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Digital Hospitals and RHIOs: From Buzzword to Mainstream

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HIMSS Annual Conference
San Diego, CA
February 14, 2006

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Presented by Randy L. Thomas, FHIMSS
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Ms. Thomas has over 26 years experience in information technology, the last 18 in healthcare. Ms. Thomas is currently a Fellow in the IBM Center for Healthcare Management. Ms. Thomas joined IBM in 2005 on the acquisition of Healthlink. Since joining Healthlink in 2003 Ms. Thomas led the Strategic Services and Eclipsys service lines.

Prior to joining Healthlink, Ms. Thomas held a series of product planning and marketing strategy roles at Transition Systems, Inc. and Eclipsys Corporation.

Ms. Thomas is an active participant in the HIT industry, having recently been recognized with the HIMSS 2004 John A. Page Outstanding Service Award. A HIMSS Fellow since 2002, Ms. Thomas was also the first recipient of the Spirit of HIMSS award in 2003. Ms. Thomas has served on the HIMSS Board of Directors, as chair of the Bar Code Task Force, chair of the Advocacy Committee and is current chair of the HIMSS Advocacy Collaborators Roundtable. Ms. Thomas has also participated on the EHR Steering Committee and Standards Task Force. Ms. Thomas was Vice-Chair of Finance for CHIM, co-chair of the NAHIT Standards Inventory Work Group and member of the first NAHIT Board of Directors.
Points We’ll Cover

- What is a “digital hospital”? - An array of definitions will be explored; a “holistic” definition will be offered; examples will be provided.
- What are the market forces influencing the move to digital hospitals? - An environmental scan of the various factors driving the interest in digital hospitals
- Establishing a digital hospital strategy – No different than any healthcare organization, the road to becoming a digital hospital starts with a sound IT strategy that is closely aligned to support the business and clinical objectives of the organization.
- Selecting the technology for your digital hospital – Creating a framework and approach for technology selection that builds on the firm foundation of the IT strategy.
- Digital hospitals and RHIOs – A digital hospital is not bounded by the walls of the organization but connects with a whole array of healthcare stakeholders from payers to other providers to patients.
What is a Digital Hospital?
3 Opinions

"Top-down, strategic commitment to invest in technology to optimize clinical, financial and administrative processes. And it involves more than advanced healthcare information systems. It also includes ancillary technology, such as medical-device integration, advanced nurse call, advanced patient tracking, etc." (Modern Healthcare "Straight Talk", 10/02)

"It's a hospital that makes full use of the latest computerized technology to improve your care and protect your safety as a patient." (Lehigh Valley Hospital and Health Network, website, 10/05)

"An acute care facility incorporating the widespread use of information technology to dramatically improve the process and outcomes of care" (California Healthcare Foundation, 10/03)

Yes, it's all this...and more!

A "digital hospital" is commonly defined as one where no paper is used to record or communicate information about a patient. Orders, lab results, images, progress notes are all collected and communicated using electronic tools that capture, store and transfer the pertinent information. Whenever a clinician needs to know something about a patient, the information is available online, through whatever access means have been provided.

There are many influencers pressuring healthcare organizations into going "digital". It goes beyond improving the efficiency and effectiveness of patient care because it's the "right thing" to do for the hospital and the patient. It's caught up in the intense contemporary focus on how to improve our healthcare delivery system as a whole. Every stakeholder in the healthcare community – hospitals, physicians, payers, home health, consumers, long term care, reference labs, clinics, etc. – everyone needs to participate to help solve the problem of unsustainable cost increases, widely variant use of resources, uneven access to quality care. We'll focus on the role of the digital hospital in this healthcare system transformation.
Intuitively, we all know that the care, administrative and supply chain processes are interlinked. Coordinating this interrelationship in a "non-digital" hospital can be time consuming, frustrating and fraught with errors. One of the advantages a digital hospital can offer is automatically coordinating the various interrelationships between care delivery and the supporting services. Rather than many manual processes that rely on human memory and are open to individual interpretation, information technology can be used to not only track patient care, but make the appropriate supplies are on hand when needed, the services are coded accurately and the bill is generated correctly and in a timely manner.
Holistic Digital Hospital Definition

A healthcare organization that communicates business and clinical information internally and externally via electronic means; uses information technology to enable more efficient and effective clinical, administrative and business processes.

So, of course, the paperless environment extends beyond direct patient care. A digital hospital is also a place where supplies are requisitioned, tracked and replenished without paper forms or even a person taking stock of the inventory. It is also a place where financial transactions are handled electronically, without manual coding, paper bills or checks being processed.

What this path inevitably leads to, however, is that a digital hospital does not stop at the walls of the facility. Supply orders are handled electronically with suppliers. Financial transactions are electronically transmitted to payers. Payments deposited directly to the bank via electronic funds transfer. It makes sense, then, that a digital hospital is also one that communicates with other providers about the clinical care of a patient. It is an organization that is "RHIO-ready" – able to "plug into" the emerging local networks of health information.
The digital hospital has gone "public". The awareness of how HIT can support more efficient and effective care is spreading. The knowledge is no longer simply in the province of the healthcare IT cognoscenti. The March 28, 2005 Business Week covered many aspects of the digital hospital in their front cover article. Expect to see more main stream press coverage of how information technology can help with healthcare transformation.
One of the reasons there is so much attention on the role of HIT, is there increasing evidence of the significant cost savings HIT adoption can drive. There are a number of studies that suggest significant savings could be achieved through the adoption of interoperable, connected electronic health records (EHRs). The General Accounting Office report released on 2/15/05 cites several studies conducted by the Center for Information Technology Leadership that suggest potential annual savings in the tens of billions of dollars. A recent study released by Rand Corporation reinforces this assertion.
The Leadership Council was composed of 9 non-healthcare Fortune 100 CEOs. Their report underscored the value of HIT in helping improve healthcare delivery in the US, particularly as a means to improve efficiency, and therefore contain cost. The high points of the report include:

**Three key imperatives**
- Widespread adoption of interoperable health IT should be a top priority for the U.S. health care system.
- The federal government should use its leverage as the nation's largest health care payer and provider to drive adoption of health IT.
- Private sector purchasers and health care organizations should collaborate alongside the federal government to drive adoption of health IT.

**Six conclusions**
- Potential benefits of health IT far outweigh manageable costs.
- Health IT needs a clear, broadly motivating vision and practical adoption strategy.
- The federal government should provide leadership; industry will engage and follow.
- Lessons of adoption and success of IT in other industries should inform/enhance adoption of health IT.
- Stakeholder incentives must be aligned to foster health IT adoption.
- Among its multiple stakeholders, the consumer (e.g., individual beneficiaries, patients, family members and the public-at-large) is key to adoption of health IT and benefits realization.
FOR IMMEDIATE RELEASE

Tuesday, Sept. 13, 2005

COMMISSIONERS SELECTED FOR AMERICAN HEALTH INFORMATION COMMUNITY
The Community Will Help Shape the Future of Health Care for Generations

HHS Secretary Mike Leavitt today selected 16 commissioners to serve on the American Health Information Community (the Community), a federally-chartered commission charged with advising the Secretary on how to make health information digital and interoperable. The work of the Community will help the country achieve the President’s goal of having most Americans using interoperable electronic health records within 10 years. Patients, doctors, hospitals and insurance companies will have access to vital and confidentiality-protected medical information immediately and efficiently, helping to reduce medical errors, improve quality, lower costs and eliminate paperwork hassle...

...Interoperability of health information is a shared goal among health care payers, providers, vendors and consumers. Myriad competitive interests have prevented a unified effort to achieve common standards and interoperability. As a result, health care has lagged behind other industries – like the banking, transportation, and retail trade – in realizing the benefits of modern information technology (IT).

The members of the AHIC represent a broad range of healthcare stakeholders from both the private and public sectors. There has been some concern expressed about the lack of specific HIT representation on the AHIC. Another way to look at it is that most of the members of the AHIC are not imbued with the history and baggage of HIT. Once fully educated as to the challenges of HIT adoption they may shed some fresh thinking to the topic.

The members are: Scott P. Serota, President/CEO, BC/BS Association; Douglas E. Henley, M.D., EVP, AAFP; Lilice Smith Geilnas, R.N., CNO, VHA Inc.; Charles N. Kahn III, President, FAH; Nancy Davenport-Ennis, CEO, National Patient Advocate Foundation; Steven S Reinemund, CEO/Chairman, PepsiCo; Kevin D. Hutchinson, CEO, SureScripts; Craig R. Berrett, Chairman, Intel; E. Mitchell Roob, Secretary, Indiana Family and Social Services Administration; Mark B. McClellan, M.D., Administrator, CMS; Julie Louise Gerberding, M.D., Director, CDC; Jonathan B. Perlin, M.D., Under Secretary for Health, VA; William Winkerwerder Jr., M.D., Assistant Secretary of Defense, DoD; Mark J. Warshawsky, Assistant Secretary for Economic Policy, Treasury; Linda M. Springer, Director, Office of Personnel Management; Michelle O’Neill, Acting Under Secretary for Technology, Commerce.
CSI was charted by the Medicare Modernization Act of 2003 (MMA) and charged with developing "a comprehensive strategy for the adoption and implementation of health care information technology standards that includes a timeline and prioritization for such adoption and implementation".

The findings of the report are not startling. This is good news, however. The CSI was conceived of in 2003 and first convened in 2004. That their work has been outstripped by recent events tells us how rapidly the HIT industry is moving in regard to interoperability. Congress should be congratulated on their foresight for including this commission in the MMA. The industry as a whole is moving faster than anyone thought possible just 18 months ago. This isn't to say we don't have many miles to travel but progress is being made. The more than 200 page report provides a series of recommendations clustered in 3 categories — adoption, interoperability and connectivity. These recommendations are focused on things the federal government could do to promote the use of HIT. The report is also a good compendium of both the dysfunctional state of our current healthcare delivery system and the challenges we face in our efforts to improve it.
So, Why “Digital” Now?

- High, rapidly rising costs
- No link between higher costs and improved quality
  - Poor service quality
  - Highly variable clinical quality
  - Very little information on clinical quality and outcomes
- Patient safety issues
- Incredibly complex and costly administrative processes
- Access issues — 45 million uninsured in the USA and others that are under-insured

IT can be a key part of the solution.
Cost, quality / safety and access issues are not new to healthcare!

- The USA is ranked 37th by the WHO for healthcare quality.
- Healthcare accounts for more than 15% of the USA GDP ($1.8 trillion)
- A recent OECD (Organization for Economic Cooperation and Development) report — US spent 53% more per capita on healthcare than the other 30 industrialized nations.

The US spends more and gets less healthcare value than many countries in the world. We have documented patient safety issues. We have an administrative process, necessitated by our reimbursement and business models, that consumes about 30% of the healthcare dollar (while adding no value to clinical outcomes). And we have a large and increasing population of uninsured and under-insured citizens, which adds to the overall cost of healthcare.

Healthcare costs represent an ever-increasing portion of the cost of doing business — making us less and less competitive in the global economy. One way to fix some of these issues is to better utilize information, to both coordinate care (eliminating redundant and dangerous processes) and make it more efficient.
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Sustainable Change Requires Information

- Good information about what works and what doesn’t (outcomes)
- Good information about errors and “near misses”
- More standardized care plans and processes
- Good access to relevant clinical information during patient care
- Good access to relevant medical content
- Ability to share – while appropriately securing – information
- Good information about the quality of providers
- Simplified financial / patient management processes

Information & knowledge supported and enabled by IT is a key part of the solution.

To address the issues poor healthcare value, we need information to:

• Understand what is and isn’t effective care, so we can create and adopt standardized best healthcare practices and move advances in clinical care to the field faster than the current 17 year lag time.

• Understand how errors occur, so we can design processes that eliminate them.

• Provide clinicians access to complete, relevant information in the course of delivering care – utilizing the standardized best practice protocols; coordinating with the requirements of the patients health plan coverage.

• Build rules and alerts into systems – and have an effective process to keep the clinical content current and safe – to support clinician care delivery decisions.

• Communicate comparative, accurate, meaningful information about providers so consumers can make good choices.

• Streamline the patient administrative processes (which, despite a computer-generated bill, are still almost 70% manual, according to Siemens Medical Systems estimates)

• Share information appropriately among providers to coordinate care, eliminate redundancy, ensure non-conflicting or overlapping care, prevent care “gaps” and in general make the healthcare process as “frictionless” as possible.
Healthcare Change – Drivers & Inhibitors

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<th>Drivers</th>
<th>Inhibitors</th>
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<td>Budget pressure on business and all levels of government.</td>
<td>Fragmented, cottage industry with entrenched special interest groups.</td>
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<td>Increasing cost shifting to consumers combined with increasing consumerism</td>
<td>Negative and conflicting financial incentives.</td>
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<td>Technology advances in other industries are raising consumer expectation</td>
<td>Historically poor performance from HIT industry relative to other industries</td>
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<td>Focus on “value-based purchasing” to help stem rising costs.</td>
<td>Lack of “value from IT-related systems” acumen by executives.</td>
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The cost of healthcare continues to rise and could reach unsustainable levels. While adoption of HIT could help create a more efficient, effective healthcare delivery system, the financial incentives are out of alignment. Those who must invest the most in HIT stand to gain the least financially. (Though, of course, it can and should be argued that putting in place tools to be more effective and efficient is the right thing to do and will ultimately lead to financial returns, as the market decides which providers offer the most value.)

Other drivers include increasing demand from consumers for more transparency and convenience in the healthcare system, such as has occurred in the financial services, airline and hotel industries.

Other inhibitors center around the relatively poor historical performance by the HIT industry to deliver solutions that drive value (e.g., departmentally focused systems that don’t “play well with others”, insufficiently robust functionality) coupled with the lack of “IT acumen” on the part of non-IT executives to drive process change in their organizations to achieve value (i.e., a lack of willingness to change processes to align with and take full advantage of technology).
In addition to the need for information to drive change in healthcare, there is also the recognition that financial incentives need to be aligned with providing more efficient, effective care. “Pay for performance” (P4P) is a reimbursement approach that we have all heard from. At this writing Congress has yet to pass the “value-based purchasing” legislation for Medicare, but the Medicare Modernization Act (MMA) of 2003 established a number of P4P pilot programs. The first of these was launched just over a year ago.
A quiet revolution is taking place in Medicare, one that could set a new standard for the way medicine is practiced in this country.

For the first time in its history, Medicare is starting to embrace an approach that has changed industries as diverse as carmakers and fast-food restaurants—giving employees financial incentives to meet goals for quality.

By the end of this year, more than 600,000 Medicare recipients will be in test programs that pay doctors and hospitals bonuses for achieving better results, like increasing the number of diabetic patients whose blood sugar is under control.

Some see this experiment as the last best hope for a medical system in crisis, facing soaring costs and questions about what all that money is buying.

There are always the skeptics who think that anything started by “the government” isn’t going to work very well. Just a word of caution...while not all government sponsored pilots result in a sustained change, P4P is in the mainstream. Congress is focused on the issue. There are numerous private payer programs. Change is coming in how healthcare will be reimbursed. And central to this change will be the need for accurate, detailed information about clinical care. HIT is rapidly taking on “silver bullet” status as central to healthcare transformation. Hence, the pressure to make hospitals digital.
Demystifying the Digital Hospital

From this...

To this...

But what does it take to become a digital hospital? On the surface, it can seem like an overwhelming task—defining this new beast and bringing it to life. But it’s no more overwhelming than implementing advanced clinical applications, participating in a RHIO, consolidating and standardizing applications or planning and implementing other complex IT-enabled initiatives. Stepping back for a moment, figuring out how to become a digital hospital is nothing more (or less!) than defining an actionable IT strategy that aligns with and supports the clinical and business goals of the organization overall or for the digital hospital(s) — and then implementing and executing that strategy! A digital hospital is one that IT-enables healthcare delivery processes—the goal of every IT organization. The label “digital hospital” does not change the need to define a strategy that addresses both the IT and non-IT staff, processes, infrastructure and applications that are required to meet the needs of the organization; and, to identify the timing and sequencing of how to move the current state of the organization to the desired future state (i.e., paperless and externally connected).
In defining the IT strategy needed to support a digital hospital, it is vital to focus first on the goals and objectives of the organization – the underlying drivers behind the decision to “go digital”. Jim Adams, Executive Director of the IBM Center for Healthcare Management, wrote in the Summer 2005 edition of the Journal of Healthcare Information Management that, “A good IT strategy tells a logical, compelling story about where the organization is headed and how IT will help it get there.”
Define Strategic Context
ds ("Derived Business Strategy")

Developing this compelling story starts with identifying the organizational priorities, metrics, assumptions and guardrails. These can be translated into a set of Business and IT Principles that incorporates the vision, goals and objectives of the organization into a series of actionable statements. Guardrails are a definition of the boundaries (e.g., financial) within which you must operate while assumptions are those implicit or explicit "understandings" of the executive team regarding certain possible future events - such as the proliferation (or not) of pay-for-performance or the role of the federal government in healthcare IT. The combination of these elements forms the information foundation on which the IT strategy will be built.

Of course, the desired future state processes must be clearly articulated along with an understanding of the current state of the organization. If the digital hospital is a new facility, the current state may be a description of the current state of the industry or the existing healthcare organization or both. But the juxtaposition of the current and future states - described within the context of the Business and IT Principles - paints the picture of what must be achieved to obtain the goal of a digital hospital.
While a significant focus of your digital hospital IT strategy will be on supporting business and clinical objectives, process change and change management, you also need to be aware of what changes might be required to your IT organization, processes and infrastructure. Transforming your organization into one that relies heavily on its IT systems, network and support mechanisms to function requires that you properly prepare your IT organization. You will want to assess the current capabilities of the organization and technology. You will want to understand “customer” perception of the level of service IT currently provides. Essentially you need to clearly identify where the IT organization is today so as you define your future needs you know what will need to change and how much it needs to change. This will effect budget, timing of bringing digital hospital capabilities “on line”, training, IT processes, governance, help desk – to name some of the major areas.
Usually, there is not one clear-cut answer to how to achieve a digital hospital, so a number of alternative strategies must be considered and weighed against the Business & IT Principles as well as the guardrails and assumptions (e.g., is the alternative affordable, can the organization handle the rate of change?). The alternative strategies need to take into account a number of variables. In addition to the more obvious issues – IT infrastructure, devices and application suites – IT staff skill sets and processes, user help desk and training (among other things) must be considered. Further, the issue of work process re-design through out the organization must be addressed along with the vital role of change management (to ensure a smooth transition to the “new world” of the digital hospital). “Going digital” will profoundly change how many jobs are done in the organization – from administering medications to stocking supply closets. Without proper attention to work process re-design and organizational (i.e., people) change management support to ensure all staff understands their revised role and how to carry it out, the goals of the digital hospital will be compromised.
Once the various alternatives have been considered and the appropriate IT strategy selected, a strategy implementation plan must be defined. This plan identifies the timing and sequencing of all the components of the plan. It is not just a list of applications to be implemented. Rather, it identifies the governance, education, communication, planning, training, and other decisions that need to be made along with the technology requirements. A critical element in the strategy implementation plan which things need to be done in what order and in what time frame.