

*Best Practices for Management and Board
Collaboration in Health IT Adoption*



NAHIT

The National Alliance for
Health Information Technology

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FOREWORD

After years of expectations, predictions and dreams, a new digital era for the nation's healthcare providers is upon us.

The inclusion of significant funding for health care information technology initiatives in the American Recovery and Reinvestment Act (ARRA) demonstrates the importance ascribed to health care IT's potential role in turning around the nation's faltering economy. The economic stimulus bill promises \$19 billion in funding over the next several years. The ARRA funds represent the financial muscle, flexed in 2009 by the Obama administration, that comes five years after former President George W. Bush initially called for most Americans to have electronic health records by 2014.

In addition to the funding, other factors suggest that other forces are now pushing health care organizations to accelerate adoption of electronic health record technology:

- » The health care segment of our economy is growing alarmingly as overall costs rise unabated. A government estimate released in late February 2009 estimated that health care now consumes about 16 percent of the country's gross domestic product annually, and that percentage is expected to reach 18 percent by 2018 without intervention. American businesses and consumers want action to stem rising costs.
- » Quality and efficiency concerns are buffeting the industry. Hospitals are under pressure to provide safer care when patients are sick and receiving treatment within their walls. Overall, providers are expected to keep people healthier while better managing their chronic conditions.
- » Providers realize that their mandate to provide care is expanding beyond just for the sick. Many feel the need to improve the overall health of their communities. This expanded mission involves a broader view of community members that touches all of their lives, not just episodes of care, and represents a significant growth in the need for tracking, monitoring and capturing of data.
- » Exponential growth in treatment regimens, medical research and pharmaceuticals has exceeded physicians' ability to stay current, and caregivers now see health care IT as an invaluable and necessary clinical tool.
- » The pervasive use of computer technology in the 21st Century represents a cultural shift among patients and caregivers, who expect IT to play a seamless role in care delivery.

While hospitals see this promise in health care IT, many also find the prospect for IT implementation daunting. For many, clinical IT systems represent uncharted waters. It's esti-

mated that about a third of American hospitals have some kind of clinical IT system. With physician practices, the track record is estimated to be much less. Recent studies suggest that only 5 percent of American physicians have implemented clinical systems, stymied by the cost, complexity and culture shock of the transition.

There's tremendous pressure on health care executives to implement IT systems quickly. The legislation gives financial incentives, through increased Medicare and Medicaid payments, to providers who have installed health care systems that provide "meaningful" benefit, starting in 2011.

But a two-year timeline is incredibly ambitious for installing health care IT at an organization, training users and adapting workflows to take advantage of computers' capabilities. Horror stories from failed or poor implementations are widely known and survive as industry legend, far overshadowing results achieved at leading-edge facilities that have set aside massive budgets for IT.

And executives know that their decisions now must be financially supportable after federal incentive funding goes away.

As health care organizations increasingly embrace computerization of clinical operations, it represents a pervasive shift in mindset and vision that, we believe, only can succeed when this paradigm shift is fully supported by an organization's executive leadership. Strong and committed leadership is required for successful IT implementation because clinical IT can upset the organizational culture in a way that's unlike any experienced by most hospital organizations in recent memory. It will challenge many core beliefs, obviate many long-held patterns and workflows and create additional burdens for work.

Fortunately, the health care industry can draw on the experiences of several pioneering organizations that implemented electronic health record and other technologies. Many of these implementations have been in place for years and all are producing real-world benefits for the providers that put systems in place.

While these organizations have ranged from large academic medical centers to smaller community hospitals, their experiences reveal similar patterns in the implementation process that can be identified and used by other organizations to reduce the trial-and-error process that typically precedes achieving success.

While no one suggests that knowing a few general rules will make the path to implementation easy, they represent a general roadmap for getting provider executives on the same page, analyzing an organization and adjusting its culture to survive and thrive with health care IT.

The National Alliance for Health Information Technology

Our approach to developing best practices

The content of this best-practices guide, and the process by which it was assembled, are emblematic of how NAHIT works. Bringing the knowledge, experience and vision of our members and other health care leaders to the forefront, this guide represents the real-world and best practices of a wide variety of organizations. Because these senior leaders shared their experiences, we are able to present you with the best advice that they can offer. The consensus-gathering, synthesis of information into knowledge, and cross-industry leadership required to produce this guide, are the hallmarks of NAHIT's approach in all of its initiatives.

In this case, NAHIT's Effective Leadership Work Group formulated the idea to conduct what we've termed *Virtual Idea Exchanges*. Over a 5-month period, we conducted eight web-based, hour-long discussions for senior leaders to share best practices for achieving strategic goals through effective health IT implementation. Each Virtual Idea Exchange explored a specific aspect of forging new working relationships among senior management and boards in the implementation of health care IT.

Acknowledgments

The following organizations generously shared their experience and expertise.

Virtual Idea Exchange Organizations

- » Ohio State University Medical Center
- » Albany Medical Center
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- » Virtua Health
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- » Poudre Valley Health System
- » University Hospital, Cleveland
- » Orlando Health
- » Northwestern Memorial Hospital
- » Texas Health Resources
- » Duke University Health System
- » NorthShore University HealthSystem
- » AHA Solutions, Inc.
- » ProHealth Care, Inc.
- » Center for Healthcare Governance

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ABOUT NAHIT

The National Alliance for Health Information Technology is a senior leadership organization dedicated to leveraging the power of health information technology to dramatically improve the U.S. health care system. Drawing on the talents and experience of top executives from all sectors of health care, NAHIT identifies and develops strategies and best practices that empower hospitals, health systems and clinicians to effectively invest in and use electronic health records and other information technology. We accelerate progress by forging consensus among key decision-makers across health care that resolves critical issues impeding the widespread adoption of health information technology. NAHIT is a co-founder of the Certification Commission for Healthcare Information Technology (CCHIT) and founder of the Healthcare Supply Chain Standards Coalition, now part of GS1 Healthcare US. For more information, visit www.nahit.org.

Best Practices For EHR Adoption Lessons from Leading Health Care Organizations

As a growing number of providers have discovered, information technology (IT) in general and electronic health records (EHRs) in particular can be a springboard to better care and outcomes for patients and a better workplace for physicians, nurses and other hospital staff. Achieving these benefits is anything but easy, however.

An EHR rollout is much bigger and more far-reaching than an IT project, which is challenging enough. To make the most of their EHRs, leading hospitals have overhauled work processes, retrained everyone from physicians to lab techs, and set adoption and improvement goals and met them. In the end, these hospitals transformed their organization and culture. And they have come to accept IT as indispensable as penicillin and vaccines to world-class patient care.

Along the way, EHRs pioneers made some costly mistakes and unproductive detours on the road to improving performance and lowering costs. They also did many things right. These hard-won lessons about what works can provide a critical roadmap for other providers. While there are no shortcuts to success, there is a growing consensus about the best practices for planning, designing and implementing EHRs.

Laying the right foundation

Health systems from Texas Health Resources (THR) and ProHealth Care to Eastern Maine Medical and Poudre Valley approach health care IT initiatives like any other enterprise-wide project: They must be grounded in helping to achieve the organization's overall strategic objectives and mission. Trendy technology for its own sake will not deliver the kind of return on investment (ROI) that matters to providers: improved patient safety, enhanced care at lower costs, better outcomes.

Despite deadlines from the American Recovery and Reinvestment Act (ARRA) and other external pressures to quickly deploy EHRs, providers need to take the time to build a realistic picture of their current situation and define the desired future state, according to Detlev H. Smaltz, chief information officer (CIO) for Ohio State University Medical Center and George T. Hickman, executive vice president and CIO of Albany Medical Center. After the organization identifies the gaps between the two, it can then create an IT strategy that will help it reach its goals.

Not surprisingly, this effort is time-consuming because one size does not fit all. While organizations may share common goals, such as consistently providing excellent patient care, how they use IT to help achieve them will vary. As with any hospital, "when you've seen one academic medical center, you've seen one academic medical center," says Asif Ahmad,

Duke University Medical Center vice president and CIO.

A well-thought-out IT strategy takes into account the provider's culture and existing IT systems and infrastructure. Depending on where the hospital is on the IT adoption curve, some may need to invest in supporting technologies, from wireless to servers, before undertaking an EHR implementation. Regardless of the starting point, though, strategic planning ultimately will save valuable time and effort by speeding up and streamlining later stages, including EHR design, rollout and adoption.

Four keys to EHR implementations

A mission-driven IT strategy provides a solid foundation for any clinical IT project. By itself, however, it is not sufficient to the successful development, launch and adoption of an EHR system. Through trial and error, providers have found four keys that help ensure an EHR system that lives up to its promise:

1. Committed and consistent leadership from the top.
2. Collaboration with users, especially physicians and nurses.
3. System design that reflects optimized clinical, administrative and other processes.
4. Regular communication to all stakeholders and training for all users.

While each element is important, the power lies in bringing the four together throughout the entire EHR process. After all, the cost, scope and stakes are high indeed for any EHR rollout: Facilitating major improvement or delivering even a decent return on investment requires widespread and meaningful use, which in turn usually can only be accomplished through substantial organizational change. As the experiences of providers as diverse as Malcolm Baldrige Quality Award winner Poudre Valley, Duke University, THR and Orlando Health show, these four elements combine to make a proven formula for EHR implementations that reduces the risks while ratcheting up the rewards.

Starting at the top

The drive for an EHR system among many early adopters often began with chief executive officers (CEOs) rather than CIOs. These leaders, at NorthShore University Health, Eastern Maine Medical, ProHealth Care and other hospitals across the U.S., had a compelling vision for their institutions. They also held a fundamental conviction that information technology was the catalyst and means for achieving that vision by changing their organizations for the better.

These senior executives see EHRs as the conduit for extending their reach beyond the traditional walls of their institutions, to better serve their communities and more closely connect area residents and patients with caregivers. To deliver on this promise, the hospitals make sure they adhere to sound management principles, planning and accountability for the EHR systems.

They begin by requiring a detailed business case, including quantifiable benefits with timetables for achieving them. Each provider uses a framework and language that fits its culture and organization. Virtua Health set measurable goals for its EHR based on helping achieve and sustain performance in the five key areas that make up its Star Initiative while Eastern Maine Medical folded its EHR into its Pillars of Excellence framework. Others, including Poudre Valley and NorthShore University Health, benchmarked progress and/or set milestones compared to other organizations, including the Baldrige Award, Davies Award from the Healthcare Information and Management Systems Society (HIMSS), and HIMSS Analytics.

To win crucial support for an EHR system, savvy CEOs manage up as well as down the chain of command. Aligning health IT projects with board priorities encourages trustees to endorse strategic IT spending. For example, ProHealth's board is laser-focused on quality, so senior management built a compelling case for its proposed HIT strategy and EHR investment by showcasing how IT would be integral to growth while enhancing patient safety and care. "We can see how the IT that we have now and will embrace in the future will allow us to critically analyze how we are doing as a system," explains Dan D'Angelo, MD, an oral surgeon who serves as ProHealth's secretary of the board of trustees.

While setting the tone and pace, CEOs hand off day-to-day responsibility for EHR projects to a leadership steering committee or team. Although the structure varies by organization, it includes IT leadership, other senior executives and clinicians.

Collaborating to win

Some of the most successful implementations are jointly led by the CIO and chief operating officer (COO) or by the CIO and a senior clinician, including chief medical information officers (CMIOs), chief nursing information officers (CNIOs), chief medical officers (CMOs) or chief nursing officers (CNOs). Indeed, CIOs and COOs are working more closely together and their roles are beginning to merge. CIOs are striving to make IT systems part of the fabric of their health care organizations while COOs are increasingly relying on EHRs and other IT to support and even drive efforts to improve patient safety, quality and operating efficiency.

For EHR and other IT initiatives, clinical information executives serve as important change agents. They take on the challenge of making the systems useful for the medical staff, ensuring IT helps clinical processes and winning over fellow clinicians. "My role very much is to be the ambassador to the physicians and clinicians," says Steve Margolis, MD, Orlando Health's CMIO for five years.

Even for hospitals without official clinical information executives, physician or nurse champions for an EHR are essential. At Texas Health Resources (THR), hospitals with high EHR use by medical staff leaders typically have high levels of adoption by

other physicians. For recruiting these medical staff champions, THR has even developed a *playbook* that describes the attributes they should possess.

Beyond these advocates, successful EHR adoption hinges on involving users in development and rollout. Eastern Maine Medical formed a physician advisory group to manage and reach consensus on contentious issues. Members met two to four hours per month and the health system paid them \$150 per hour for their efforts.

From the start of its EHR planning, ProHealth worked closely with the Independent Physician Association (IPA,) which represents 600 physicians in its markets. In a major show of support, the IPA mandated that if 70% of a member's practice revenue came from ProHealth facilities, the member had to implement an EHR system compatible with ProHealth's system by 2010. With the changes in Stark rules, ProHealth is helping defray the EHR costs for those affiliated physicians.

Streamlining processes to help EHR users

Clinician involvement goes hand-in-hand with designing EHRs that improve clinical processes. Similarly, leading providers also draw on the expertise of their other employees to build EHRs that will deliver the greatest value for the greatest number of users. Rather than simply automating existing processes, these organizations eliminate extra steps and wasted effort through a total process redesign.

Providers take different routes to reach the same process improvement goal. Eastern Maine Medical hired a project management team to work with its staff to review all processes involving physician orders and build new processes as needed. Poudre Valley turned to its nurses to lead similar process change. And THR worked with more than 500 subject matter experts across the system to map existing workflows, then develop improved versions that would be built into the EHR. "They created and then validated the design," says Pat Johnston, THR's vice president of EHR acute care and ambulatory care.

Critical to the design process is helping clinicians and senior executives decide what kinds of information and reports they want. Another important design element is building in key metrics and mechanisms to track them. Otherwise, the system could require rework after it is installed, notes THR's Johnston.

Poudre Valley sees IT as the means for extracting actionable data for senior executives and for enabling clinical teams to provide informed care to patients. Its EHR and other IT systems "exist for only one reason: To make sure everyone gets the information and knowledge they need to provide world-class health care," says CIO Branzell.

Communicating and training

All the planning, collaboration and design expertise in the world won't ensure widespread EHR use, however. Even mandating EHR use will not secure acceptance. To rally support and win cooperation, providers need to educate their stakeholders about the goals, process and timetable for the EHR. In addition, training is essential for ensuring users benefit from the system's vast potential to make their jobs better while delivering improvements in care and efficiency.

Communications should start at the beginning, as the project is getting underway and should continue periodically through all stages, including notifying of any changes and sharing results long after the launch. While major themes and messages should be consistent to all constituents, they can be tailored to address the concerns and benefits for specific groups, such as nurses, billing specialists or patients.

To emphasize the project's importance and spark enthusiasm, hospitals often develop a distinctive brand and/or slogan as part of a campaign to promote the EHR initiative. Providers also use graphics to convey complex ideas and highlight key points. A checklist similar to those used by *Consumer Reports*, for example, could visually link an EHR system's projected benefits and features to organizational strategies and goals, note CIOs Smaltz and Hickman.

Both communications outreach and training can take advantage of multiple channels, from paper to Web. Virtua, for one, has dedicated training rooms at each facility while also offering training through one-to-one interaction and self-directed web-based systems. It also makes superusers available to staff for help with new systems. THR starts with web-based training, then moves to instructor-led, hands-on sessions based on the user's specialty or role. NorthShore University and other organizations also arranged for their physicians to receive continuing education credits for training.

As with any new system and processes, using an EHR can initially take users longer to do their work. So based on feedback from early users, some providers make adjustments in training to address confusion or problem areas. "We help them optimize their use of the system by rounding with them, getting their feedback and continually working with the system," notes Ferdinand Velasco, MD, THR's chief medical informatics officer.

Path to improved performance

Done right, EHRs provide broad and substantial benefits to patients and their caregivers as well as other provider employees and the organization as a whole. An EHR system gives organizations a rare opportunity to rethink what they do and how they do it and then reinvent themselves.

With monies from ARRA available for health care organizations that use EHRs, many providers that have stayed on the sidelines until now are eager to move forward. Still, the sheer scope, cost and potential risks make an EHR project singularly daunting.

Providers can stack the odds in their favor, however, by building an IT program that follows proven best practices. As laid out in this paper, these critical steps for success apply for rural hospitals, urban academic medical centers and every institution in-between.

Of course, this broad outline and these guiding principles can take a provider just so far. As in many cases, the devil is in the details—in planning, designing, reworking processes, setting quantifiable goals, creating training and all the myriad tasks necessary for EHR initiatives. As a result, each health care organization will need to put its unique stamp on its IT strategy and EHR plan.

To delve deeper into many of these topics, The National Alliance for Health Information Technology (NAHIT) has collaborated with a number of organizations including The American Hospital Association (AHA) and College of Healthcare Information Management Executives (CHIME) to hold Virtual Idea Exchanges, write reports and case studies and develop other materials to give practical aid and advice to providers. More information on many EHR matters is available at the following web sites:

www.nahit.org
www.hpoe.org
www.chime.org

Make No Little Plans: Preparing For Complex IT Projects

February 2009 Virtual Idea Exchange

Key idea: Despite external pressures to speed health care IT implementations, sound management principles and strategic planning remain essential keys to success. It's important for hospitals executives to study their organization and then design an IT strategy that matches its vision and culture.

Virtual Idea Exchange Presenters

Detlev H. (Herb) Smaltz, PhD, FHIMSS, FACHE, Chief Information Officer Ohio State University Medical Center

George T. Hickman, FHIMSS, CPHIMS, Executive Vice President & Chief Information Officer, Albany Medical Center

Moderated by:

John Glaser, PhD, Vice President and CIO, Partners Healthcare System, Inc.

Prepare the way

Before hospitals embark on any big IT projects, they need to put in place a solid foundation, according to Detlev H. Smaltz, chief information officer for Ohio State University Medical Center and George T. Hickman, executive vice president and CIO of Albany Medical Center. Before turning their attention to IT at all, organizations first must develop a realistic picture of their current situation and what the desired future state should look like, and then identify gaps between the two. The organization then can study how IT can fill the gaps, including building business cases that include the cost of any potential IT initiatives.

In short:

- » An IT strategy that fits within an organization's strategy and supports business and clinical goals.
- » Senior executives who agree that the IT strategy and projects are the right initiatives or the IT projects will end up being perceived as off-base and off-target, and benefits that many expected won't be realized.
- » An IT approach that can be described and understood by all major participants: board, executives and constituents.

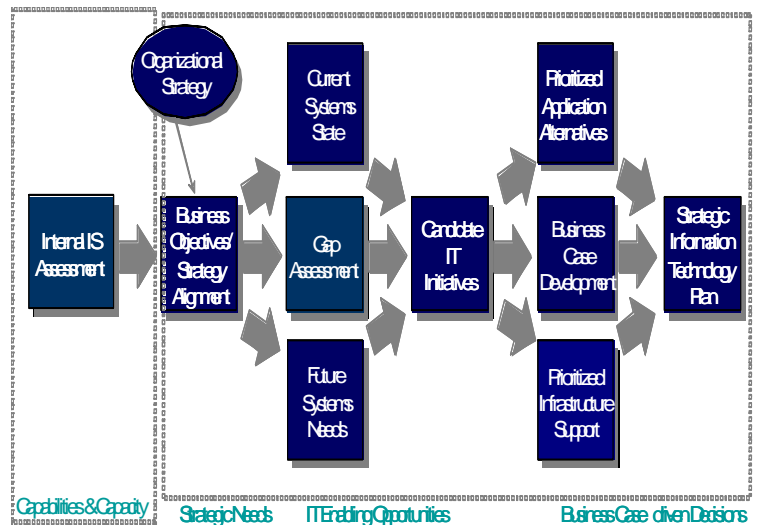
Putting in place essential building blocks

As part of any IT planning process, hospitals need to take into account their existing IT systems and infrastructure. Depending on where they are in the adoption curve, the prudent course may be to learn to walk before they run. In addition, before launching a major new IT program, some organizations may need to lay out a multiple-step process that first calls for investing in supporting

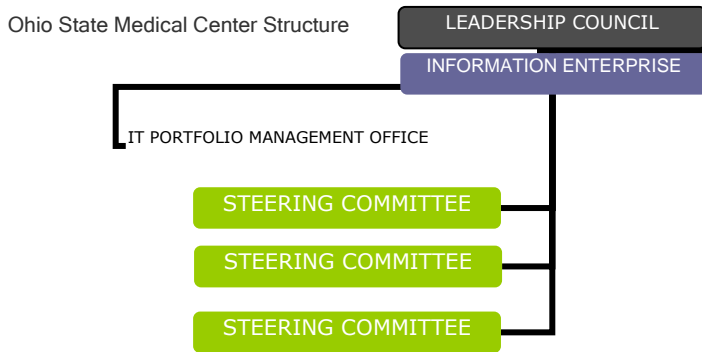
technologies, from wireless to servers. (Diagram 1)

Stakeholder participation is another essential ingredient to IT planning. Both Albany Medical Center and Ohio State University Medical Center recruit stakeholders to participate in IT planning committees. Such participation in the early of project and strategic planning helps stakeholder groups gain first-hand understanding of the current state of the organization and existing gaps in technology, and it garners support for action plans that they help to develop.

Diagram 1: IT Planning Model 1



At Ohio State University Medical Center, the Information Enterprise Advisory Board is the senior-most IT governance body and reports to a leadership council comprised of the organization's top executives. The enterprise advisory board is co-chaired by the CIO and the chair of the department of biomedical informatics. It is responsible for monitoring the IT health of the organization and reviewing proposed plans. The advisory board has several steering committees for specific IT areas. The advisory board is served by an IT Portfolio Management Office that prepares plans for the advisory board to review.



After approving major projects, the board provides ongoing oversight, beginning with a charter for what the project is intended to accomplish. The board also creates a project team with responsibility over the project and an oversight group.

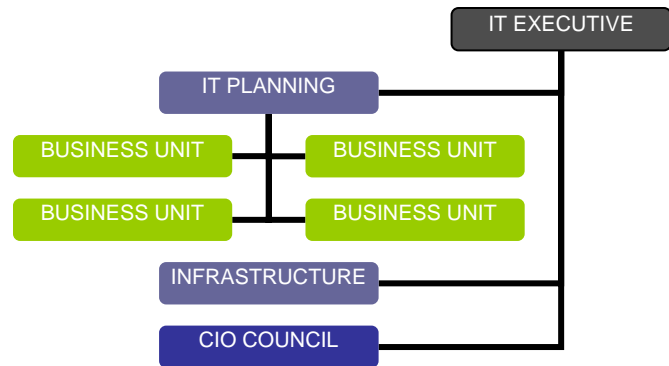
Similarly, Albany Medical Center has created committees and teams to play key roles in IT planning and governance. An IT Executive Committee is chaired by the CIO and is comprised of the other key business leaders, including the chief operating officer, chief financial officer, dean of the medical college, director for the hospitals/IDN and senior vice president for government relations and marketing. This committee provides oversight for all enterprise-level IT concerns, is the key planning decision-making body, and establishes policy and standards.

An IT Planning Committee helps business units develop business cases for their prioritized IT initiatives. An Infrastructure Planning Group identifies and maps out implementation of technologies (network, security, etc.) to support key business drivers and major technology projects. Additionally, the CIO Council, which includes all IT leadership, convenes for special sessions to review progress and ensure all of the planning efforts work together.

Counting the total cost

As competition for capital dollars within organizations heats up, it's essential to provide solid estimates for what IT projects will cost and what benefits they will provide. Organizations should calculate the total cost of ownership, which covers costs over the

Albany Medical Center Structure



the lifetime of a project implementation, and should help ensure there are no surprises downstream for the organization. Then, as projects evolve, it's important to capture costs to compare how closely actual expenses are tracking to the original estimates. To build rigor into cost estimates and return on investment projections, some organizations create committees that can impartially assess potential IT projects.

Know the culture

An unappreciated aspect of IT planning, yet perhaps one of the most important, is ensuring that it aligns with an organization's governance and culture. For example, IT planning should synchronize with financial and budget planning cycles. IT executives also should understand and take into account the forces that can affect capital investment decisions, including:

- » Sponsorship readiness
- » Workforce readiness
- » Foundational technology capabilities
- » Interaction between an organization's governance and its management

It's crucial to have an understanding of who has input into major IT decisions, what factors are weighed in making that decision and how and to whom large capital spending decisions are sent for consideration.

Those planning IT strategy need to match their approach with their organization's culture. While CIOs might view IT as an opportunity for their hospitals to be aggressive and innovative and gain strategic advantage, other leaders may see it as a necessary evil to be deployed with caution. Before IT initiatives can succeed, these different cultural perspectives must be discussed and resolved.

Beyond senior leadership, IT planning must take into account the overall organization's capacity and willingness to accept IT. New technology often can be put in place far more quickly than attitudes

Characteristics for Defining Organization's IT Identity 2

IT Personality	Emerging, leading or bleeding edge	Measured benefits	Necessary Evil
Approach to IT	Aggressive	Optimized and balanced	Cautious
Uses for IT	Strategic Advantage	Consolidation and productivity garnering	Utility
Risk Tolerance	High	Moderate	Low
IT Metrics	Strategic Advantage	Value-based	Efficiency
IT Investment Behavior	Executive jewelry and bet on the farm	All things in moderation	Cost of doing business

and behaviors can be changed. Teaching new IT competencies to both IT professionals and their non-IT counterparts is a challenging proposition, especially when the new skills become requisite to job performance. Preparing a culture to accept changes is an enormous challenge, and moving that culture to where it needs to be requires accurate perceptions of where it is now and how fast it can adapt.

The high value of open communication

Consistent and regular communications about the strategic importance of IT can help accelerate acceptance and optimize the benefits of new systems. Communications should be transparent and available to all. They also should disclose the risks for all IT projects.

To convey complex ideas, Smaltz and Hickman use a variety of approaches. For example, a graphic approach similar to the checklists employed by *Consumer Reports* can be used to link IT plans to an organization's key strategies that can help give a snapshot of the strategic relevance of the components of an IT portfolio.

Benchmarks are another tool for communicating important information in an easily understood way. Performance or progress benchmarks of the organization vs. industry averages can be useful yardsticks to keep the hospital on track with its stated priorities. Such benchmarks might include:

- » IT business unit or department cost data comparisons.
- » Total cost data as aggregated by major application.
- » Portfolio benchmarks to similar organizations.
- » Progress in launching a fully functional electronic health record

REFERENCES

- 1 The Healthcare IT Planning Fieldbook, Hickman, George and Smaltz, Detlev, ISBN 978-0-9800697-1-6, p.5
- 2 The Healthcare IT Planning Fieldbook, Hickman, George and Smaltz, Detlev, ISBN 978-0-9800697-1-6, p.18

system.

Other Considerations

While it's important to have long-range plans, these plans need annual reviews to see whether expenses and progress are meeting expectations and if mitigating factors are affecting expected results. Strategic IT initiatives also can benefit from having a charter, a project team and some form of an oversight body to assess their ongoing progress. However, there needs to be flexibility in judging the direction and success of any project over the long term, as circumstances change.

Conclusion

Just as any project needs a well-designed basis, clinical IT projects often succeed because of the solid planning that takes place in advance of implementation. Clinical IT programs often change long-established workflows and processes, disrupting the work lives of people who may be reluctant to change. Senior executives must fully understand how IT can help organizations meet important strategic goals, and then communicate clearly IT's important role in achieving them.

EHR action steps for senior executives:

- » Assess the IT that's already in place (infrastructure and applications) and where you are in adopting it.
- » Assess who within the organization sees IT's promise in achieving important organizational goals and get them involved. Don't forget to include champions from clinical staffs; clinical staff input is absolutely critical to success.
- » Gain buy-in and participation from senior executives. They help demonstrate support for IT from the top and ensure that clinical IT initiatives are closely linked to the organization's vision and key strategies.
- » Know your culture: Assess your organization's overall acceptance of IT. What will it take to increase acceptance and make it mature so staff will increasingly accept IT applications that may result in workflow changes?
- » Do the math: Count all costs for implementing IT over the foreseeable future and map that against cost savings or expected improvements in quality or patient safety.
- » Illustrate the needs, and highlight the results. Show how IT plans will fit the organization's needs. Graphic representations can convey information quickly and compellingly.

Using IT to Transform Your Organization

February 209 Virtual Idea Exchange

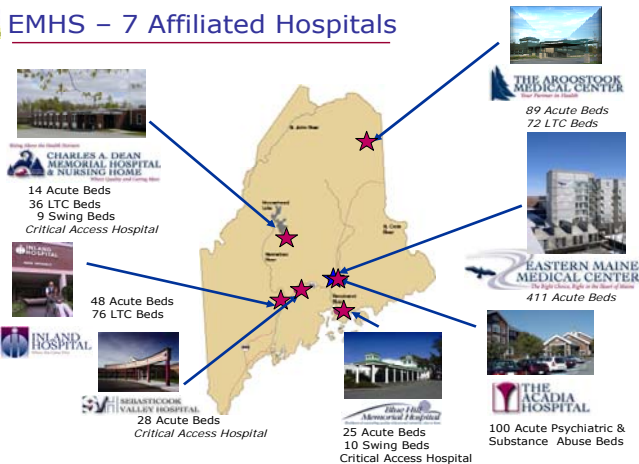
Key idea: To optimize care, Eastern Maine Medical Center set a goal that all of its providers would be able to treat a patient using one shared electronic record system, no matter where in the system the patient seeks care. Its vision included information that was instantly available, thus improving patient safety, enhancing outcomes and saving money. Despite the shared purpose of providing excellent care, the organization's more than 3,500 employees discovered that accepting and embracing IT-driven transformation doesn't just arise spontaneously. But it does start from the fundamental conviction that information technology can change an organization for the better and change it for good.

Virtual Idea Exchange Presenters

Eastern Maine Medical Center
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C. Eric Hartz, MD, Chief Medical Information Officer

Moderated by:
Jim Hart, Senior Vice President, Burwood Group, Inc.

EMHS – 7 Affiliated Hospitals



Eastern Maine Health System

- » 7 affiliated hospitals - Eastern Maine Medical Center is its flagship hospital.
- » Acute care beds, long term care facilities, residential units, and behavioral health beds.
- » Provides care throughout two-thirds of the state of Maine.

Eastern Maine Medical Center

- » Full spectrum of primary through tertiary services.
- » 75% market share in Bangor area.
- » Large geography to support; infrastructure to move patients from smaller facilities and for their information to move with them.
- » 3,681 employees; 520 medical staff.



A commitment to improving health care in the community

Founded in 1892, EMMC serves two-thirds of the state's geographic area, encompassing one-third of its population. The organization believes in offering care close to patients' homes, said its CEO Debbie Johnson. But when that's not possible, EMMC looked to HIT to enable continuity of care from the patients' communities to its flagship hospital when those patients are referred there for more advanced care.

Pillars of Excellence Framework

EMMC believed HIT could transform how the organization delivered care. With support from the EMMC board of trustees that was proactive in discussions of how IT fits into the system's strategy and how information systems can enable it to succeed, the executive leadership team developed a HIT approach and plan based on its Pillars of Excellence framework. The framework is focused on both patient and employee satisfaction and loyalty.

- » **People** - Attract, develop and retain values-driven, culturally diverse, appropriately skilled and service-oriented people.
- » **Service** - Build a culture around service, and provide excellent and compassionate service to all those served.

- » **Quality** - Achieve industry-leading results in clinical outcomes and patient safety.
- » **Stewardship** - Continuously improve financial performance in order to reinvest in caring for the community.
- » **Growth** - Pursue fiscally responsible growth to meet the health care needs of the community.

Building from this foundation, EMMC created a HIT Project Vision Statement:

EMHS Together *All Eastern Maine Health System providers will be able to treat a patient using one shared electronic record system, no matter where in EMHS the patient seeks care. Information will be instantly available, improving patient safety, enhancing outcomes and saving money.*

Adherence to this framework enabled EMMC to successfully implement its electronic health record and computerized provider order entry (CPOE) systems. The shared commitment of EMMC's employees to a greater good was a powerful driver in helping the organization get past the rough patches that inevitably come in the trek to digital care.

As a result, HIT has contributed to increased clinical staff and patient satisfaction, as clinicians are able to deliver a better standard of care and improve overall coordination of care. The organization achieves better financial returns as the cost per case has been reduced. Additionally, greater connectivity has increased referrals and contributed to EMMC's growth.

Set up milestones to measure progress toward goals

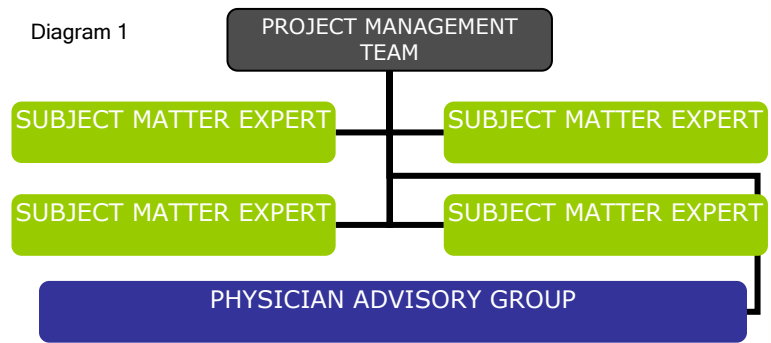
EMMC set a goal to be a high-performing organization and looks for opportunities to evaluate and have its performance reviewed based on national standards, said CIO Cathy Bruno. For example, Eastern Maine has been deliberately making progress in its efforts to increase the capability of its electronic records systems, as measured by the 10-stage model developed by HIMSS Analytics. EMMC reached Stage 4 in 2007, when it implemented computerized provider order entry. With plans to add significantly more clinical decision support over the next year, it expects to reach Stage 5 in 2010 when it also expects to implement closed-loop medication administration. In addition, EMMC is working to achieve aspects of Stage 7 in 2009 by sharing data to a statewide regional health organization that includes 22 locations and 15 organizations.

Align the executive and clinical leadership team

The moves to automation were not always easily accomplished. After discussing CPOE for years, in 2005, the medical center used project management methodology to address concerns and come to consensus. As a result of the process, and through the support of the CEO, physicians voted to amend the organization's bylaws to

make use of CPOE mandatory. Executive and clinical leadership saw such a strict requirement as necessary to achieve total adoption.

Diagram 1



The organization realized that achieving success through CPOE involved more than just automating existing processes. It required a total process redesign, said Eric Hartz, MD, chief medical officer for the system. Because clinicians do not have project management expertise, the organization hired a project management team that worked with subject matter experts to review all of the system's processes around an order, develop future state processes and build new processes as needed. The organization also formed a Physician Advisory Group to manage and reach consensus on contentious issues. Comprised of doctors across all disciplines, the PAG enabled physician-to-physician communication on key issues before decisions were made. Members of the group met two to four hours per month and were paid \$150 per hour by the system for their efforts. (Diagram 1)

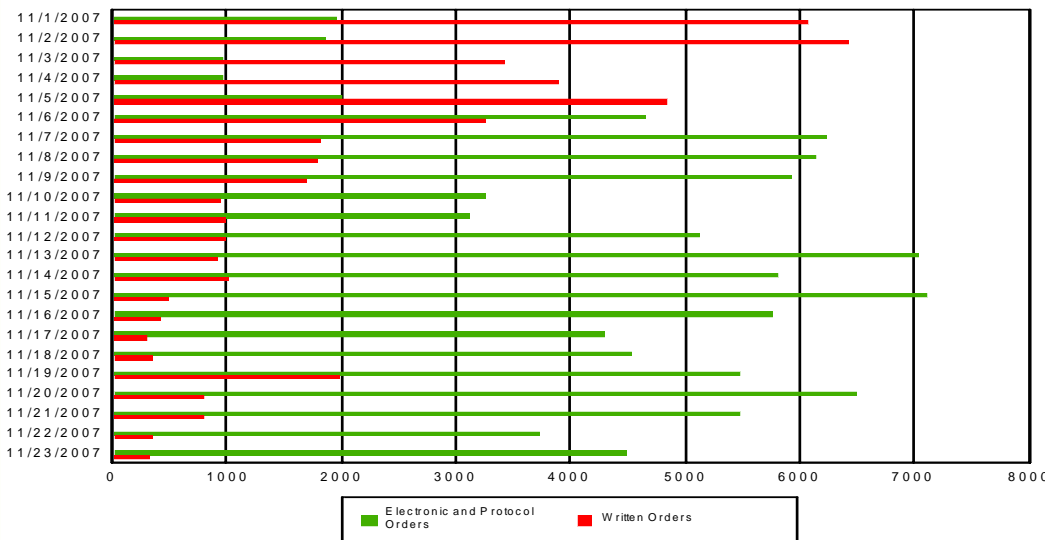
Engage everyone throughout planning and implementation

Mandates alone will not secure acceptance. There was transparency on all issues, said Dr. Hartz. Project leads attended all service and section meetings, and progress toward implementing clinical systems was regularly publicized. Clinicians could post concerns to the EMHS intranet site, and they could follow up on their postings to see what actions were being taken. All of the groundwork led to a smooth transition. In the initial three-week period, about 90 percent of orders were entered on the CPOE system. As of early 2009, compliance stood at about 96 percent, Dr. Hartz said. (Diagram 2)

Achieving patient safety through IT was something that all clinicians could rally around, and the system was careful to document ways in which IT improved care. For example, medication administration times fell dramatically from 240 minutes using the paper-based system. Also, it now takes pharmacists half the time, about 25 minutes, to verify an electronic orders. (Diagram 3)

Diagram 2

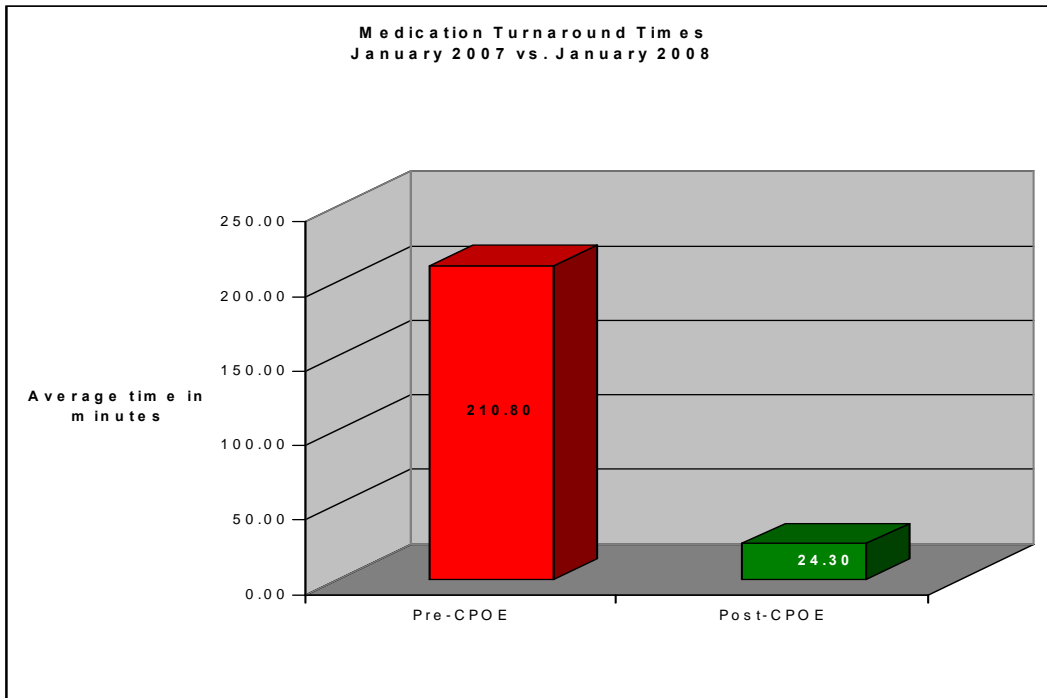
Daily CPOE Usage for Nov. 2007



Eliminate politics from decision making

The effort to standardize care was handled carefully, using an automated system from Zynx Healthcare, which provides knowledge on standardized evidence-based order sets that clinicians then can discuss and adapt for use in their organization. Using that approach helped remove a lot of the politics from the process of developing standardized approaches to care, and by the time Eastern Maine went live with its CPOE, it had nearly 325 order sets that were evidence-based or guideline-based. The organization mandated use of all order sets a year prior to the go-live date of the CPOE system. EMMC created a Decision Support Work Group that is now responsible for developing and revising order sets for the system.

Diagram 3



Standardize processes to improve care

Such physician-led efforts have helped the organization identify best practices for individual disciplines. For example, orthopedic surgeons gained many benefits from a closer look at the data and order sets, resulting in an improved sequence of care from referral to post-op care, Dr. Hartz said. As a result, patients with elective knee and hip replacements now receive drugs before surgery, so that surgeries aren't canceled because of anemia. Also, the ordering of post-operative X-rays was greatly reduced after surgeons realized that their plans of care rarely changed because of the X-ray images. Overall, EMMC's process engaged all clinicians in a discipline to look at current processes, desired future processes as based on best practices, and then tools were designed to aid the process of care and achieve the desired future state.

Use competition to advance the cause

By viewing unblinded results, physicians are able to view their data and see how they are doing in relation to their peers. These measures have provided a powerful incentive to consider alternatives to change care and improve results. In fact, physicians didn't trust the data presented to them only a few years ago, but now they not only seek out their own data but change their behavior to perform better on a comparative basis. Acceptance of this information has improved because of the use of a data warehouse, which is able to present information in real-time, providing more impact with up-to-the-minute results. Data can be provided quickly to any member of the care team through queries to the data warehouse.

Ripple Effect

The way EMMC handled its EHR implementation has benefited the organization in important, anticipated ways. The organization has shown its commitment to its physicians by putting a high value on their involvement in the EHR implementation, and the medical staff has demonstrated an equal commitment with no physician defections since implementation. Senior executives still to meet often with physicians to discuss any issues with the system.

***“Results has helped
the board of trustees
fulfill its commitment to
improved patient
safety”***

The information systems department assisted in the process of physician involvement by bringing staff with clinical expertise into the department. The IT experts worked closely with clinicians to understand their workflow issues, get their help in designing approaches, and then offered a lot of support. Physicians now benefit from the high level of customization that meets their needs and makes them feel comfortable with the technology. The IT staff is energized by the contact with caregivers and feels that they are having a direct impact on the quality of care being provided to patients.

EMMC is still fine-tuning its approach in meshing EHRs with care delivery. Executives know that exceptional care takes place through the well-informed, well-coordinated efforts of the clinical team. While the electronic health record and other clinical systems provide valuable clinical decision support, it's no replacement for face-to-face communication among team members that helps everyone discern the nuances involved in treating each individual patient case.

We're All in this Together: Building Organizational Support for Major IT Initiatives

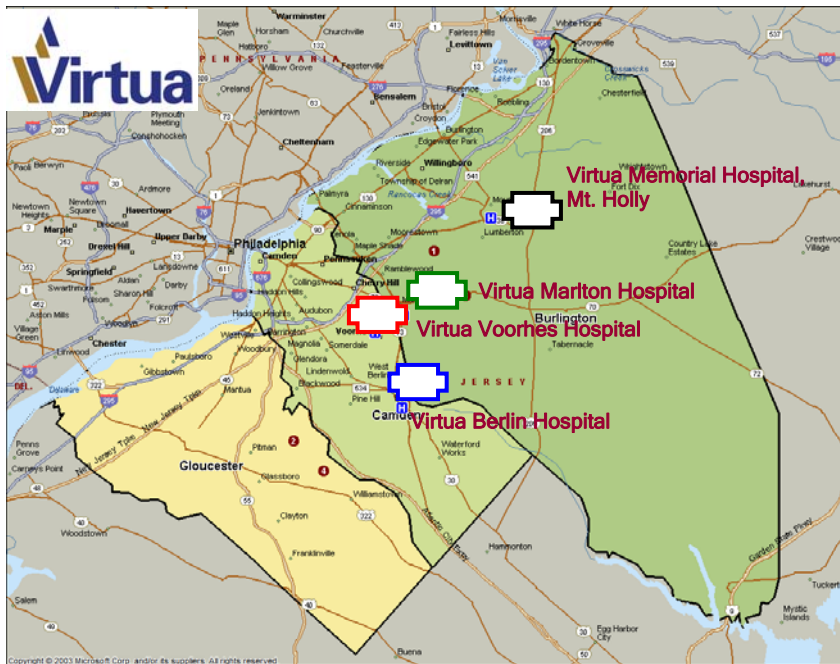
March 2009 Virtual Idea Exchange

Key Idea: *Rallying support for information technology involves a lot of planning and education. It's imperative to ensure that everyone understands how IT will benefit them as well as the organization overall.*

Virtual Idea Exchange Presenters

Virtua Health, Inc.
 Richard P. Miller, President and CEO
 Ninfa Sauders, Executive Vice President and COO
 Alfred Campanella, Vice President and CIO

Moderated by:
 George Lynn, President Emeritus, AtlantiCare



Virtua Health is a comprehensive healthcare system headquartered in Marlton, NJ. Its mission is to deliver a world-class patient experience through its programs of excellence in cancer treatment, cardiology, orthopaedics, women's health, pediatrics, surgery, neuroscience and wellness.

- » Four hospitals: 975 licensed beds
- » Specialized Programs of Excellence
- » Long-term Care: 300 beds
- » Ambulatory
 - 2 ambulatory centers
 - Satellite emergency room
 - 4 surgical centers
 - 2 health fitness centers
 - Home health
- » Physician Services: 100 employed physicians
- » Foundation
- » Insurance captive
- » 8,000 employees
- » Net revenue: ~ \$1 billion

Instilling a culture of accountability

Virtua's senior executives have put a lot of effort into building a culture focused on improving patients' experience and enabling meaningful engagement of key stakeholders processes and projects to achieve improvements. Sustained engagement of these stakeholders in organizational initiatives and goals have made it easier to make the case for HIT as a catalyst for improvement. These efforts have included enlisting the support of board members and clinicians by involving them in IT planning and execution. The health system also has given employees the tools and other resources to enable IT-driven improvements, especially through training that can be accessed in a variety of settings.

Setting the strategic direction

Virtua's President and CEO Richard P. Miller set out to raise the bar on performance at the health system ten years ago with the launch of its five-point Star Initiative. With the Star Initiative, Virtua constantly measures its performance in five key areas.

1. **Excellent service**, as determined by patient satisfaction and other key indicators.
2. **Best people**, as seen in job satisfaction data
3. **Resource stewardship**, which it measures through its operating margin and other financial metrics.
4. **Clinical quality and patient safety**, tracked by several quality and safety measures.
5. Development of a **caring culture**.

To support the initiative, Miller positioned HIT as a cornerstone to success. To underscore its importance, the health system invests heavily in information technology--\$100 million over five years in its most recent fiscal year, said Ninfa Saunders, executive vice president for health services and chief operating officer.

Miller also introduced efficiency methodologies that have proven to be successful in other industries, including Lean and Six Sigma.

The use of the star symbol also has been instrumental in facilitating employee understanding and acceptance, said Miller.

"The key behind this is the simplicity of what we look at," Miller said. "We haven't changed this in nine years. People understand it, right down to every employee in the organization. They can speak about Star and understand its component parts because of its simplicity."

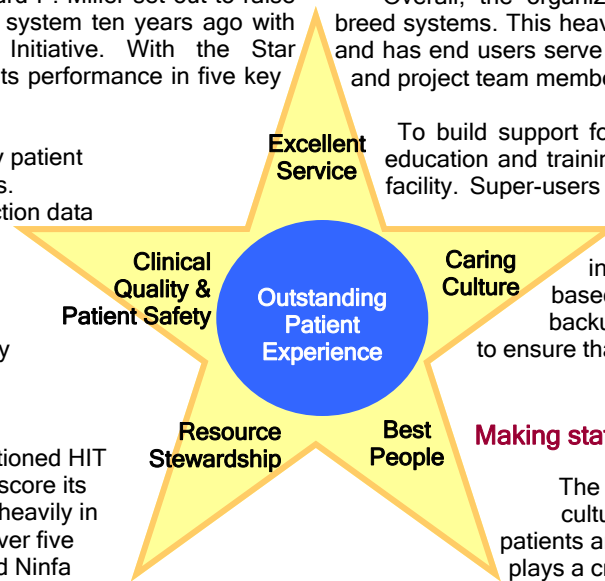
Building support among clinicians

Virtua took steps early on to form a physician IT committee to gain its advice and also to build a foundation for IT support throughout the organization. The physician panel included both Virtua-employed and affiliated medical staff who had a voice in system selection as well as in the design of order set definitions for the computerized provider order entry (CPOE) system. Using a consulting model, Virtua also paid commissions to physician teams to build order sets for the CPOE system, with Zynx Health order sets being used as the basic starting point.

Physician involvement has been strong, Miller said. "We had a call to action among physicians, asking them who would be interested in participating," he said. "We try to articulate what the impact of IT will be on their practice."

Overall, the organization has a philosophy of using best-of-breed systems. This heavily involves end users in selecting systems and has end users serve as sponsors, steering committee members and project team members.

To build support for HIT, Virtua also has invested heavily in education and training. It has dedicated training rooms at each facility. Super-users are available to help staff learn new systems. And staff can receive training in classroom settings, through one-on-one interaction and through self-directed web-based systems. Additionally, Virtua budgets for backup staff on units that are undergoing training to ensure that the units are fully staffed at all times.



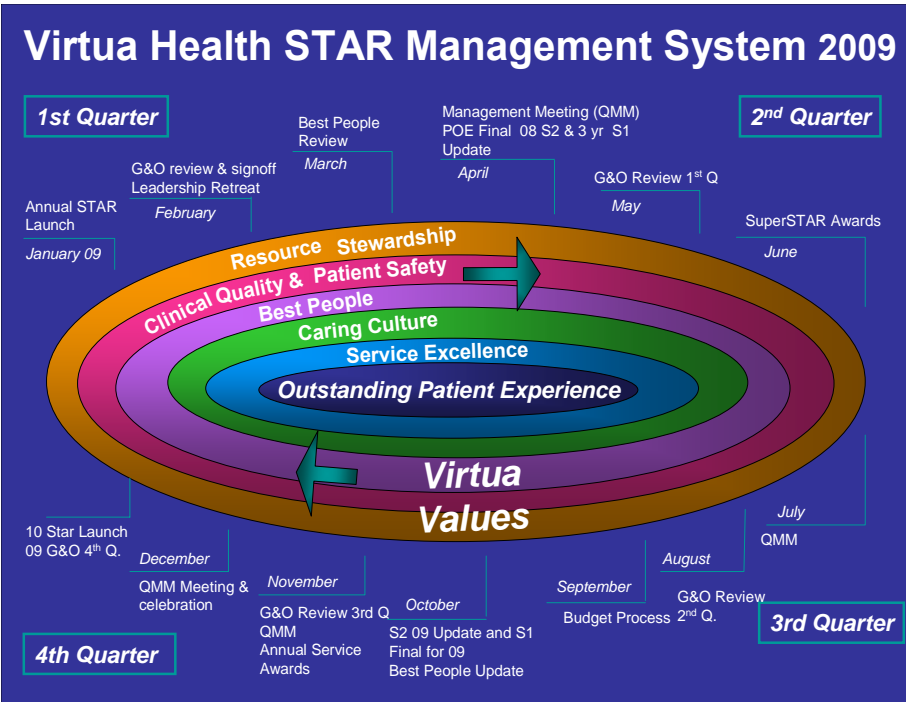
Making staff responsible for improvements

The clinical staff has bought into this IT-driven cultural change because it centers around patients and their experience. The staff also plays a critical role in helping set specific objectives and targets each year that will contribute to realizing critical organizational goals. Then three times a year, reviews are conducted in which staff are measured on how they perform toward reaching their individual goals as well as contributing to overall progress.

The strategic imperatives for 2009 include the following. (Diagram 1)

- » Improving patient safety and clinical quality through evidence-based practices and a no harm, zero tolerance policy for hospital-acquired infections and strengthening care coordination.
- » Improving and sustaining patient satisfaction scores, with an increased emphasis on customer service.
- » Hiring, developing and retaining "best people" and improving employee satisfaction and engagement, with emphasis on leadership and management development.
- » Advancing programs of excellence in alignment with Virtua's hospitals, ambulatory, post acute care and physician organizations.
- » Continuing implementation of its medical staff development strategy.
- » Continuing rigor in cost expense management, revenue enhancement, resource utilization and service growth.
- » Continuing facility planning and development of ambulatory sites and regional medical centers.
- » Continuing clinical transformation through implementation and integration of digital information technology.

Diagram 1



approaches are tested and proven at that facility, Virtua will apply the lessons to its other facilities, Miller said.

CIO Leads in making IT understandable

Chief Information Officer Alfred Campanella works closely with CEO Miller and COO Saunders, as well as Virtua’s chief medical information officer to facilitate the rollout of IT.

To aid the IT team in accomplishing its goals and in working more closely with clinicians, Virtua has expanded its IT resources to include a full-time medical director of informatics, a full-time director of clinical transformation, a full-time director of IT education, three full-time nurse informaticists and a full-time pharmacist-analyst, as well as other clinically trained individuals on the 130-position IT staff.

Taking a leaf from Miller’s book on using graphics to convey complex information, Campanella developed a graphical representation (Diagram 2) of how HIT serves Virtua. The graph depicts its business lines and constituencies - acute care, ambulatory, joint ventures, home care, long-term care, Virtua Medical Group, community physicians and patients - and the levels of technology serving each.

Involving the board

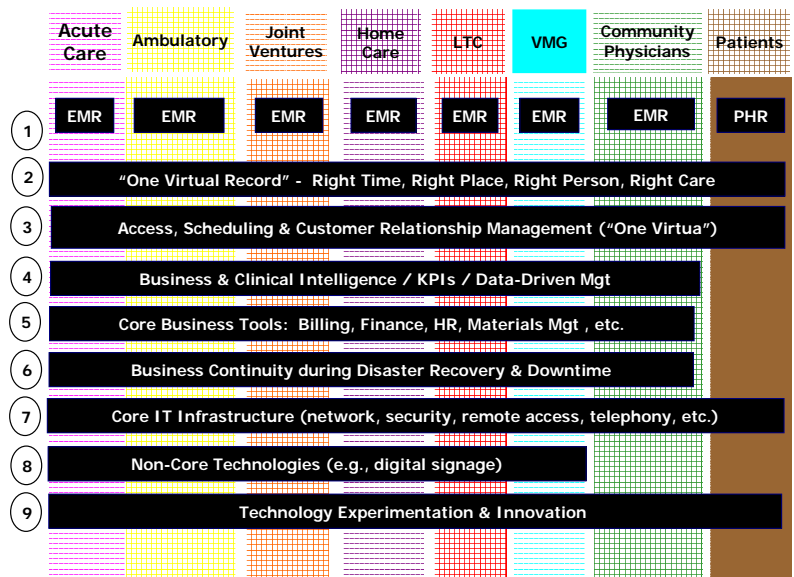
Virtua established a board-level IT committee to oversee progress on the implementation of technology throughout the system. In addition, senior management takes major IT-enabled projects to the board for review, discussion and approval. One such initiative centers on Virtua’s creating greater efficiencies for care delivery.

Senior management first began building out a vision of more efficient care delivery using HIT in 2006. Because of the scope and required investment in such a change, senior executives developed a thorough plan that emphasized the benefits to the organization in achieving excellent patient care and service. The plan also laid out priorities for each phase of this long-term effort.

“It is key for the board to understand how this entire capital spend fits into the rest of the capital spend for the organization,” Miller said. “They understood and supported the project given all the other capital priorities of the organization.”

After management won the board’s buy-in, it began executing on the plan. Virtua expects to open a 350-bed replacement hospital in Voorhees Township in 2011. The facility is designed to increase the efficiency of care delivery and will be nearly paperless. Once the new

Diagram 2: Virtua IT Framework



I think it's a misnomer to say you have only one strategic IT plan," Campanella said. "You really have multiple strategic plans for each business line. We constantly make sure that our entire portfolio is addressing each intersection point on that graph. This gets people to think about different major lines of business. Most people think, 'Let's get the hospital acute care side going first.' Well, that's only one piece of the pie, and much of health care has been shifting toward ambulatory care, so you can't ignore that."

The chart also shows the depth of IT implementation needed to fully automate a health care system. "The chart serves to explain what IT is all about," Campanella said. "Not everyone is aware of all the domains of IT. Some think it's just the network. Other people think it's just one or two systems. There are many core systems, and you need investments in all the areas that need to be strengthened. When installing more clinical systems, then you need to have strong business continuity contingencies to support a paperless environment. All the core technologies are pre-requisites to the complex technologies at the top of the chart."

Another visual representation (Diagram 3) shows the wide range of information technology that surrounds and supports Virtua's central clinical information system. These include:

- » Admission/Discharges/Transfer capabilities
- » Patient registration technology
- » Single sign on and context management technology

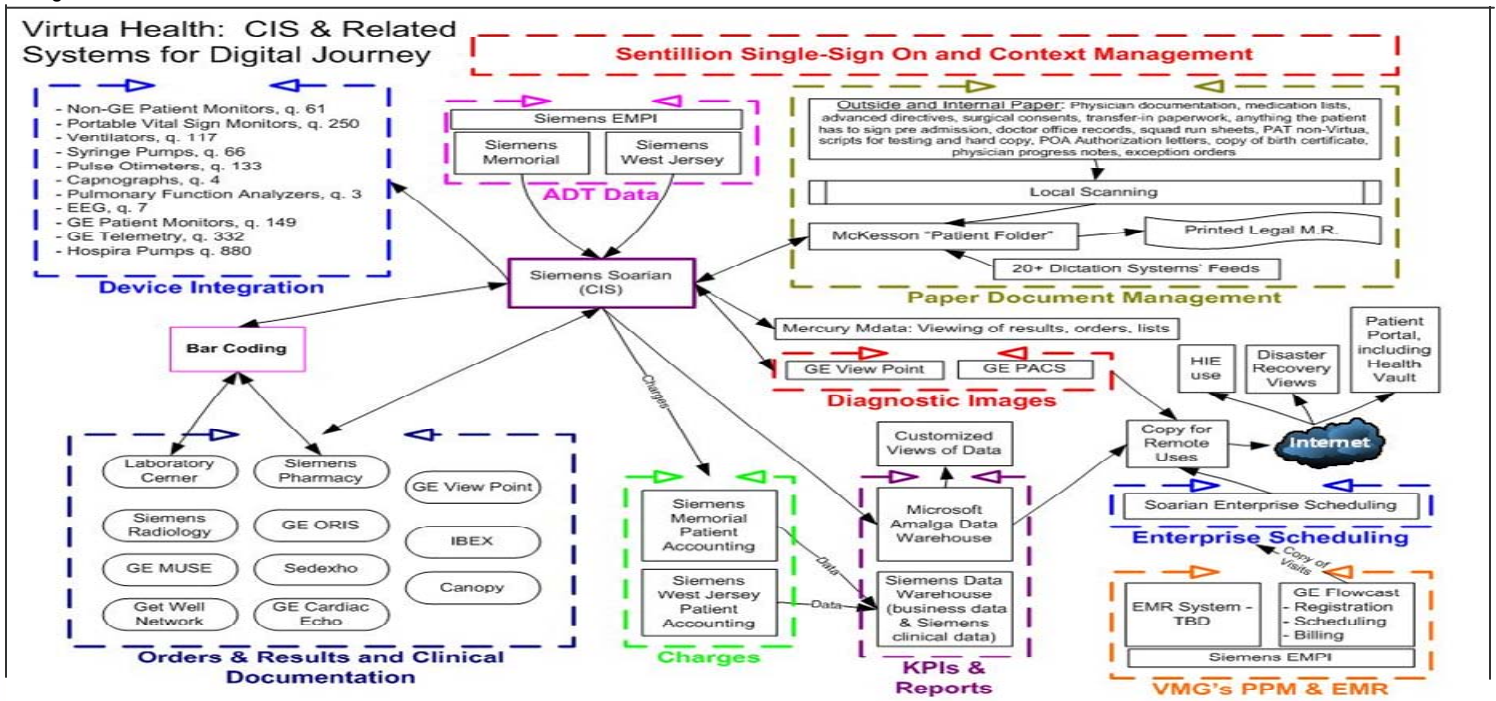
- » Paper documentation management
- » Diagnostic imaging
- » Enterprise scheduling
- » Ambulatory practice management and EMR systems
- » Orders and results and clinical documentation
- » Key performance indicators (KPIs) and reports
- » Patient accounting technology
- » Bio-med device integration

The chart provides consistent messaging about how HIT is being deployed in the organization and brings everyone up to speed on deployments and technology issues.

"This is a busy diagram, but all our board members can walk you through it," Campanella said. "We use it to remind people about which part of the IT portfolio we're addressing. This graph is a way to get organizational support, and people refer to it when we have different agenda items for meetings."

The rollout of clinical systems will continue through 2011. This multiple-year approach requires a long-term vision and a short-term perspective to achieve Virtua's health IT goals, Campanella said. "Organizations need to plan for the long term and be able to step back and think what you want to look like three to six years out, so you know where you're heading," he said. "Then you have to step back and ask how you can chip away at this and achieve the big picture."

Diagram 3



Where the Twain Shall Meet

March 2009 Virtual Idea Exchange

Key idea: CIOs and COOs need to work more closely together than ever as CIOs strive to make IT systems part of the fabric of an organization's operations and COOs look to IT to support efforts to improve patient safety, quality and operating efficiency. It's no surprise that the relationship between these two positions has grown closer and inextricably linked in the last few years.

Virtual Idea Exchange Presenters

Asif Ahmad, VP Diagnostic Services, CIO Duke University Health System and Medical Center and Associate Dean, Academic Computing

Douglas Silverstein, FACHE, President, Glenbrook Hospital, NorthShore University HealthSystem

Moderated by:

Brad Hunter, Director Technology, AHA Solutions, Inc.



Integrated Healthcare Delivery System

- » 4 hospitals/75 offices
- » 2,000+ physicians: 600+ multi-specialty group practices
- » 900 beds
- » \$1.4B top-line
- » 8,000 employees
- » \$100M research institute
- » 60,000 hospital case /year
- » 125,000 ED visits/year



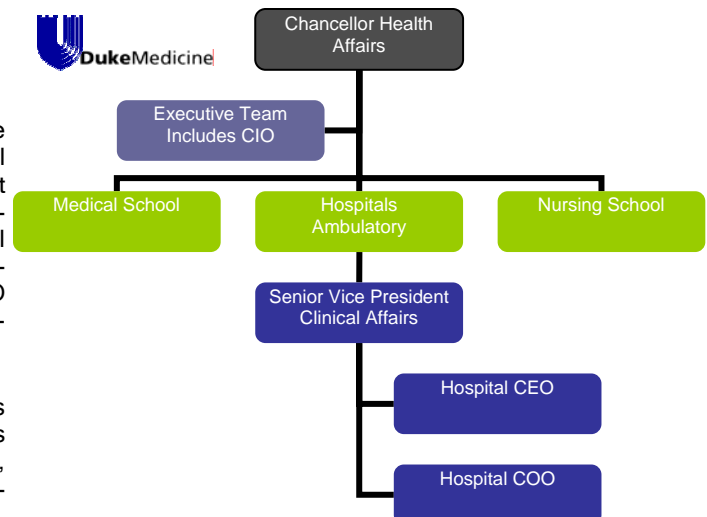
Integrates Duke University Health System, the Duke University School of Medicine, and the Duke University School of Nursing

- » Duke University: 995 beds
- » Durham Regional Hospital: 369 beds
- » Duke Raleigh Hospital: 186 beds
- » Inpatient admissions: 61,827/year
- » Outpatient visits: 1,488,278
- » \$1B operating revenue
- » Over 29,826 employees

Q: *What are the responsibilities for the COO position at your organization?*

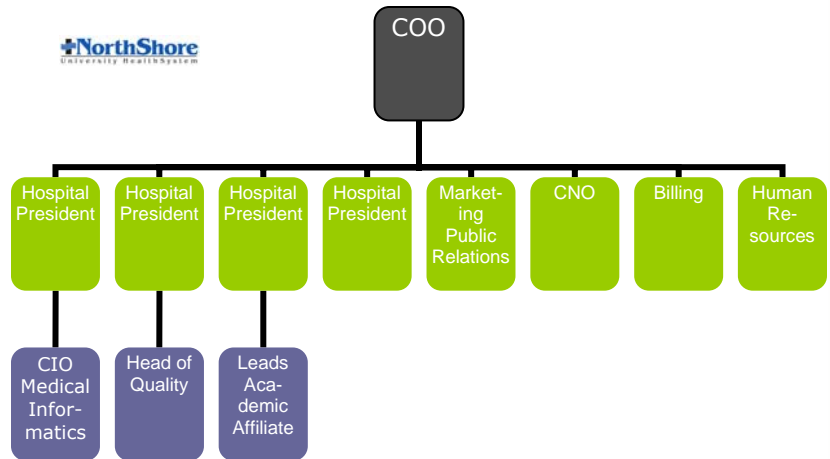
"When you've seen one academic medical center, you've seen one academic medical center," said Asif Ahmad, Duke University Medical Center vice president and CIO. Duke has a highly matrixed management organization that Ahmad describes as having both a centralized and distributed model for decision-making. The senior vice president for clinical affairs serves as the organization-wide COO and link between the hospitals and the executive management team. And the hospital CEO and COO share the operations functions and decision-making most typically associated with a COO.

At NorthShore University HealthSystem, the corporate structure is more traditional, according to Doug Silverstein, president of NorthShore's Glenbrook Hospital. The COO is the operational hub of the organization, overseeing each of its four hospitals as well as managing corporate functions such as human resources, public relations, marketing strategy,



nursing and billing. However, last year when Evanston Northwestern Healthcare and University of Chicago Hospital entered into a strategic alliance and formed NorthShore University HealthSystem, the system made some changes in executive responsibilities. While the COO continues to be the operational hub, much of the corporate and clinical priority setting and decision-making that would typically fall to the COO - in particular, IT and medical informatics and quality initiatives - are now the responsibility of each of the hospital presidents.

Whether the organizational chart has straight lines of command or whether there's more of a matrix management organization, the COO has taken on more responsibilities to improve an organization's operational performance. In many cases, that has necessitated closer linkages with the organization's IT leadership.



Q: You each work in a hospital that most consider to be a pioneer in adopting and effectively using health IT. How involved is your COO in IT planning and implementation?

According to Silverstein, it was the organization's physicians that were pushing the CEO and COO to be on the forefront of HIT adoption. In early 2000, NorthShore's CEO made IT a principal part of the organization's corporate strategy for achieving quality and growth and a major lever for pushing the organization ahead of other providers in the highly competitive Chicago market. Then, the CEO put the COO in charge of leading the implementation of an electronic medical record system, one of the first in the United States. Still today, while the CIO and hospital presidents set priorities, the CEO and COO are highly engaged in ensuring that those priorities align with corporate strategy and overall mission.

At Duke, all discussions of strategic initiatives involve IT because information technology is an integral part of all operations. Therefore, all of these discussions include the executive management team, the senior vice president responsible for IT and the individual hospital leadership teams. As meetings occur on a variety of efforts, heads of the IT department participate to determine how they can meet organizational needs. So, IT has a visible profile, both with hospital-level COOs and the system-wide chief of operations.

Duke also uses targeted ad hoc steering committees, comprised of corporate executives, clinical staff and local residents, to discuss major initiatives involving IT implementations. After major projects are completed, those special committees are dissolved, and ongoing discussion is absorbed by the system's regular meeting structure.

Q: While the need for IT sophistication at hospitals is growing rapidly, top executives' feelings that they don't fully understand technology may cause them to hesitate in pursuing HIT implementations. Was your COO technology-savvy when your hospitals started to plan for IT? How technology-savvy do COOs need to be?

Both Ahmad and Silverstein agree that COOs do not have to have a deep understanding of technology for HIT implementations to succeed, but COOs must have the strategic intellect to understand how IT can help the organization achieve its goals for patient safety, quality, and efficiency, and for growth and sustainability. Both top executives at NorthShore took the initiative to understand technology and understood the potential value of IT in enabling the system to become a strategic leader.

The experience at Duke was similar, as top executives became savvy in understanding what problems could be solved by using technology as an enabler. Executives there have long understood that technology could change Duke in a variety of positive ways in every aspect of operation, from care delivery to billing. Executives also believed that IT eventually would play a big role in reforming the U.S. health system, a belief that's been borne out by the direction of the current Obama administration.

In both cases, IT was viewed as a way to empower physicians, who have become familiar with the robust and integrated technology that's needed to achieve advancements in care delivery. In a variety of settings, there's a growing realization that IT also has an important role to play in achieving growth.

Q: COOs and CIOs have different responsibilities in your organizations. There seems to be a mutual understanding of the needs and capabilities. How do the CIO and COO positions collaborate?

COOs need to have an understanding of what current technology can do and how it can help address organizational problems. A COO also can help the CIO by being able to explain the benefits of digital solutions to other executives and hospital staff. The CIO can gain significant support by looking for ways to help a COO do his or her job better.

The CIO, on the other hand, needs to be able to look at the pressures the hospital is facing to improve operations and performance and educate the COO and other C-suite executives on how IT can help the organization solve problems and achieve goals.

While COOs and CIOs might work in different worlds, both top executives should be able to agree on common objectives, such as improving care quality and patient safety, boosting efficiency, and increasing revenues or cutting operational costs. These agreed-upon objectives can help both executives work closely together and better communicate the urgency to adopt IT solutions to constituencies who otherwise might be resistant. For example, NorthShore's CIO is a former hospital administrator who understands both IT and how technology can have an impact on operations. The CIO has been instrumental in helping the system's CEO and COO understand the potential benefits of IT.

The partnership between IT and operations can provide tangible results, and do so quickly. For example, when NorthShore realized it needed to improve its performance in reporting core measures to CMS, the system launched a project, involving the joint efforts of operations, IT and medical informatics, to improve compliance with the measures. After six months of these cooperative efforts, compliance rose from 84 percent to 99.7 percent in March 2009.

Q: Have the COO and CIO roles in your organization fused together in any way?

In fact, as CIOs and COOs tackle similar projects and as C-suite roles and responsibilities evolve, there are indications that CIO and COO roles may merge in the future. As hospital operations become more dependent on technology, it's getting harder to determine who leads technology and who leads operations. That's why an overlapping of roles already is being observed in the C-suite, and COO/CIO roles are morphing together.

While the extent of this fusion of roles may depend on the individual organization, it's clear that CIOs need to be more clinically and operationally oriented whereas in the past, they may have operated in silos that focused on the physical deployment of information technology. CIOs who now limit their interests to merely getting IT deployed are at risk of making mistakes in achieving wide-scale adoption of the technology in hospitals' clinical settings, Ahmad said.

Q: Pressure is rising on CIOs to implement IT systems in their facilities, particularly clinical systems so that their hospitals can ensure patient safety and improve quality and financial performance. COOs have been tasked with improving operational efficiency and achieving organizational goals in the most cost-effective manner possible. How are the COO and CIO working together to address these pressures?

Economic pressures on health care organizations are increasing, and IT projects are being asked to help organizations reduce overall expenses. While IT may be spared some of the spending cuts affecting other areas, IT projects are being triaged to implement those that are expected to have the biggest payoff in cutting costs and enhancing productivity and revenues. CIOs need to be nimble to adjust to shifting corporate priorities, and they need to work closely with COOs who understand the organization's operational needs and what IT projects can have the biggest immediate financial impact.

Just as it appears CIO and COO roles may merge in the future, it's obvious that, in the current economic and operational environment, these two leading executives in hospitals need to be in agreement on priorities for the organization. There can no longer be one set of priorities for CIOs and another for COOs. If those priorities differ, the executives need to figure out ways to work collaboratively to eliminate differences. CIOs and COOs particularly need to be in lockstep agreement on strategic initiatives that are aimed at increasing revenues and reducing operating costs.

It's getting harder to determine who leads technology and who leads operations.

All on Board: Winning Board of Trustee Support for Health IT Initiatives

March 2009 Virtual Idea Exchange

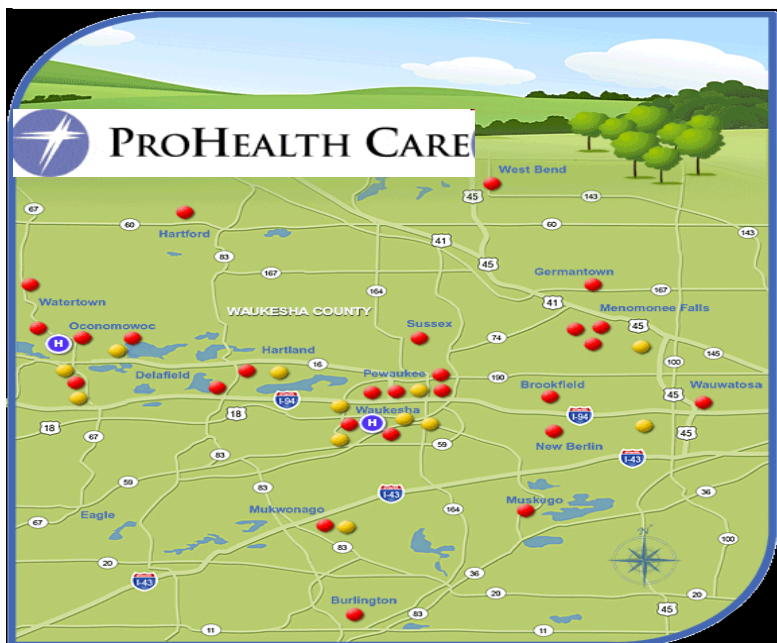
Key idea: Close alignment of HIT strategy with the board's priorities will help trustees understand and endorse strategic investments in IT as part of achieving the organization's mission and goals.

ProHealth Care, Inc. Virtual Idea Exchange Presenters

Rexford Titus, III, President and CEO
 Dan D'Angelo, M.D., Secretary of the Board of Trustees
 Rodney Dykehouse, Vice President of Information Services and CIO
 Janet Schulz, Chief Integration Officer

Moderated by:

John Combes, M.D., President and Chief Operating Officer, Center for Healthcare Governance



- » Waukesha County, Wisconsin
 - Population of 400,000 who live and work in the county.
- » Provides regional critical and primary care services
 - 46% inpatient market share; ranked #1 in highly competitive and consolidating marketplace.
 - 6,000+ employees.
 - 2 hospitals with 400 beds.
 - 27 clinics with 225+ physicians.
 - Jointly sponsor skilled nursing facility group.
 - Assisted and independent living community developer.
 - Home health care group.
 - Fitness center.
- » Fully functioning EHR since 2004

Your marketplace can inform your HIT strategy

ProHealth Care, Inc. is one of the most technologically and clinically advanced community health care systems in the United States. It implemented its first clinical automation system in the 1980s. As that system reached the end of its useful life, ProHealth seized this opportunity to set a new IT strategy that would help support its goal of providing excellent patient care throughout its entire system, not just its two hospitals.

ProHealth began by analyzing the current and future needs of the communities it serves. As part of the process, it worked with the Independent Physician Association (IPA), a group that represented 600 physicians in its markets.

ProHealth determined that a system-wide electronic health record (EHR) system would be essential to meeting its corporate and IT goals of driving growth while improving quality. Achieving clinical integration is a step along the path in moving from a virtual medical community to what CEO Ford Titus calls an accountable health care

system, which measures and improves quality by treating patients in a coordinated manner over the continuum of care.

The collaboration with IPA certainly won ProHealth major support for the EHR within the physician community. In fact, IPA mandated that if 70% of a member's practice revenue came from ProHealth facilities, the member had to implement an electronic health record system compatible with ProHealth's system by 2010. The changes in Stark rules are allowing ProHealth to help defray the EHR costs for these affiliated physicians.

Achieving board support involved a process and did not occur overnight, said Dan D'Angelo, M.D., a trustee and practicing oral surgeon. ProHealth set aside 18 months to marshal facts, figures and strategies to convince its boards of the need for such a major undertaking and investment. Each of the entities within ProHealth has its own board of trustees, enabling each provider to maintain close contacts with the community and have better decision-making.

Resonating with the board

The ProHealth board is laser-focused on quality, so senior executives built a compelling case for their HIT strategy and capital plan by showcasing how IT would be integral to enhancing patient safety and care.

Achieving board support for a major EHR investment took some time, Dr. D'Angelo said. But the executives proved persuasive by highlighting three major benefits:

- » **Greater clinical efficiency:** ProHealth executives provided hard evidence that clinical systems could speed up the process of care and save time for caregivers through real-time access to clinical information across the system, D'Angelo said.
- » **Improved clinical quality:** Senior management showed how upgraded clinical IT systems would be able to provide data to measure the impact of quality initiatives. The data also could be used to demonstrate quality to external constituents, such as payers. With dashboards that provide snapshots of information, the board is now able to see where the hospitals are meeting quality targets or where they need to focus more effort. This capability has benefited not only management but the board, D'Angelo said, because the trustees can now review monthly quality metrics to track performance.
- » **Driver of organizational growth:** The ability of the EHR to promote growth for ProHealth was a key influencer for trus-

PROHEALTH CASE FOR CHANGE

- ✓ *Quality of care*
 - ✓ *Real time documentation*
 - ✓ *Access to information*
 - ✓ *Increased beside time for caregivers*
-

tees, D'Angelo said. "It has been shown that IT will lead to growth in productivity from top to bottom, from medical staff to the custodians," he said.

"This economic growth of the organization is what's going to sustain us in the future. It will increase our efficiency and decrease cost. Hopefully, that will result in the quality health care that our community is demanding of us today."

Understanding continuing investment in IT

The total cost of ownership (TOC) figured prominently in board-level discussions about implementing HIT. Both senior executives and the board realized that they face ongoing development costs for the EHR system, to increase its capabilities and thus the return on the investment as well as maintenance costs for supporting the underlying infrastructure. Already, ProHealth is planning to integrate clinical monitoring devices into the system, so information from monitors will be added directly to the medical record.

The board understands that agreeing to capital projects in IT means also saying "Yes" to the underlying staffing, training and other costs, which will affect future operating budgets. In its most recent analysis, spending to support the IT infrastructure now is about \$3 million annually.

Quality-consciousness

ProHealth's CIO, Rodney Dykehouse, updates the system's board on a regular basis to provide overviews of IT within the organization, emphasizing how IT serves as a tool to accomplish corporate strategies, particularly quality and patient safety "We want our board members to be as articulate about quality and quality performance as they are about finances and financial performance," Titus said. D'Angelo agrees with that assessment. "Quality is such an important issue for the board," he said. "We can see how the IT that we have now and will embrace in the future will allow us to critically analyze how we're

doing as a system."

Justifying the investment in IT

Putting IT in the context of achieving important system-wide initiatives deflects some of the pressure to justify investment in IT. It's difficult to hold information technology expenditures to typical return-on-investment calculations and standards, Titus said.

"That's the challenge we have with IT investment generally. Many of the expenses are infrastructure but these expenses are ways to achieving a business or clinical outcome," Dykehouse said. "It's part of the process, but not the sum total of it. The real issue is that technology is the easy part. It's the people and process changes that go with it that are hard. Rolling out an electronic health records program at the independent practice association offices is part of the overall program, but it's not the only part."

Selection Process Tips

- ✓ Clear goals, scope and criteria are essential.
- ✓ Obtain broad user input into the formulation of the above. Once agreed upon, stick to them and don't change without an overwhelming case to do so.
- ✓ A clearly articulated case of change including "why now" is important. No IT conversion goes as expected, and can be very disruptive to the operations of the organization.
- ✓ Broad vertical and horizontal involvement required, including early board communication.
- ✓ The projects should be IT coordinated, but not necessarily IT led. A clinical system is at the core of what we do, Strong leadership of, and commitment to the project on the part of the clinical team is required.
- ✓ Outside expertise is critical to clear understanding of options, and rapid movement through the process.
- ✓ A well road mapped process is extremely helpful. Understanding how the selection process will unfold, who will do what, time commitments, and deadlines help to take a large task and slice it up into achievable milestones.
- ✓ Understanding existing systems functionality is important. No system is "fully baked". Knowing what can be delivered now vs. future functionality is key.
- ✓ Investigate the implementation process, together with required timelines and resources.
- ✓ The variation is incredible. Outside resource for implementation can be very useful. Understand what is out there of reach system as you go through selection., It is often a different group than the ones you would use for selection.

The board reviews an analysis of ProHealth's capital spending plans, which includes IT investments over a period of several years. This approach allows the trustees to measure IT spending against other capital projects and to track the capital project plan against the strategic plan, Titus said. It's especially important because HIT investments are large and typically can't be supported as a routine capital expenditure.

The ProHealth board also understands that investment in IT also will carry with it the need to refresh the technology over time, as IT capabilities improve. "Over the last five to six years, most of the IT investments are new to the organization," Dykehouse said. "We weren't yet replacing them."

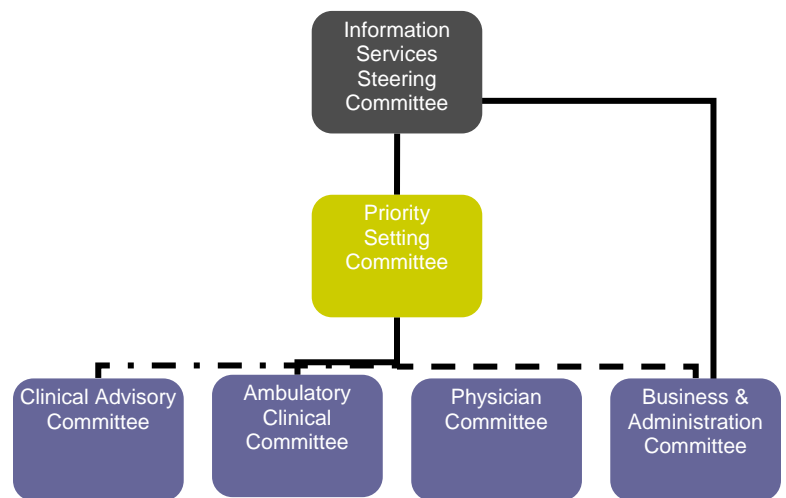
ProHealth's IT capital planning budget is a multi-page plan that looks like a construction schedule, D'Angelo said. "It gives me a timeline, gives me the assignments, and tells me in each fiscal year the impact and a schedule of expenditures by year," he added. "It allows me to allocate dollars, and human and capital resources."

IS governance structure

The organization also has a formal IS governance structure to oversee planning, priority setting and interest groups within the hospital. The formal structure is intended to ensure that the tactical IS plan supports the strategic initiative and that the IS plan also is tied into the budget process. The overall direction comes from an Information Services Steering Committee, chaired by Ford Titus. ProHealth also has a Priority Setting Committee for information services, which provides a systematic way of looking at competing IT priorities and deciding which ones should get attention first.

System executives develop a monthly calendar for the IS Steering Committee to keep it informed of IT progress in the organization. The system also plans annual communication with the steering committee so the panel can assess the strategic focus of IT.

The organization works hard at ensuring that its strategic planning process, including that for IT, is economically realistic and achievable. Important to the success of any strategic plan is providing the capital to fund initiatives, and that's done under the review of the trustees.



Conclusion

As boards of health care systems get more involved with strategic initiatives as well as ensuring the financial sustainability of their organizations, senior executives of organizations will need to work closely with them to help them understand how clinical IT plays a role in achieving results in these areas. Beyond that, organizations will need to provide planning structures to stage IT initiatives and set priorities when conflicts arise over which projects should have precedence.

Good, Better, Best: IT's Pivotal Role in Achieving World-Class Quality

May 2009 Virtual Idea Exchange

Key Idea: Information technology (IT) can provide access to information that fuels better clinical care as well as operational decisions. When Poudre Valley Health System set out to significantly improve quality and safety, it made IT a foundation for accessing critical information for physicians and other caregivers as well as executives. It implemented an electronic health record system and Web-based scorecard to track key performance indicators.

Virtual Idea Exchange Presenters

Poudre Valley Health System

Rulon F. Stacey, PhD, FACHE, President and CEO

Russ Branzell, FACHE, FCHIME, FHIMSS, Vice President Beacon Partners, former Vice President and CIO

Moderated by:

Mary Alice Annecharico, Senior Vice President and CIO, University Hospitals, Cleveland



POUDRE VALLEY HEALTH SYSTEM

Poudre Valley Health System, based in Fort Collins, Colorado since 1925, provides a regional network of health care services for the people of northern Colorado, southern Wyoming, and western Nebraska. With two hospitals, Poudre Valley Hospital in Fort Collins and Medical Center of the Rockies in Loveland, plus a network of clinics and care facilities, our mission is to provide quality, innovative, and comprehensive world class health care that exceeds expectations.

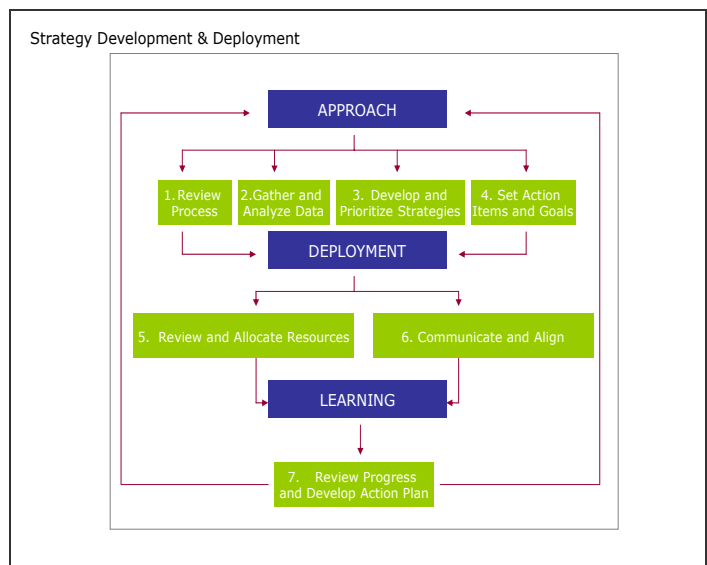
- » Independent, NFP health care system in Ft. Collins, CO.
- » Serves 500,000 residents in Northern Colorado, Nebraska, Wyoming.
- » 3 hospitals, 417 licensed beds.
- » 501 physicians, 148 allied health professionals.

Executives at Poudre Valley Health System believe the model for health care delivery in the U.S. is quickly evolving to one that emphasizes quality and innovation, and that belief explains many of the changes the system has made in recent years. High on the hospital system's list of quality goals are world-class customer service and care. Its use of health care information technology (IT) supports those goals, helping Poudre Valley win the 2008 Malcolm Baldrige National Quality Award for health care.

Poudre Valley sees IT as the conduit for tapping into quality information and data for senior executives and for enabling clinical teams to provide informed care to patients, said Rulon F. Stacey, president and CEO of Poudre Valley. "These are the things that are crucial to where we are going as an organization," he explained.

"All these major initiatives were put in place just to improve outcomes in the organization," Stacey said. "As the organization takes on more initiatives to achieve ever-higher standards for quality and satisfaction, it becomes absolutely dependent on world-class IT."

With the organization's focus on access to information, enabled by IT, chief information officer Russ Branzell also shifted his priorities.



Part of that change was from the traditional bits and bytes to an informatics focus, he said. “An informatics focus is really designed for improving process and outcomes, not just implementing technology and systems solutions. While we have core information systems, they’re there for only one purpose - to support the continuum around it for patient information, clinical outcomes and financial decision support. And those exist for only one reason - to make sure that everyone gets the information and knowledge they need to provide world-class health care.”

“The role of the CIO, and more importantly, the function of IT in an organization, is to support the business of health care and the clinical outcomes that are there,” Branzell said. “CIOs have to be able to create a customer service organization that achieves all the things that we aspire to do.”

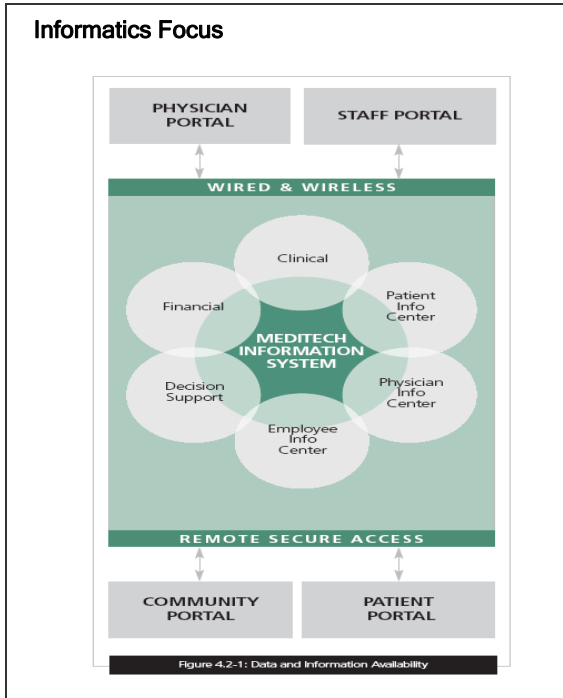
Strategic objectives set the tone

Poudre Valley set a lofty vision that’s easy for its staff to recall, although difficult to achieve - *to provide world-class health care*. This vision comes alive by implementing six strategic objectives, which support all its decisions and directions.

“Every one of our meetings throughout the organization has these six strategic objectives on the agenda,” Stacey said. “We make sure that we’re discussing in all of our department meetings only those things that need to be discussed to further these objectives. If we can’t find a place for a topic in the six strategic objectives, then it doesn’t need to be talked about.”

Poudre Valley measures its progress by analyzing its data and seeking assessments from outside quality entities, such as the Baldrige program or state quality award programs. It also compares its performance with benchmark data. The outside feedback and its own data helps support an annual round of organizational analysis and goal setting. In seeking to improve quality related to Baldrige categories, each member of the senior management team takes responsibility for managing teams that are working on each category.

In addition to placing an emphasis on quality within the organization, the approach has helped Poudre Valley cope with a variety of pressures in recent years,



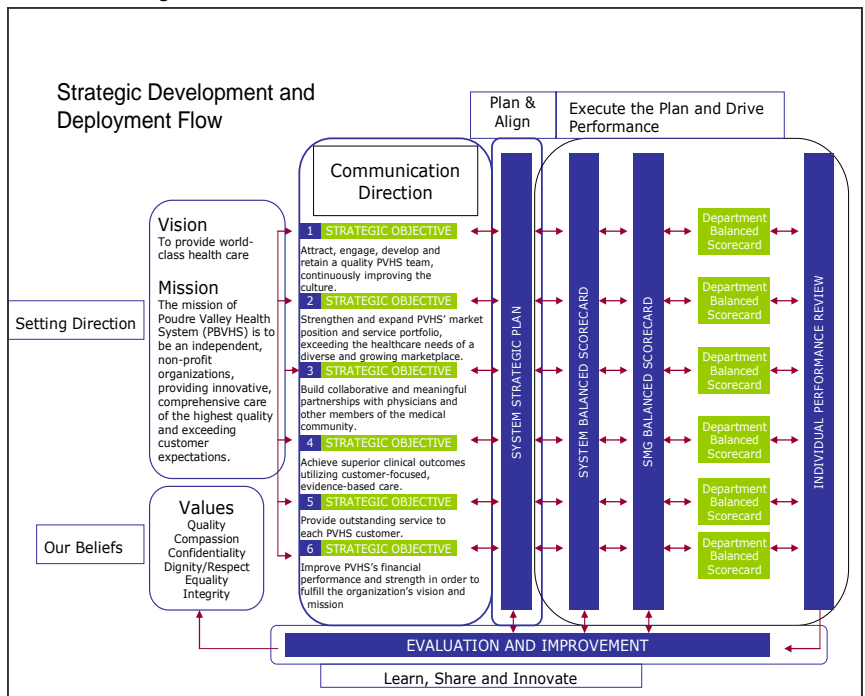
including the addition of facilities and the doubling of its workforce, Stacey said.

“We use process improvement in everything we do,” he added. Results have been dramatic in some areas. For example, as of mid-May, Poudre Valley had gone 14 months without a single case of ventilator-associated pneumonia.

The role of IT in measuring progress

With the organization aligned behind strategic objectives, Poudre Valley uses a balanced scorecard system to plan how to achieve its strategic objectives and then monitor its progress throughout the year. IT helps to aggregate and present key performance indicators.

“We establish our objectives, develop a strategic plan and then create a balanced scorecard that allows us to identify the areas and specific measurements, both organizationally and department-wide,” Stacey said. “The important thing is that, for us to be successful, we have to make sure that every employee is engaged in the program, everyone in this organization understands and believes in their heart that what they’re doing is leading to world-class health care.”



The Web-based balanced scorecard looks like a spreadsheet, but uses color codes to indicate areas of compliance or matters needing attention, and it allows users to drill down to find out more information. The tool is versatile, enabling users to enter data or view results from anywhere, and anyone on the leadership team has access to the results on the balanced scorecard.

Balanced Scorecard

The scorecard system enables executives and clinical staff to measure outcomes for the organization, a key to methodically pursuing improvement. The balanced scorecard “was done by core measures that everyone agreed upon during our definition process,” Branzell said. “Rulon and the rest of the senior management team could tell who wasn’t in compliance with their action planning process, and we started driving significant change to areas that were not in compliance. It really created a standardized reporting process through which we could tell just about everything that was going on in the organization at a moment’s notice.”

This approach also demonstrated that it had a data-driven process that enables it to make continuous improvement in its performance. “We would have never even gotten a site visit (for the Baldrige award) without the balanced scorecard,” asserted Stacey. “Part of the performance excellence process is that you have to show that you make changes based on data, and you’re able to measure whether changes are effective. It is part of our culture to measure, improve, see if improvements make any difference, and then implement new changes if they’re needed.”

“With IT enabling and helping the organization along the way, and driving process change, we achieved (positive) results,” Branzell said. “We can prove without a doubt that we made a monumental difference in patient care, and patient care outcomes, in a positive way. When we present this information, we can with certainty say that we know for a fact that there are people alive today and better today because of the process that was put in place.”

IT responsibility is shared

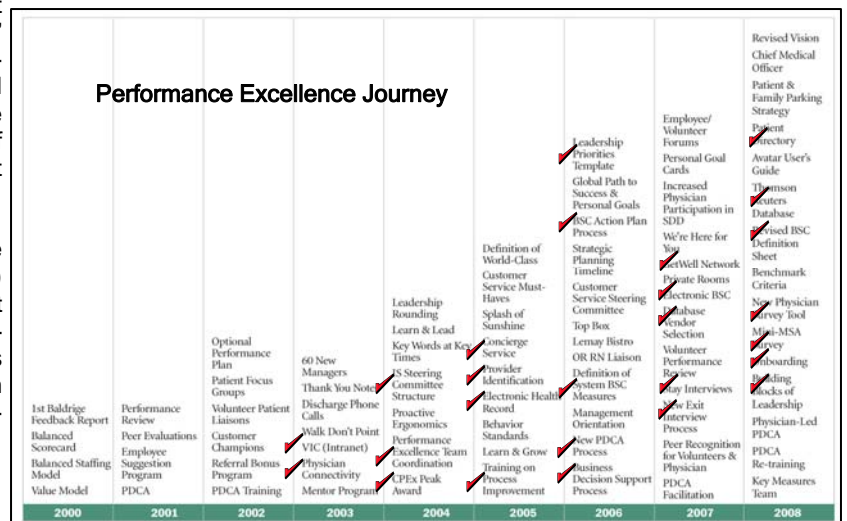
As with other organizations that have successfully implemented clinical IT, project leadership comes from executives in the organization while those who use the applications have a significant role in pre-implementation decisions.

“In a truly process-oriented or transformation mode, everything needs to be owned by the departments and the leaders so they can drive the outcomes and change,” Branzell said. “For example, under a financial informatics

model, the CFO owns and controls that, and is responsible for the projects, priorities, outcomes and all the deliverables in that area. No project goes through the operating or capital budget unless it is agreed upon and sponsored by an executive champion. Everything is prioritized and listed out by the business and clinical champions, and they drive all the change.”

Nursing takes ownership

It’s more work to get Poudre Valley physicians involved in the IT process, because most are affiliated rather than employed by the health care system so Poudre Valley focused on involving its nurses



in the change processes, especially with clinical informatics. “They’re responsible for process change and working on standardization, outcomes and working on everything throughout the organization to achieve world-class health care,” said Branzell.

“The EHR is not owned by IS. We provide the services, but it’s led by chief nursing officers who work with the physicians and other clinical staff,” Branzell said. For example, there was less than 60 percent compliance with using a bedside medication verification system, but chief nursing officers and directors of pharmacy stepped in to improve compliance. As of the first quarter of 2009, the compliance rate was in the high-90 percent range, he said.

“What we realized was there was far more process related to this (shift to the EHR) than screens and technology,” Stacey said. “It naturally gravitated to the right owners. The key is who owns this and who owns the end deliverable, and that’s who should be championing these things. CNOs live this and breathe this from a clinical process perspective. They want to own their outcomes.”

Beyond traditional walls of the hospital

To support community physicians and encourage their use of clinical IT, Poudre Valley formed a for-profit IT services company. As of early 2009, about 80 percent of the physicians in its primary service area were receiving some kind of IS support from it. In addition, physicians are able to access clinical information on their patients through Poudre Valley’s electronic health record system.

“We wanted to make sure that we support the entire community of care,” Stacey said. “We did not want to create the false boundaries that exist in most health care organizations around the country, those traditional walls of hospital vs. physician office vs. the community vs. the physicians themselves. We wanted to break all those walls down. We want to serve as the conduit to connect our patients to our community to our employees to the physicians. It’s truly an initiative to break down the walls but at the same time provide all the information.”

Do You Need a Chief Medical Information Officer?

April 2009 Virtual Idea Exchange

Key Learning: Chief medical information officers are change agents within hospitals, taking on the challenges of making EHR systems useable, ensuring that IT helps clinical processes and that clinicians have the education, training and content to do their jobs.

Virtual Idea Exchange Presenters

Orlando Health
Rick Schooler, Vice President and CIO
Steve Margolis, M.D., CMIO

Moderated by:

Tim Zoph, Vice President of IS and CIO, Northwestern Memorial Hospital



Orlando Health is one of Florida's most comprehensive private, not-for-profit healthcare networks. Our facilities, advanced medical treatments and procedures, and highly qualified staff have distinguished Orlando Health as a healthcare leader for nearly two million Central Florida residents and 4,500 international visitors annually.

Orlando Health is a community-based family of facilities dedicated to serving the needs of our regions. Since 1918, we have committed to providing the best quality healthcare for our regions and citizens.

- » NFP, teaching organization established 1918
- » 13, 500 team members; 1850 credentialed physicians
- » 7 hospitals, 250 employed/contracted physicians, 80 employed mid-level providers
- » Adult and pediatric Level 1 trauma centers
- » Net revenue: \$1.5 Billion
- » 92,478 inpatient discharges
- » 265,293 ER visits
- » 554,192 outpatient visits

CMIOs essential for EHR implementation

An increasing number of hospitals are opting to team their chief information officer (CIO) with a clinically trained executive who can help deal with the complexities surrounding the deployment of clinical information systems. The role of chief medical information offices (CMIO) is relatively new in hospitals, but its importance is expected to grow in the near future as facilities strive to rapidly deploy EHRs over the next several years. That's because CMIOs provide a crucial bridge between clinicians and management and IT. As clinicians themselves, CMIOs have relationships with and the respect of clinicians on the medical staff, and they are able to make sure clinical systems meet the information needs of users and achieve improvements in efficiency and quality.

Ambassador to physicians

Orlando Health has achieved a variety of benefits by having a close working relationship between Rick Schooler, its vice president and CIO, and Steve Margolis, MD, who was named CMIO about five years ago.

With a CMIO in place, Orlando Health's CIO is able to focus on the technical aspects of deploying IT within the organization. Meanwhile, the CMIO can focus on ensuring that IT helps clinical processes and meets the needs of clinicians who care for patients at the hospital.

"My role very much is to be the ambassador to the physicians and clinicians," Margolis said. "If they have challenges, they have

access to me or my staff. If there are technical issues, I take those to the IS department, and collectively, we try to solve those problems.”

“It’s important for the CMIO to be in certain circles with physician executives, medical executive committees, section chiefs, department chairs as well as private physicians,” Schooler said. “I’ll attend a medical leadership meeting on an as-needed basis or to give an update, but Steve will be in those meetings on a regular basis. He’ll be talking to physicians throughout the organization and community.”

An effective CMIO becomes well-versed in the technology, then convinces clinicians that HIT will have a positive impact on care delivery and persuades them to change established practices.

“You’re selling the use of the system,” Margolis said. “The CMIO has to be a change agent, someone who can sit face-to-face with physicians and talk to them about why they should use the system. The CMIO must take on the challenges to make the system useable, and then make sure clinicians have the education and content to actually do their job. Physicians are never quite sure if the CMIO is part of the administration or if he is ‘one of us.’ It takes time to earn their trust.”

Full-Time vs. Part-Time position

At Orlando Health, the CMIO is a full-time position. Margolis no longer maintains his practice as a surgeon. While other facilities may opt to introduce the role as a part-time position, with a physician maintaining some portion of his or her practice in addition to the HIT responsibilities, Schooler said his organization several years ago had decided the CMIO role needed to be solely dedicated to IT.

“For the expectations that we set with regard to design, deployment and adoption, and the realization of improvements in outcomes and efficiencies, we had to have this as a full-time role in our organization,” he said. “We had to have someone that was willing and able to lead teams that would evolve beyond system design and implementation to more of an enabling team for the organization to maximize the value.”

Margolis has a staff of 47, including eight educators and several senior nurses. Orlando Health also has an active chief nursing information officer (CNIO) role as one of its chief nursing officers. The CNIO leads its nursing technology governance council.

CIO and CMIO as a tag team

While the CIO and CMIO might operate in separate circles and specialize in different areas, it is extremely important for them to operate as a team and to carry a consistent message to the

organization, according to Orlando Health. Regardless of organizational structures, which will differ from one hospital to the next, or if CIOs and CMIOs report to different senior executives, both information executives must work as a cohesive unit and present a unified front to those outside of IT.

“We believe that the reporting structure itself just can’t matter,” Schooler said. “The two individuals must always be on the same page. Mutual trust and support have to be there. We view it as an absolute partnership. It’s really a tag-team approach with physicians and clinicians as we all pursue automation as well as process improvement and the adoption of technologies.”

The executives’ areas of expertise need to be viewed as complementary and not as competitive, Margolis said.

“The CMIO has to recognize that the CIO is an expert in his or her field just as much as the physician is an expert in his or her field,” Margolis said. “Coming at these mutual problems from different perspectives is helpful. There may be discussions about things, but they should happen behind closed doors. But afterward, when the message is taken forward, the CIO and CMIO must be in lockstep and must believe that it is in the best interest of the organization.”

Some of my colleagues have an adversarial relationship with their CMIOs,” Schooler said. “This role is vital, and it’s only going to grow in stature. We have to figure out, as leaders, how to make this work. An organization will not achieve ‘meaningful use’ of clinical IT without this. You will have to have someone who is the physician leader who relates to both sides of the fence.”

An effective CMIO becomes well-versed in the technology, then convinces clinicians that HIT will have a positive impact on care delivery and persuades them to change established practices.

Coordination is needed between the two roles because otherwise they will not be able to manage the expectations that the organization has for what HIT can deliver and how quickly benefits will be realized. It’s also important for the CIO and CMIO to be on the same page because it’s important for their reporting staffs to work closely as well. “Steve and I spend a

lot of time laying out schedules and roadmaps,” Schooler said. “We have clinical quality indicators, and we have physician and nursing adoption metrics that we watch. We have a lot of dialogue regarding where we are with our stated objectives, and in relation to goals that are specific to plans and priorities.”

During the past five years, Schooler and Margolis have implemented clinical systems that include decision support and clinician documentation; on-line medical knowledge systems; cardiac PACS applications; and a variety of internally developed systems, including portals for physicians, nurses and other staff.

Responsiveness to physicians

The CMIO and his or her team strive to gain clinician acceptance and adoption of HIT by ensuring technology meets clinical needs. As clinicians become more comfortable with technology and see first-

CMIO Primary Focus

- » The “voice of the clinical customer”.
- » Education, training and support of physician and other clinical end-users.
- » Clinical systems planning, implementation and adoption— a close partner with or member of the IT team.
- » Process improvement.
- » Ensures themes of clinical quality, safety and regulatory requirements are regarded throughout technology selection, design, deployment and support.
- » Clinical data mining and reporting.

CIO and CMIO Relationship Success Factors

- » Reporting structure will vary, but should not matter.
- » Remain on the same page at ALL times.
- » Mutual respect, trust and support.
- » Both must win/lose together—true partners.
- » Agree on what is important.
- » Integrated and coordinated planning and resource allocation.
- » Consistent messages and expectation management.
- » Reporting staff members must work well together.
- » Tag-team with physicians and other clinicians.

hand how it can help them in their work, caregivers can pose another challenge for CMIOs and CIOs—balancing clinical wish lists for functionality and availability with other organizational IT demands.

At Orlando Health, Margolis’ team of informaticists designs systems, defines functionality, works with the organization’s applications team, tests applications and then trains clinicians in the use of the systems. With Orlando Health’s widespread use of HIT.

Margolis said clinicians often come to him with ideas about implementing new technologies. He analyzes these applications for potential use within Orlando Health. “The clinical team is more able to understand opportunities for process improvement,” Margolis explained. “As CMIO, I’m responsible to work on behalf of the clinicians and to build physician, clinician and executive relationships.”

Demand management

Managing demand for technology involves such issues as finding talent and resources to implement HIT efficiently and doing so at a pace others in the organization expect.

“The things we’re doing, the adoption that we’re pushing, the technology we’re introducing and the processes we’re changing require talented and experienced people, both on the clinical side and the medical side,” Schooler said. “We just can’t commit to things and actually fund things that we, in the end, find that we don’t have the people to pull off.”

Suggestions for enhancements of existing IT or new technology are brought before a delivery council that decides on the merit of the suggestion and whether to forward it to the system’s

main technology governance council. Enhancements are judged on whether they’ll improve quality, improve physician and nurse relations, or whether it will produce savings that will flow to the bottom line of the organization. Projects are scored as part of the council’s decision-making process.

“If a decision is made not to do something, it’s not the IS department that’s refusing to do it. It’s the organization’s leadership that has decided not to do it,” Schooler said. “We try to connect a sponsor outside of the IS department to each initiative.”

The future of the CMIO role

As organizations implement HIT, the CMIO plays an essential role in facilitating acceptance and adoption of technology among the clinical staff. However, many predict that the role of the CMIO will shift over time, as technology and applications mature, and clinicians become accustomed to using information technology.

Margolis sees his future role evolving to play a bigger role in improving quality at Orlando Health. Specifically, he expects to increasingly focus on such areas as improving outcomes, doing clinical research, helping with clinical decision support, data mining, and improving workflow and process improvement for clinicians.

Prescribing a Dose of IT: Helping Clinicians See the Benefits

May 2009 Virtual Idea Exchange

Key idea: Investments in health care IT can loom large, and that underscores the importance of ensuring that day-to-day users of clinical systems are ready and willing to use them. Such preparation is critical in gaining benefits from the HIT investment. Texas Health Resources (THR), a Dallas-based system that is investing in excess of \$200 million in capital and operating expenses for its electronic health record system say successful adoption requires commitment to a process to engage and win over physician users.

Virtual Idea Exchange Presenters

Texas Health Resources

Pat Johnston, Vice President Electronic Health Record Acute Care and Ambulatory Care
Ferdinand Velasco, M.D. Chief Medical Informatics Officer

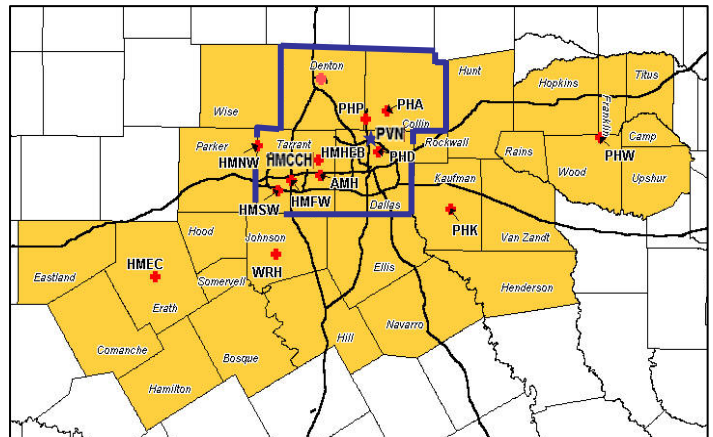
Moderated by:

Ed Marx, Chief Information Officer



Texas Health Resources is one of the largest faith-based, nonprofit health care delivery systems in the United States and the largest in North Texas in terms of patients served. Texas Health's system of 14 hospitals includes Texas Health Harris Methodist, Texas Health Arlington Memorial, and Texas Health Presbyterian, and an organization for medical research and education.

- » 18,000 Employees
- » 3,600 Active Staff Physicians
- » 14 wholly owned hospitals
- » 6 JV hospitals
- » 22 Ambulatory Healthcare Sites
- » 3300 Licensed Hospital Beds
- » Primary service area is 16 counties in north central Texas;
- » more than 6.2 million people



Working on Physician Adoption

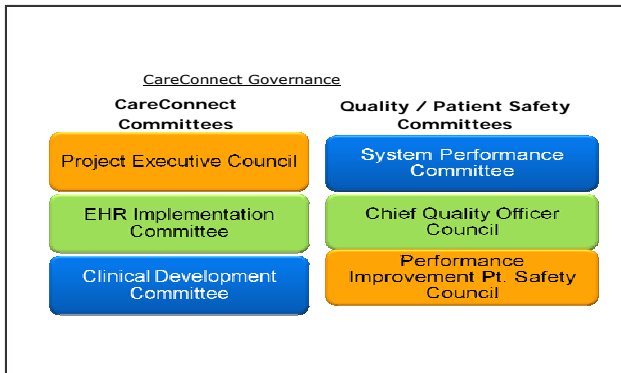
The operator of 20 hospitals, Texas Health Resources (THR) is nearing the end of installing its EHR system in 13 of the 14 facilities that it owns. The EHR is being deployed throughout the continuum of care, which includes THR's hospital-based clinics and 20-plus owned physician practices. Additionally, the system is automating its emergency departments as well as its health information departments.

"When you make a major investment such as this, you want to ensure you're getting the return, not just from a clinical perspective but also from a business perspective," said Edward Marx, CIO for THR. "In terms of clinical usage, the only way to gain the return is to have significant adoption."

The system has found four key drivers to success in gaining clinician adoption of EHRs - **leadership, system design, training and communication**, said Pat Johnston, THR's vice president of electronic health record acute care and ambulatory services.

Taking the lead on IT

Commitment to health care IT starts at the top at THR, where several senior executives are members of the EHR project executive council, which communicates regularly with the rest of THR's senior management.



Senior management also reinforces the importance of IT by setting goals and tracking progress “The EHR is front and center in the dashboard that our organization is using to measure success,” Johnston said.

The system has found that clinical leadership also drives success in acceptance of health care IT. In fact, hospitals with high adoptions levels by medical staff leaders typically have high levels of IT use by staff physicians. Because of the importance of identifying IT champions among the clinical staff, THR has gone so far as to put together a “playbook” to describe the attributes that potential champions should possess.

“We’ve had a variety of clinical champions, both formal and informal,” Johnston said. “Starting with the project team, two-thirds of the members of the team are clinicians. Our CMIO and two of his physician medical directors provide the overall clinical vision. They lead the physician engagement and involvement.”

THR also uses a clinical development committee that is responsible for approving enhancements and helping to prioritize IT initiatives. The committee has members from multiple clinical disciplines, and its members include quality officers and nursing executives, Johnston said.

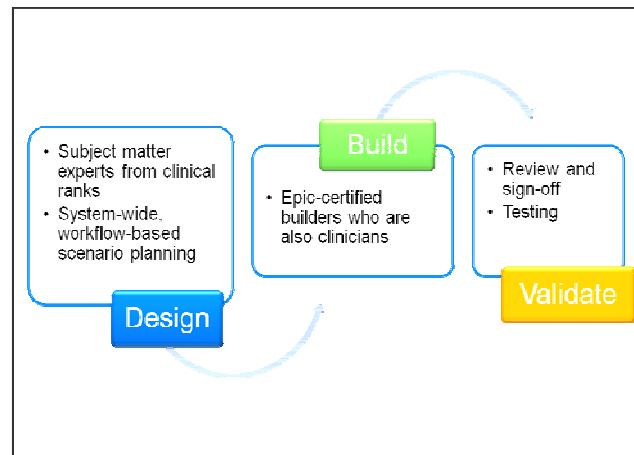
Ferdinand Velasco, M.D., THR’s CMIO, “did a lot of pre-emptive work” in preparing physicians for electronic health records. In his first years at THR, “I marketed the concept of health care information technology as having a lot of value,” he said. “We did a lot of work engaging our clinical champions on the benefits of the system and seeking their support for what we were doing.”

Get end users invested and involved in system design

Physician involvement is cultivated from the very beginning of the process, because their input in the design of the system results in the creation of something that’s accepted by stakeholders, Johnston said.

“When we started in 2005 with our initial build, we involved more than 500 subject matters experts across the system and engaged them in workflow-based scenario planning,” Johnston said. “They created and then validated the design. It’s an ongoing process - our optimization and enhancement efforts follow the same concept, which basically means getting the right people involved.”

Critical to the design process is engaging clinicians and senior executives in thinking about what kinds of information and reports they want from the electronic records system. Otherwise, it could result in additional work after the system is installed, Johnston said.



Clinicians also were involved in developing order sets for the computerized provider order entry (CPOE) system. THR used a third-party provider of order set content as a reference and starting point, then paid physicians on a per-hour basis to serve as subject matter experts in customizing them for its facilities.

Training – early and often

Getting clinicians up to speed and comfortable with new health care IT systems necessitates having a robust training effort that provides several training venues and enables clinicians to access training that’s effective and comfortable for them, Johnston said.

“You cannot overemphasize the importance of good training, and it’s so easy to underestimate the effort,” she said. “It requires a multi-modality approach.”

THR starts with web-based training to help new users understand the basics of clinical systems, then moves to instructor-led, hands-on sessions, with training focused on a user's specialty or role. Creativity in training is important - early participants in training programs have been eligible for continuing medical education credits, for example THR has trained several top-gun trainers who shadow physicians on their rounds and provide assistance as they encounter situations. This assistance is available on key days, such as when systems come live or when use of the system becomes mandatory. And topic-specific training is embedded into the environment so end users can get just-in-time reminders and refreshers.

"Training is a costly consumer of physician time," Johnston said. "For physicians, time is money, so training needs to be good and it needs to hit the mark; it can't be too long, and it can't be too short. It needs to be specific to the person's role, and it needs to be ongoing."

There's a direct correlation between training and benefits realization, Velasco said. "If training is compromised it is to the detriment of adoption and, ultimately, benefits realization," he added.

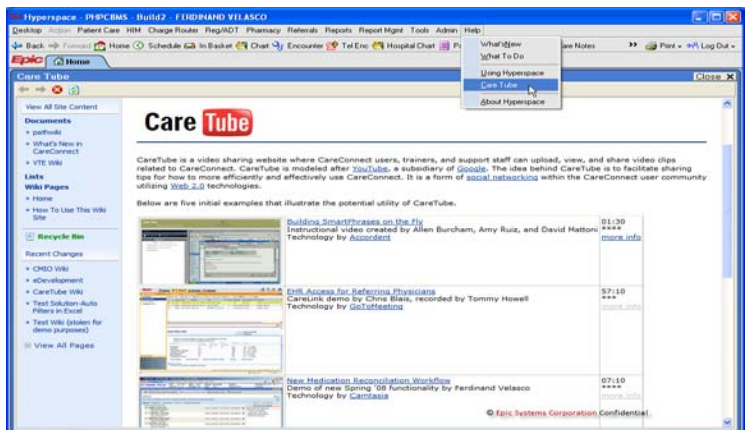
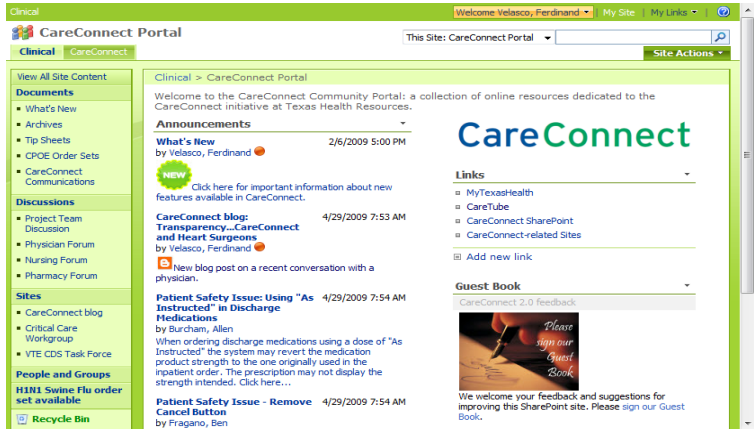
Training extends to anticipating and reacting to clinician complaints as they make the transition to digital records, Velasco said. "The typical thing you hear from the early phase of adoption is the time it takes to learn the system, because it is such a paradigm shift," he said. "It is very disruptive to workflow and adds time to their daily work. We get their feedback on how it's slowing them down, and we help them optimize their use of the system by rounding with them, getting their feedback and continually working on the system. Typically, complaining physicians who shared that feedback initially now say they wouldn't want to go back to paper because the electronic health record helps them to be better clinicians."

Communication underscores the paradigm shift

Finally, communication plays an important role in keeping clinicians engaged in the training and transition process. THR has used both paper and electronic means to alert clinicians to important days, such as when an HIT application is going into use or when training opportunities are offered.

"In the community hospital setting such as ours, where we have voluntary faculty not employed by the health system, communication with our clinicians, particularly our physicians, is always a challenge," Velasco said. THR developed an approach to educate and inform its user base about a project or specific implementation issues, using communications from newsletters to hospital parking signage.

"We look at both formal methods of communication as well as informal communication. We also rely on physician champions that have been identified at a hospital level to help us communicate to the end users directly," Velasco noted.



THR's physician portal, called CareConnect, contains straight forward system updates as well as blogs and discussion forums focused on the EHR system. The organization also is creating an educational web video service, called CareTube, modeled after the YouTube web site, which offers short, simple-to-absorb videos about various aspects of the EHR's functionality.

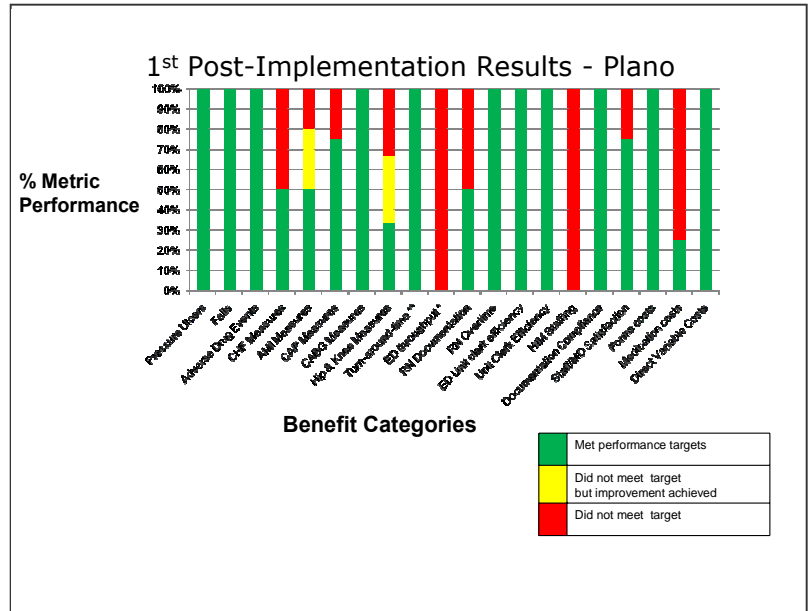
Mandating clinician use

To achieve universal adoption, THR turns to its medical staffs. While voluntary adoption tends to reach 60 percent to 70 percent penetration, "it tends to stay there until adoption ultimately is mandated by the medical leadership," Velasco said. "Physicians eventually understand that it's dangerous to perpetuate a dual workflow where some doctors are on the system and some are not."

At THR, the recommendation to mandate use usually begins with each hospital's steering committee. Then the full medical board "passes the resolution that in order to practice and be credentialed at their hospital, they need to use the system," he explained.

“There is definitely a synergistic connection between adoption and benefits,” Johnston said. “We realized early on that if we were going to achieve benefits from this significant investment, we really needed to put a focus on that.”

Nonetheless, EHR use alone won't deliver the benefits that THR is striving to make. The health system has set goals for improving 16 specific metrics in four key areas - quality and safety, efficiency, satisfaction and financial improvement. “The value piece of an implementation is challenging to accomplish but is extremely important because you really focus yourself on the right things,” Johnston said. “It gives you information to make corrections that you would not have had otherwise. It definitely encourages accountability.”





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