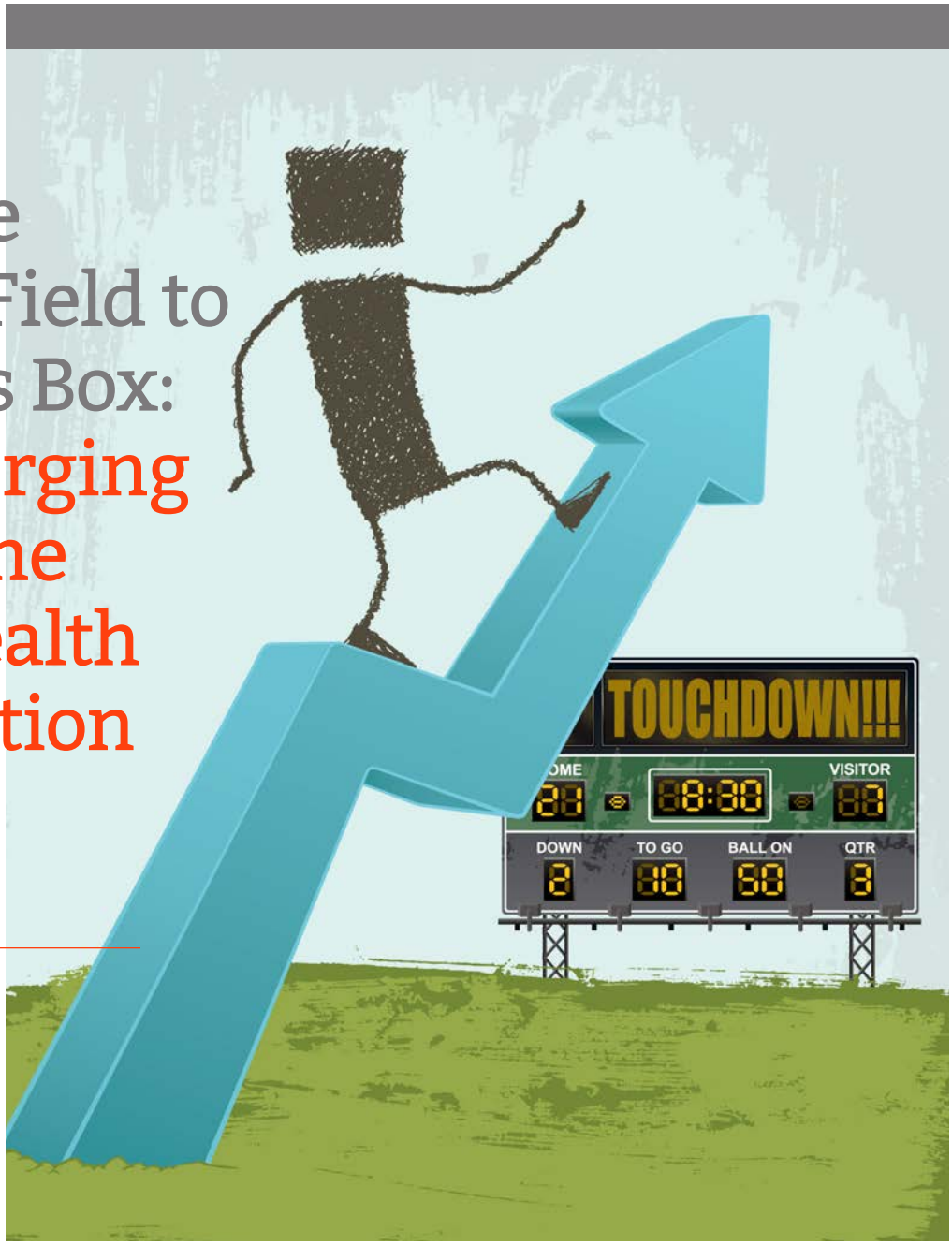
From the Playing Field to the Press Box: The Emerging Role of the Chief Health Information Officer



MAESTRO STRATEGIES

While some healthcare organizations continue to relegate health information technology to meaningful use compliance alone, “second curve” organizations are seizing the opportunity for informatics, analytics and information technology to play a bigger role on the front lines of care delivery, enterprise performance/quality improvement, transformation and innovation. As physician leaders expand their influence across the C-Suite to participate in clinical integration, care coordination and evidence based care decisions; **Chief Health Information Officers** are becoming key members of the strategic team.

Progressive health systems are moving forward to manage risks, to become accountable for the care of patient populations and to explore innovative use of information and technology to drive the redesign of care delivery processes. While no two health systems are the same, in-depth interviews (see About the Research on page 2) with the leadership of information technology, informatics, analytics and quality indicates significant changes in responsibilities, competencies and structures are on the horizon for chief information officer and chief medical informatics officer roles.

The preoccupation with implementing electronic health records to meet the requirements of meaningful use has left many organizations underwhelmed and often frustrated when it comes to the value of these systems. In this first installment of our recent research regarding leadership of the transformation of the US health system, we focus on how new physician leaders are working with the C-suite to leverage the industry's investment in EHRs and other advanced clinical technologies to reduce the cost of care, expand access to care and improve quality while supporting the transition to high value healthcare. We identify the emerging role of the chief health information officer (CHIO), what the role is and what it is not, and how this position is similar to and yet different from CMIO and CIO roles.

Physicians, whose buy-in is essential to successful adoption of EHRs, have been asked over the past several years to take on roles in health IT. Usually called chief medical information officers, they have focused on the clinical aspects of the acute care EHR, especially CPOE and Stage 1 of meaningful use. In many instances, they report to the chief information officer, serve as an evangelist regarding the adoption of clinical systems and often get pulled into a tactical problem solving role regarding the technology. Most CMIOs do not have a seat at the senior leadership table, nor are they perceived by other executives as having the appropriate understanding of strategy, finance, operations or leadership skills to do so.

Based on previous work and research conducted by the authors we have identified an emerging position within the C-suite of leading health systems – the chief health information officer. Progressive healthcare providers are seeing the need for a physician leader who can harvest information from clinical systems to improve enterprise performance and manage the health of populations. Additionally, these senior leaders will collaborate with other members of the C-suite to weave IT capabilities into the fabric of new value based care delivery and reimbursement models.

About the Research

During a breakfast discussion at HIMSS 2014 with leading Chief Medical Informatics Officers, Chief Health Information Officers, Chief Information Officers and Chief Innovation Officers, Maestro Strategies reviewed industry articles, press releases and recruiter position descriptions with the goal of understanding healthcare information technology, informatics and analytics leadership models and trends. During the spring and summer of 2014, we conducted in-depth interviews with CIOs, CMIOs, CHIOs and other healthcare executives from over 40 leading health systems. Health systems were targeted for the interviews based on sophistication of use of advanced clinical system and health intelligence, market progression toward value based payment, the size and scope of the enterprise and the individual executive's presence as a thought leader.

Capabilities of Value-Driven HIT:

- Reduce human labor by automating processes
- Improve point of care decision making through clinical decision support
- Stratify patients with specific conditions and track disease status
- Improve access and care management across geographic and time differences
- Integrate data across multiple entities, processes and functions
- Improve communications across care teams & transitions of care
- Measure and analyze performance of care for individuals and populations

Leading from the Press Box

In a landmark Harvard Business Review article entitled "The Work of Leadership", authors Heifetz and Laurie, introduced the breakthrough concept of adaptive change – the sort of change that occurs when people and organizations are forced to adapt to a radically altered environment – much like the change that is happening in healthcare today. The authors suggested that strong leaders, when faced with adaptive change, have the capacity to move from the field of play to the press box. By understanding the game from the broader perspective they see how the offense and defense work together, who is missing the block, who is open for a pass – they are able to execute strategy by considering the larger patterns of play.[1] According to David Levin, former CMIO of the Cleveland Clinic and Sentara Health Systems and Maestro Advisor, "The CMIO has to move from the playing field, to the press box…rather than focusing on the technology, we need strategic physician leadership to harvest the value from these systems". Today many CMIOs are so engaged in the game, they fall prey to the "fix it now" problem solving approach that served them so well in their clinical practice. Rather a big-picture, vision-oriented, collaborative approach is required to develop strategy, enable clinical integration and motivate multidisciplinary teams to create and realize new value.

Time for a Leadership Pivot

Strong leaders, when faced with adaptive change, have the capacity to move from the field of play to the press box.

Economic futurist Ian Morrison has postulated that as payment incentives shift, healthcare providers will go through a classic modification in their core models for business and service delivery. He refers to the volume-based environment hospitals currently face as the *first curve* and the future value-based market dynamic as the *second curve.*[2] A recent survey conducted by Spencer Stuart and the AHA examined how the shift toward health care's "second curve" is impacting the leadership, talent and organizational models of hospitals and care system. Three key findings from this survey were pertinent to our research:

- Physicians and nurses are being tapped more often for leadership roles. Many organizations are creating new senior executive positions to address specific strategic areas and placing clinicians in them. Frequently, clinicians participate in management dyads or triads and co-lead with administrators to oversee service lines or clinical areas
- Traditional hospital roles are changing and becoming more strategic and larger in scope, to respond to the changing demands of the field. CMOs, CNOs, CFOs and COOs are being asked to develop a broader set of leadership and technical skills and increase their understanding of health care delivery beyond the hospital setting
- The ability to interpret data and apply it to the most important issues for the organization is a growing expectation for all senior healthcare executives. Capabilities in data analytics, population health management and process improvement along with integrated information systems will support risk-bearing activities and provide real-time financial and clinical information for measuring performance against quality and efficiency targets.[3]

In our research, second curve leaders describe a pivot in the organization's approach to leading and managing information technology, informatics, analytics and quality. Rather than first curve activities focused on the Information Technology, such as the EHR, these leadership teams come together to:

- Focus on business and clinical value, and then determine the information needed to achieve results and outcomes
- Locate, define, and ensure the collection, improvement, aggregation and analysis of information that can be trusted and used to make critical decisions
- Develop systems and competencies to integrate information across key venues of care to create a single view of the patient, and to weave new value-driven HIT capabilities into the process of care (see new capabilities)

Yet the promised ROI of EHRs has remained elusive for most. Many health systems have focused on implementation alone, without developing a strategy for value realization.

While the hospitals, medical groups and integrated delivery systems interviewed during our research are at widely diverse points in their evolution to high-value healthcare, leading organizations consistently describe the role of a senior clinician as being tasked with the responsibility of realizing value from the investment in advanced clinical systems.

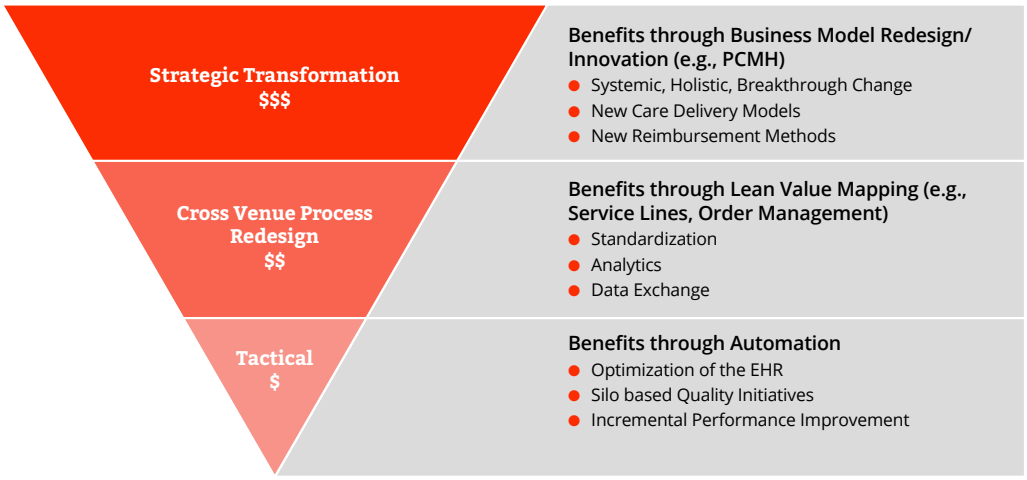
The Strategic View of the Chief Health Information Officer

"Second curve leaders have to master both the first and second curves, to anticipate the rate and pace of change, to know when and how to jump from the first curve to the second, and whether and when to play," indicates Ian Morrison. [4] They must lead the transformation of the business and care models to balance the three improvement aspects of the Triple Aim – patient experience, health of populations and cost [5] and according to our research, collaborate to drive value creation and realization from their investments in information technology.

Our team has explored the notion of HIT return on investment and value realization since the early 2000s and written three books on the topic. The conclusion remains the same. Technology implementation alone does not drive ROI, and can often harm outcomes and add to costs rather than reduce them. Value must be managed into reality by clinical leaders who are accountable for developing clinical strategy and driving change across clinical practice. [6] In a recent study examining the impact on 10 quality measures across 300 practices and 140,000 patients in patient centered medical home (PCMH), it was found that PCMHs with EHRs achieved better overall performance that non-PCMHs practices with an EHR. The article suggested that that strategic care delivery redesign had an additive effect on quality improvements over the use of an EHR alone and that the EHR was foundational to the success of the PCMH operating model. [7]

Projections indicate healthcare organizations will spend more than $34.5 billion on healthcare IT in 2014 to keep pace with healthcare regulations. [8] As of July 2014, the federal government has paid out $24.5 billion to eligible hospitals and eligible providers.[9] Yet the promised ROI of EHRs has remained elusive for most. Many health systems have focused on implementation alone, without developing a strategy for value realization. If they focus on benefits, it is often at a tactical

level – the focus is on optimizing the electronic health record and traditional silo based quality and performance improvement initiatives. Our research with leading health systems indicates that for value to occur, strategic leaders must vertically and horizontally align the use of the information and technology with the enterprise's strategic direction, and work to redesign clinical processes to hardwire quality into work practices across key venues of care. Many have or are in the process of identifying a strategic "owner", someone who is accountable for value realization.



Our findings dovetail with the arguments put forth by David Muntz, former deputy national coordinator for health IT at the U.S. Department of Health and Human Services. "Data management," he argued, "has become so complex that a chief health information officer, an overarching leader of all health information projects within an organization, is needed. Just like in medicine, there used to be one position called 'doctor,'" Muntz says. "Medical specialties and subspecialties developed throughout the 20th century after science unlocked deeper knowledge of the human body. Similarly, it was once possible for the CIO to understand everything going on with data within a health system, but no longer," Muntz says. The CMIO -- a physician who bridges IT and medical practice -- has become commonplace in the last decade, but that position is more clinical and less administrative than Muntz envisions for a CHIO. "It's not just about diagnosing things, but figuring out what questions to ask," Muntz continues. He says a chief health information officer should think about how patient-generated data might be used and be the one to look at how data might affect patients. I talk about this in terms of value analytics, not data analytics," explains Muntz. [10]

While frequently referred to as the CHIO, sometimes these clinical leaders assume joint responsibility for quality and informatics as the chief quality officer, continue to use the title chief medical information officer, are serving as chief transformation officers, or are chief information officers who also have clinical background as physicians or nurses. Regardless of their title, a number of consistent patterns are apparent. The CHIO or senior clinician with responsibility for health information is focused on:

- Thinking systematically about the health system as a whole instead of specific components
- Leading change through people, process, and the use of information rather than technology adoption and implementation
- Leveraging the health system's investment in clinical, financial, care management and patient engagement systems to drive value creation and realization within the context of cross venue processes/strategic initiatives rather than optimizing the technology alone
- Improving and reinventing care delivery across the continuum, anytime, anywhere versus acute care only
- Convening multidisciplinary care improvement and delivery teams rather than just physicians or nurses
- Collaborating with other members of the C-Suite to lead the convergence of quality, informatics and analytics, and aligning with overall information technology strategy and direction
- Leading teams comprised of informaticists, process engineers, data analysts, content management specialists, change management experts and curriculum developers to redesign processes, improve data integrity, educate clinicians and senior leaders, develop point of care decision support and to hardwire quality metrics into clinical care workflows
- Enabling patient and consumer engagement through emerging technologies, social media and stratified health information to drive improved wellness, prevention and management of chronic disease as well as retail health, virtual health and other new methods of health delivery

At Spectrum Health, in Grand Rapids, Michigan, Patrick O'Hare, senior vice president and CIO encouraged the promotion of the organization's CMIO, J. Michael Kramer, MD, MBA to the role of Senior Vice President and Chief Quality Officer. In this position, Dr. Kramer combines his previous responsibilities as CMIO with a special focus on using data to enhance quality and patient safety. According to Patrick O'Hare, "We see the convergence of quality and informatics, and knew we needed strong physician leadership within the senior executive ranks."

Duke Medicine elevated the role of CMIO to CHIO, creating a department of 30 employees and assigning responsibilities including visioning, strategic planning, and deployment support of clinical and analytic information systems that impact patient care, research and education. Other duties include the development of a clinical data governance process and framework, and the support of clinical IT innovation. The position reports to Jeffrey Ferranti, MD, MS and Chief Information Officer/VP for Medical Informatics at Duke Medicine who previously served in the role of CMIO. During the national search for the CHIO, it was understood that the CHIO would be an informatics thought leader.

At Texas Health Resources, Ferdinand Velasco, MD, was promoted from CMIO to the new post of CHIO in 2011, with 60 FTEs reporting to him. He previously reported to the CIO but now reports to both the COO and CMO. Dr. Velasco oversees a chief nursing information officer, business intelligence and analytics, informatics and clinical decision support. The role involves leading informatics throughout the continuum of care, not just medical informatics, advancing the

organization's aims to improve population health, provide excellent clinical care, and reducing total cost of care. His personal mission statement reads: "I improve health by promoting and supporting technology-enabled innovation and process improvement."

Key Stages in the State of Play

From the early years of this century until just recently, healthcare was focused on selecting and implementing clinical systems such as electronic health records within hospitals and ambulatory practices. During this first stage, call it stage 1.0, the healthcare industry was focused on the technology. At the inception of this work, CIOs took the lead and physician leaders or CMIOs were instrumental in building support for EHR adoption. Often, without the benefit of a formal role structure, a playbook or much authority these pioneers served as a liaison between the medical staff and IT. The 25th Annual HIMSS Leadership Survey, released in February 2014, found that 40% of responding organizations employed a chief medical information officer; this was in line with results of other surveys by the College of Healthcare Information Management Executives (CHIME) and the Association of Medical Directors of Information Systems (AMDIS).

With many organizations completing the EHR implementation process, questions have arisen on where the job goes moving forward. A 2012 survey of 350 CIOs and CMIOs by the healthcare executive search firm SSi-SEARCH found that 92% of respondents believe that the role needs to be permanent. "Looking beyond the EHR deployment we will see a growing need for data-driven healthcare practices for value based care," wrote Pamela Dixon, Managing Partner of SSi-SEARCH, a healthcare executive search firm, in a 2012 white paper. "This need creates a future career path for the CMIO in terms of analyzing and presenting data to clinicians. The CMIO will continue to be considered of high strategic value in achieving the patient safety objectives of the health system."

Today, the focus has shifted from implementation to a need to harvest information to support enterprise performance management and population health management. As organizations expand efforts to clinically integrate, coordinate care and stratify population groups, clinical, financial, and business information is essential for decision making. The focus of stage 2.0 is information. Leadership of informatics and analytics shifts from a focus on the technology to people, process and the management of change. The CMIO reporting relationship shifts to the chief medical officer or chief clinical officer of the health system. According to William F. Bria, MD, CMIO at the HCI Group and Board Chairman of AMDIS, "the next generation CMIO will be a bit of a scientist, quality officer and leader of disruptive change."

Rather than the traditional focus on acute care and the EHR, CMIOs have broader responsibilities covering the entire continuum of care and support clinical content, process design and information integrity across an expansive list of technologies including patient portals, telehealth, mhealth, data exchange and health intelligence and analytics tools. Increasingly, a strategic perspective is required to address new business challenges and opportunities such as referral management, physician productivity, patient engagement, etc. The CMIO and the CIO must continue to work together as partners to build data governance and stewardship structures, the health intelligence and analytics platform, and the skills and capabilities that will be needed for high value healthcare.

A CHIO, often with Medical Information Officers reporting to them, partners with other executives such as the chief transformation officers, chief innovation officers, chief medical officers and chief information officers to design and develop strategies for digital healthcare.

Stage	1.0 Technology	2.0 Information	3.0 Value
Enterprise strategic focus:	• Fee for service reimbursement • Consolidation of hospitals • Acquisition of practices	• Clinical integration • Coordination of care across siloes • Patient engagement • Enterprise performance management • Population health management	• Risk management • Predictive & prescriptive modeling • Personalized medicine • Virtual care • Retail care • Consumer behavior management
Enterprise information & technology focus:	Procurement, implementation & maintenance of enterprise systems such as EHR, ERP and Revenue Management	Harvesting information to improve enterprise performance management and population health management	Care delivery redesign and value based reimbursement drive digital healthcare strategies and processes
Leader responsibility:	CMIO is 'Doc in IT'. Helps physicians through EHR adoption and CPOE	CMIO leads health informatics center of excellence with local support	CHIO partners to drive convergence of quality, informatics & analytics
Reports to:	Chief Information Officer	Chief Medical Officer	Chief Transformation Officer
Primary work emphasis:	EHR and Meaningful Use	Use of information, people, process and change	Care delivery transformation and innovation
Domain:	Acute care	Continuum of care	Anytime, anywhere
Decision-making model:	Command & control, hierarchical	Dyads and triads, matrix leadership	Collaboration

Source: Health Informatics Emerging Practices Research, Maestro Strategies

During our research, we identified a number of thought leading organizations that are making the transition from stage 2.0 to 3.0. These health systems are assuming risks, and are in the process of building care management and health intelligence platforms. The primary leadership differentiator in a 3.0 or value focused health system is a structure that recognizes the convergence of quality, informatics and analytics. A CHIO, often with Medical Information Officers reporting to them, partners with other executives such as the chief transformation officers, chief innovation officers, chief medical officers and chief information officers to design and develop strategies for digital healthcare. In this stage, information, technology and analytics capabilities will be woven into the very fabric of new care delivery and value-based reimbursement models.

The CIO and the CHIO Relationship: Changing the Game

By Pam Arlotto

According to Praveen Chopra, Executive Vice President and CIO at Thomas Jefferson University and TJU Hospital System, *"the "I" in CIO must stand for information, integration and innovation rather than little "i" – infrastructure.* Praveen and other leading CIOs interviewed as part of the Maestro research indicate that the role of the healthcare CIO is changing very quickly. Historically, the healthcare IT organization's role was to select vendors and their products, implement information systems, and provide services to support the implemented systems. Yet, as IT becomes more integral to the delivery of patient care, and new waves of technology: telehealth, business intelligence, social media, cloud computing, etc. keep coming; the shift toward digital healthcare and dependence on these systems is fait accompli. This trend toward increasing reliance on IT is not only transforming the healthcare industry, but the role of leadership of the IT function.

To find out more about the emerging leadership roles within IT, Informatics, Analytics and Quality we conducted in-depth interviews of individuals who are operating in 3.0 leadership structures. While the concept of the CHIO was not just the wishful thinking of a few emboldened CMIOs, the overwhelming message from the CIOs interviewed was the need for a game changing relationship with strategic physician leaders. They believe this partnership is critical to their own ability to execute.

Dyads and triads between CMO, CHIOs and CIOs focused on strategy formulation are common in 3.0 healthcare enterprises. *"We have a tight leadership group, are extremely matrixed, we work well together and we aren't into turf battles. We focus on what's right for the organization and spend 12-16 hours together a week thinking through strategy"* says Jim Noga, Vice President and Chief Information Officer at Partners Healthcare of his relationship with the chief clinical officer and medical informatics officer.

One of the primary objectives of the collaboration is to *"hardwire quality into our electronic systems,"* indicates Dee Cantrell, RN and CIO at Emory Healthcare. *"We are heavy into data analytics and have a wealth of data, so it's really great when you can take that data, make it information and translate it into knowledge that gets back to the bedside. Additionally, our partnership contributes to C-Suite strategic thinking."*

Yet these close relationships are not always without friction. As healthcare transformation strategies evolve, and leaders of progressive health systems look to digitally enable the patient experience, expand actionable information through predictive and prescriptive analytics, and innovate the care delivery platform, specific roles and responsibilities are not always clear. *"Many of my peers are struggling; they want to remain in charge"* says Bill Montgomery, recently retired CIO of Hospital Sisters Health System. *"It's no longer a hero's game,"* says Tim Zoph, Senior Vice President and former CIO at Northwestern Medicine, *"effective decisions require multiple perspectives."*

A successful partnership realizes that healthy debate can add to the conversation and provide a more expansive understanding of the options and trade-offs. According to Zoph, *"No one IT leader is the panacea. The information literate leadership team is essential for the future. The collective team's execution of strategy, decisions on how to govern together and definition of what it means to be a strategic team member within the organization – those are the critical discussions"*

Developing a Game Plan – Moving from 1.0 to 2.0

Yet few health systems are focused on 3.0 today. The majority must move from 1.0 to 2.0. According to our research, the most significant difference between 1.0 CMIOs and their 2.0 counterparts is the more formal nature of their role. Rather than playing the game, or in many cases "cheerleading" the work of IT, 2.0 CMIOs serve as coaches to others. They are focused on information, people and process change at a more systemic level than their 1.0 peers. Challenges typically faced by 1.0 CMIOs as they transition to 2.0 CMIOs include:

- Organizational uncertainty regarding the role, value and purpose of informatics
- Unclear or nonexistent priorities
- Budgetary constraints
- Local customization requirements versus standardization of care processes
- Fragmented informatics resources working across multiple silos
- Inconsistent approaches to designing workflows, developing clinical content, ensuring data integrity, educating and supporting clinicians and managing change
- Inexperience at the strategic level, C-Suite business practices are often foreign and the natural tendency to be drawn into tactical issues is difficult to overcome
- Demand to expand attention beyond acute care and informatics, to multiple venues of care, to analytics, quality and population health management

A game plan for the transition from 1.0 to 2.0, developed in concert with other senior leaders, will help overcome these challenges. Important components of this plan include:

- Clear messaging regarding the Vision and Guiding Principles of Health Informatics and Analytics within the enterprise
- Defined strategy that spells out informatics and analytics strategic imperatives and critical success factors
- A clear, multi-year operating model that explains:
  - the relationship of the CMIO/CHIO in relation to other C-Suite executives such as the Chief Information Officer, Chief Clinical Officer, Chief Transformation Officer, Chief Innovation Officer, etc.
  - the role of Health Informatics and Analytics in convening and consulting with other disciplines in addition to having primary responsibility for specific core activities in data definition, collection, exchange, aggregation, analysis and use
  - the difference/similarities in corporate Informatics and Analytics versus local "at-the elbow" informatics roles
  - a resource plan that identifies skills, capabilities and gaps in competencies

- Tools and techniques for value realization and measurement, and
- In many cases, a personal development plan for the CMIO, one that expands leadership, strategic and business knowledge

The View from the Press Box – The Urgency of Change

For many health systems, our research indicates the evolution from 1.0 to 3.0 will happen very quickly and for others it will occur in a more measured fashion. Ian Morrison, the healthcare economic futurist who coined the terms first curve and second curve healthcare recently commented, "Health care is on a roll, costs are moderating, coverage is expanding and quality is improving.....But it is not enough. We need to pick up the pace." He referenced Malcolm Gladwell and his brilliant tale of how "true innovators (often the Davids battling against the Goliaths) have a strong sense of urgency. They feel the need to change more intensely than the rest of us and often are disagreeably dissatisfied with the status quo that doesn't move fast enough for them." For CMIOs, CHIOs and other clinical leaders with responsibility for information, this may be the most significant challenge/opportunity of all.

Sources

1. Ronald A. Heifetz and Donald L. Laurie, "The Work of Leadership", Harvard Business Review, December 2001.4. Ian Morrison, "The Second Curve: Managing the Velocity of Change", 1996.
2. *Second Curve Road Map for Health Care,* Health Research & Educational Trust, Chicago: April 2013
3. *Building a Leadership Team for the Healthcare Organization of the Future,* Health Research & Educational Trust, Chicago: April 2014
4. Ian Morrison, "The Second Curve: Managing the Velocity of Change", 1996.
5. Institute for Healthcare Improvement, The Triple Aim Framework, www.ihi.org
6. Arlotto, et al. "Return on Investment: The Value of HIT", HIMSS Series, 2002, 2006, 2012.
7. Kern, Edwards and Kaushal, "The Patient Centered Medical Home, Electronic Health Records, and Quality of Care, Annals of Internal Medicine, June 2014
8. Pedulli, "2014 Health Spending in North America to Surpass $34.5 Billion," Clinical Innovation + Technology, Aug. 29, 2013
9. Office of the National Coordinator for HIT, July 2014.
10. N. Versel, "The Evolution of Health IT Continues," *U.S. News and World Report,* Feb. 6, 2014
11. P. Dixon, *Chief Medical Information Officer Role and Responsibilities,* SSiSearch, Nov. 2, 2013
12. I. Morrison, "Urgent Care", *Hospital & Health Networks Daily,* September 2, 2014.