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One Size DOESN'T Fit All

Implementing 'Under the Radar' Health Care IT Solutions

By Mike Noonan

As the health care reform debate rages on, it's clear that reform stands at a crossroads. Although opposition to many of the Administration's proposals has stiffened and the trajectory that reform will now take is not clear, it is apparent that the momentum for some kind of substantive change will continue to build.

Most, if not all, health care reform proposals – whether based on free-market competition or some degree of government involvement – emphasize the importance of information technology as a catalyst for improving the delivery of care and reducing cost. Much of this emphasis is focused, as it should be, on improving the capabilities and adoption of Electronic Health Record (EHR) systems. The topic continues to generate a flurry of activity across the country as health care providers, consulting firms, and health care IT vendors mobilize to meet the emerging need. Topics such as "meaningful use" – which would have been virtually meaningless just a few years ago – now dominate discussion at health care IT conferences.

There's no question that an expansion of EHR capabilities on a national scale will have the potential to bring tremendous benefits. Supporters argue that EHR systems can save huge sums of money by preventing duplication, reducing the administrative overhead associated with paper-based transactions, and reducing medical errors. Even more significantly, EHR and PHR (Personal Health Record) systems have the potential to promote accountability, which can improve cost control and the quality of service.

So, is EHR the "magic bullet" that will set the stage for health care transformation? Not so fast. Many health care experts are skeptical, warning that there is real potential for over-investment in EHR systems. High costs represent a stubborn barrier to adoption, and since the success – and value – of EHR systems rests on interoperability between the "players" within the system, adoption looms as a pivotal issue.

There's more to Health Care IT than EHR

Against the backdrop of all of this debate and the focus on EHR, it's interesting to look at other information technologies that are making a positive impact within the field of health care. Many of these technologies are nascent and present unique challenges in terms of strategic alignment, assessment, and implementation. With that in mind, it makes sense to look at these "under the radar" information technologies both in terms of how they can add value within health care and as case studies for clinicians and health care IT practitioners who are concerned with successful evaluation and implementation.

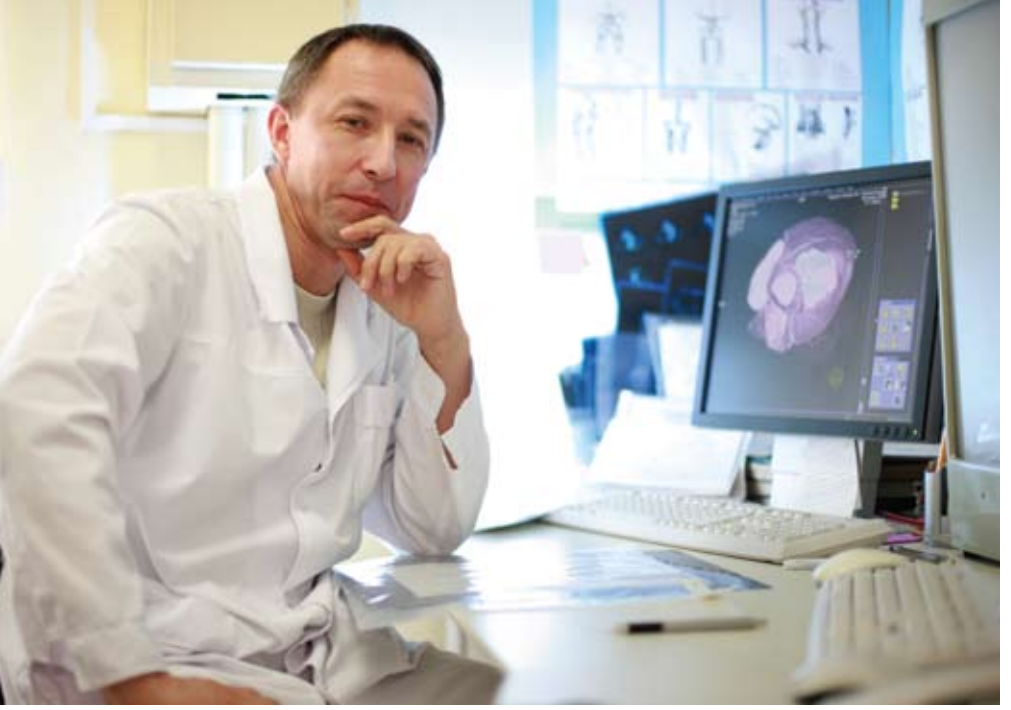
Among the classes of IT that are impacting health care are Geographic Information Systems (GIS) – technologies that deal with the location of people, places and things. GIS have been used for a number of years in fields such as environmental and civil engineering. More recently, satellite-based GPS technologies – variants of GIS – have impacted our lives in many ways and will continue to do so in ways yet unforeseen. Anyone who has witnessed the scanning of a bar code in a home improvement store is familiar with a simple, ubiquitous inventory management technology that can be location-oriented.

Given that history, it's interesting to note that one of the first documented uses of GIS as an analytical tool was for health care – even though it occurred decades before the invention of the computer!

In the mid-19th century, John Snow, a British physician, hypothesized that an outbreak of cholera in London was not caused by the prevailing theories of the time, which held that these kinds of epidemics resulted from "bad air" – "mists" or "miasmas," as they were called.

Snow plotted the cholera cases on a map of the city of London and showed that they centered on one specific water pump in central London. Based on those results, he removed the handle on what he believed to be the offending pump, which accessed water supplies that were known to be tied to the sewer system. Almost overnight, the cholera outbreak began to dissipate. Although "germ theory" was not understood at the time, Dr. Snow's analysis is now widely regarded as one of the first epidemiological studies ever conducted – and it certainly represents the first use of a GIS in health care!

The rapid evolution of information technology led to a progression in the analytical capabilities of GIS. Several years ago, as a managed care clinical data analyst, I used GIS-based tools to assess the level of geographic proximity of clinical providers in the network to current and prospective health plan members. These "accessibility studies" were used to plan expansion of the provider network and even became an important part of our sales pitch to pro-



spective employer groups. More recently, analytical applications of GIS have extended into areas such as population-based health. Although using GIS to map the incidence of disease, identify access to health care services, and locate risk factors is relatively straightforward, using the technology to depict community networks and develop and implement population-based interventions has proved to be more problematic.

Real-Time Locating Systems

Geographic Information Systems, and related technologies, can play a key role in the health care delivery system in other ways as well. Real-Time Locating Systems (RTLS), technologies that first made an impact in areas such as inventory control, are now being applied in clinical settings, with increasing impact.

Anyone who has set foot within a large hospital cannot fail to be impressed with the level of coordination that is required to successfully deliver care. It's less well-known that hospitals expend significant resources and time in tracking and coordinating the physical locations of patients, clinicians and equipment. Infusion pumps and mobile computers "disappear," specialists need to be located for critical procedures and patients need to be tracked through clinical workflows to ensure that time-sensitive diagnoses and procedures are performed. Many hospitals assign nurses and other clinical staff as "finders" to search for people and equipment. Amazingly, in many cases, hospitals decide that it's more cost-effective to simply replace equipment that has "walked away," rather than to try to track and keep it!

A growing number of hospitals are now implementing RTLS solutions in an effort to address these issues. These systems utilize various technologies – including radio frequency (RF), Wi-Fi, ultrasound, and infrared, among others – to allow patients, clinicians, and medical equipment to be tracked as they move through clinical settings. Objects are "tagged" using various mounting approaches (for example, in the case of patients, using their standard ID strap bracelets). The core tracking technologies are complemented by other system components, which enable the RTLS to be adapted to specific business/clinical requirements.

New Technologies: Implementation Challenges in Health Care Settings

In addition to RTLS and GIS, many other new information technologies are making an impact in the delivery of health care. These include such innovations as remote patient monitoring and telemedicine. As the founder of a health care IT consulting firm and program manager who has been running projects and implementing information technology solutions in health care settings for many years, I've seen unique issues repeatedly emerge when health care organizations endeavor to implement new technologies. These barriers to success can be easily distinguished from the far more well-documented issues that are a part of "mainstream" health care IT and electronic health record implementations. Here are some of the more notable ones:

Understand the organization. The reality is that clinical organizations are unique. Approaches that come naturally in "bottom-line" oriented business entities, such as identifying a clear project champion, often don't work in research-driven clinical settings – where organizational governance is often diffused between clinical, operational and IT stakeholders with widely divergent priorities. Clinical stakeholders – including physicians and other practitioners – tend to hold significant power and influence over the implementation approach and project scope, but they may not be directly accountable for the success of the project. These factors can delay, degrade or obstruct decision-making. In many cases, the creation of a small, cross-functional steering committee, with adequate decision-making authority, can help compensate for the lack of a true champion.

It's never "just a pilot." Again, because clinical technology implementations tend to be research-oriented, objectives can be vague – or non-existent. Continue to ask – and demand answers – to the question: "what business or clinical need will be addressed by the implementation?" Don't allow an "it's just a pilot" mentality to obscure objectives – the organization is expending scarce resources and expected benefits must be clear to ensure success.

Manage "scope creep." When objectives aren't clear, "scope creep" is a likely consequence. Clinical organizations, impelled by their research interest in new technology, are less likely to take steps to manage the scope of their deployments. For example, before I started one engagement to 'rescue' a clinical RTLS pilot implementation that had stalled,

my client – a world-class hospital – had developed use cases covering everything from the tagging and tracking of wall hangings, the management of workflows associated with stroke admissions and hand hygiene compliance monitoring. Several RTLS pilot initiatives had been spawned throughout the institution – and it took me months to find them all. All of these ideas and intended uses were interesting, but the runaway scope of the effort had essentially paralyzed the organization, rendering it unable to prioritize and plan the effort. I worked with the client to develop a phased implementation plan that addressed the most critical needs first, secured early "wins," and created momentum.

Manage the vendors. Health care technology vendors are typically very interested in working with clinical organizations to prove their solutions and gain leverage in the marketplace. Their entrepreneurial zeal meshes with the research interests of clinical and IT leaders in client hospitals, who are anxious to differentiate themselves and report compelling findings at clinical conferences. This can lead to a glut of vendor inquiries and requests to participate – and problems when clear objectives and expectations are not clearly set up front. Will this be a competitive situation for vendors? How will their solutions be measured and what level of performance will constitute success? What is the pilot evaluation approach? All of these questions need to be addressed during pilot planning – not when pilots are underway.

Define the value – and communicate it. Many clinical organizations are not adept at – or even interested in – measuring the benefits to be gained from new technology implementations. Workflows and procedures can become so ingrained that the potential for improvements is either misunderstood or dismissed. At the start of the pilot RTLS implementation I referenced above, the prevailing wisdom among most of the technology and clinical leaders was that the technology would not offer a compelling return on investment. When I led the client team through a brainstorming session to identify the many potential benefits – including the savings of several nursing staff FTEs who would no longer be expending many hours per week rounding up missing equipment and specialists, those opinions quickly changed! The team had learned how to critically assess workflows that had been very much taken for granted.

Know the constraints. Planning for IT pilots in clinical environments needs to account for the unique aspects of clinical delivery and the concerns of clinicians. Access to clinical areas for necessary IT infrastructure work might be limited due to patient occupancy and required staff activities, especially in acute care areas. The impact of information technologies on the clinical systems with which they must interact (including issues such as electromagnetic radiation and wireless signals) needs to be assessed. These kinds of considerations argue for specialized, careful pilot planning.

The Bottom Line

Successful health care IT implementations always depend on sound management approaches and adherence to "best practice" implementation methodologies. Beyond that, however, success depends on recognizing – and managing – the unique management and implementation challenges that are unique to health care settings. Although many new information technologies hold the promise of impacting health care delivery and reducing cost, the key to success – as is always the case in IT – is the effective implementation and deployment of solutions that squarely meet business and clinical needs. Health care IT organizations that make investments in strategic assessments, careful vendor and deployment planning and sound program management – and combine those investments with a solid understanding of their unique requirements – can greatly improve the likelihood of success.

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