided in order to overcome resistance and problems.

Training

Different people have different levels of comfort with IT. From early adopters to laggards, training needs to accommodate for the differences. There will be a lot of anxiety when a hospital or physician practice begins to use an electronic health records system. Tasks that were once done intuitively now become a labor of mouse clicks and keystrokes that seem to involve a secret code. Data easily found in a paper chart seems hidden somewhere on a computer screen.

In any health care setting, training in advance of using a new EHR system and tangible support for the implementation in its first days and weeks of use are critical success factors for facilitating the deployment.

There is wide diversity of opinion about how to gain the greatest benefit from training and make education efforts effective. In an informal survey of CHIME members, several overarching themes on training emerge:

- At some point during training, learners must break away to participate in training sessions outside of their normal work environment and away from their day-to-day duties.

- Effective training uses several approaches that attempt to cover the variety of learning styles and preferences of a diverse hospital staff.

- In addition to being offered in classroom settings, training programs need to take advantage of other avenues for getting knowledge to people – workbooks/user guides, quick reference guides, Web-based instruction, one-on-one trainers and "super-user" assistance.

- When well-designed, computer-based training modules offer the ability to train both inside and outside of the classroom. Further, questionnaires and EHR-based "practice sessions" enable closed-loop measurement of trainees' comprehension and retention. Further, the information garnered from closed-loop tests may help identify those who could serve as super-users and support their co-workers, and they also can show those who may need additional support before and during go-live efforts.

- Workforce members are likely to retain only a percentage of what they learn in training in advance of actually using a new system. Thus, training and support is critical the day of go-live, and in the days and weeks that follow.

- As users' knowledge base grows, they can be further trained to incorporate systems' advanced functionality and to take a fresh look at how workflows and processes can be improved.

Going Live

Choosing between a rapid or a staged implementation depends on how much upfront planning has been completed. Rapid deployment requires significant planning and change management. Organizations must have the resources available to deal with problems as they emerge and provide support to staff. A staged implementation allows organizations to discover and solve problems before system-wide implementation. However, it requires organizations to maintain an electronic and paper-based system until full implementation can occur.

Either implementation style requires clear communication about timelines, training and support. Clinician and physician champions can provide support and encourage laggards and slow adopters. Additionally, ongoing support must be provided during the first few months after the go-live date.

CONCLUSION

An EHR system has the potential to transform the ways in which care is delivered. It should not be viewed as an IT application, but rather an asset or tools that can assist in achieving organizational goals. However, EHR implementation is not an easy feat. Strategizing and upfront planning take strong leadership and commitment. Additionally, it requires ongoing support and training. Large-scale changes, such as an EHR system, present big challenges, but also significant opportunity to achieve safe, effective, efficient, patient-centered care.

TERMS AND DEFINITIONS

ARRA

American Recovery and Reinvestment Act of 2009
http://www.recovery.gov/About/Pages/The_Act.aspx
A response to the economic crisis, the Recovery Act has three immediate goals:

- Create new jobs and save existing ones
- Spur economic activity and invest in long-term growth
- Foster accountability and transparency in government spending

HITECH

Health Information Technology for Economic and Clinical Health Act
http://www.cms.gov/EHRIncentivePrograms
The HITECH Act established programs under Medicare and Medicaid to provide incentive payments for the meaningful use of certified EHR technology. The Medicare and Medicaid EHR incentive programs will provide incentive payments to eligible professionals and hospitals as they adopt, implement, upgrade or demonstrate meaningful use of certified EHR technology. The programs begin in federal FY 2011. These incentive programs are designed to support providers in this period of HIT transition and instill the use of EHRs in meaningful ways to help our nation to improve the quality, safety and efficiency of patient health care.

RECs

Regional Extension Centers
http://healthit.hhs.gov/portal/server.pt?open=512&objID=1495&mode=2
This federal extension program consists of Health Information Technology Regional Extension Centers (RECs) and a national Health Information Technology Research Center (HITRC). The HITRC will gather information on effective practices and help the RECs work with one another and with relevant stakeholders to identify and share best practices in EHR adoption, effective use, and provider support. RECs are designed to make sure that primary care clinicians get the help they need to use EHRs. A list of websites and emails for each REC is featured on the REC web site. RECs will:

- Provide training and support services to assist doctors and other providers in adopting EHRs
- Offer information and guidance to help with EHR implementation
- Give technical assistance as needed
- Provide outreach and support services to at least 100,000 priority primary care providers within two years.

ONC has funded 60 RECs throughout the United States to ensure plenty of support to health care providers in communities across the country.

ONC

http://healthit.hhs.gov/portal/server.pt
The Office of the National Coordinator for Health Information Technology (ONC) is the principal federal entity charged with coordination of nationwide efforts to implement and use the most advanced health information technology and the electronic exchange of health information. The position of national coordinator was created in 2004 through an executive order and legislatively mandated in the HITECH Act of 2009.

EHR RESOURCES

AHA Health Information Technology Advocacy – Meaningful Use
http://www.aha.org/aha/issues/HIT/100226-hit-meaningful.html
This web page features advocacy updates, bulletins, issue papers and a calculator for measuring incentive payments *(for AHA members only)*.

American Academy of Family Physicians
www.centerforhit.org
The Center for Health Information Technology at the AAFP features a variety of tools and resources.

American Medical Association
http://www.ama-assn.org/ama/pub/physician-resources/solutions-managing-your-practice/health-information-technology/hit-resources-activities.shtml
AMA comments and updates are featured on this web page.

Association of Medical Directors of Information Systems
http://www.meaningfuluse.org/
This website features link to the latest news, information and blogs on meaningful use.

Centers for Medicare & Medicaid Services
http://www.cms.gov/EHRIncentivePrograms
The official web site for the Medicare and Medicaid EHR Incentive Programs.

CHIME ARRA/HITECH
http://www.cio-chime.org/advocacy/stimulus/index.asp
This web page features white papers, advocacy statements and summaries of regulations.

HIMSS
http://www.himss.org/EconomicStimulus/
The Healthcare Information and Management Systems Society (HIMSS) provides a variety of resources on meaningful use, certification criteria and standards, and the HHS certification process.