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Gregg Malkary is the founder and managing director of the Spyglass Consulting Group. He has more than 20 years' experience in high tech industry working with Fortune 2000 companies to help them use information technology for competitive advantage. Mr. Malkary has domain expertise in mobile computing, wireless and broadband technologies with direct experience in the healthcare, government, manufacturing and communications markets.

Q&A With Gregg Malkary

One of the nation's leading healthcare consultants assesses current IT trends and takes a high tech peek into the future.

Health Care Technology: ***What are the pressing issues concerning the healthcare clients you consult these days?***

Gregg Malkary: There are actually quite a few. Let's start with a renewed industry focus on patient safety. Healthcare organizations nationwide are focused on how they can enhance patient safety and reduce the risk of medical errors. Much of this has been galvanized by the Institute of Medicine's report in 1999 "To Err Is Human," which noted that there were 1.3 million injuries a year - and nearly 100,000 deaths - from medical errors alone. That's pretty significant. Healthcare organizations are being pressured from a variety of different external organizations like JCAHO, which is the Joint Commission, and the Leapfrog Group, to focus on addressing patient safety concerns.

The second that comes to mind is escalating healthcare costs. According to CMS, healthcare costs are 16 percent of GDP. These numbers are expected to increase at double-digit rates as the baby boomers retire. Interestingly, 70 percent of healthcare transactions today are paper-based, resulting in administrative costs of up to 20 cents on the dollar.

Another huge issue is of course the aging baby boomers. The baby boomer population is retiring. There are some 75 million Americans born between 1945 and 1964. Organizations are fearful that as they retire they will place unprecedented demand on healthcare organizations nationwide; there are simply not enough beds.

And finally there are chronic labor shortages. Physicians are leaving their practices in droves because they are being squeezed financially through reduced payer reimbursement and increased medical malpractice premiums. There is also a huge nursing shortage throughout the U.S. Today there are approximately 126,000 nursing vacancies. This number is supposed to increase to 750,000 by 2020.

HCT: ***What is the biggest obstacle in healthcare's attempts to more fully embrace IT?***

GM: It's funding. Healthcare organizations have traditionally underinvested in information technology. The healthcare industry is at least a decade behind other information-intensive industries, like the airline industry, retail and banking. The healthcare industry invests some 2 to 3 percent of revenues in IT versus 10 to 15 percent in other industries.

Healthcare organizations are having difficulties finding the funds to support clinical IT projects. They typically require a sizable capital outlay and a multiyear commitment from the executive team. Some of the key IT projects that are competing for dollars include HIPAA security and privacy compliance, computerized provider order entry (CPOE) and electronic medical records. The ROI for some of the projects is questionable when you start to look at soft benefits like enhanced patient safety and increase clinician productivity. How do you measure this? Another big obstacle is clinician adoption. One of the biggest challenges healthcare organizations face is providing the appropriate incentives to adopt new technologies. Hospitals need to implement systems that are easy to use, integrate with clinician daily work flow, save clinician time and improve the quality of care. Younger clinicians are technology-savvy. They grew

up with AOL, the Internet and video games. Older clinicians, on the other hand, are comfortable with the paper-based systems they have been using for the past 20 years. If it's not broken, why fix it?

And then there's the issue of HCIT vendors underdelivering. Many of the clinicians we have spoken to have been underwhelmed by many of the HCIT solutions on the market. These solutions actually take longer to utilize than their paper-based equivalents. Vendors have automated inefficient work flows rather than redesign the work flows from scratch.

HCT: *Do you look at remote patient monitoring (RPM) as a crucial technology for healthcare?*

GM: Without a doubt. Drivers are similar for RPM: aging baby boomers, escalating healthcare costs and chronic labor shortages. With baby boomers retiring, we are simply not going to have enough hospital beds. By letting the aging population age in place, healthcare organizations can monitor the chronically ill at home and catch their exasperations before they require rehospitalizations or even an emergency room visit, which is the most expensive type of care. Remote patient monitoring can help healthcare organizations reduce the cost of healthcare delivery, improve patient outcomes and increase access to care for patients living in more rural or remote areas.

Healthcare organizations that are early adopters of RPM solutions are more capitated managed care organizations that have fiscal responsibility for their patients across the continuum of care like health maintenance, home health agencies, disease management companies and, of course, organizations like the VA that are making significant early-market investments.

Today we are not seeing pervasive investments being made in RPM. This has a lot to do with the lack of payer reimbursement. Healthcare organizations are trying to prove the clinical and financial efficacy of RPM solutions to Medicare, Medicaid and the other third-party payers. The VA is probably one of the largest supporters of these solutions with some 10,000 units deployed, and I understand they have investment for another 10,000 units.

HCT: *Is the value of these solutions becoming more obvious?*

GM: It is becoming more obvious for specific disease states, like congestive heart failure, emphysema, asthma, diabetes – the top four. The solutions are still a bit immature; they could be easier to use, and they could also be better integrated with consumer electronics devices like the cell phone and the television. Today's RPM solutions are attached to a dedicated computer terminal that makes a patient's home look like an ICU. RPM solutions and monitoring also require a support staff. You can't just put a unit into a patient's home - you need to have a certified clinician on the other end who is able to monitor and triage the patient.

HCT: *Was it initially presumed that videoconferencing would be an element of most RPM situations?*

GM: I thought so, but after I did my research study I found that the exact opposite was true. Video-based RPM solutions are expensive and an inefficient use of resources. There is no real need for video other than if you are doing wound care or your patient is very unstable. Video-based solutions require a virtual visit to be set up. A home health agency can either monitor six or seven patients a day with video monitoring or up to 75 patients a day using straight vital sign monitoring. The RPM value proposition for home health agencies was that they would be able to reduce the number of scheduled home visits and only provide visits when they were needed.

A really interesting alliance was formed this past June called Continua Health Alliance, which is spearheaded by Intel Digital Health, IBM and Cisco. It is all about RPM and the promotion of open standards to help facilitate greater interoperability across the continuum of care. Just imagine being able to purchase an RPM solution at your local Target or Walgreen's pharmacy and then signing up for a monthly monitoring service with your local telco.

HCT: *How does RFID fit into the bigger picture?*

GM: RFID is a very exciting technology. Healthcare organizations nationwide are making investments in radio frequency identification (RFID). They are focusing on active RFID technology that enables them to track the real-time movement of high-value mobile assets, patients and staff. Active RFID-based solutions have a very compelling ROI because they replace manual, inefficient paper-based processes to help increase operational efficiency and improve the quality of patient care delivery.

Passive RFID-based solutions, on the other hand, are having a much more difficult time gaining traction because there is no compelling business case. For patient safety, solutions like positive patient identification and medication administration, there are cheaper alternative solutions based on bar coding that have already received wide industry acceptance. For inventory and supply chain management

WEB LINK Read more about reducing medication errors in the white paper by Thomas Ague and Richard Schaeffer from St. Clair Hospital on page 84 of this book and at www.HCTProject.com.

solutions, like for medical/surgical supplies and pharmaceuticals, the RFID tag costs are more expensive than the low-cost consumables and drugs.

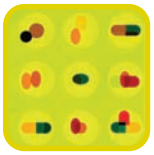
HCT: ***Can you comment on the exciting new mobile solutions out there?***

GM: Physicians work in high-stress, data-intensive environments that are dominated by inefficient paper-based work flow processes. Physicians are also mobile warriors that are constantly on the go between exam rooms, clinics and affiliated hospitals. They have a constant need to access clinical information at the point of care so they can make more informed patient care decisions.

Mobile computing solutions are poised to revolutionize how patient care can be delivered at the point of care. These solutions can automate inefficient work flow processes, aid clinicians in communicating more effectively with other members of the care team and enable clinicians to access clinical information anytime, anywhere via a wireless network. Mobile computing devices are the stethoscopes of the 21st century. For the past decade, physicians nationwide have been using PDAs primarily for stand-alone, reference-based tools including drug databases like ePocrates, electronic reference manuals and medical calculators. Many residency programs are now requiring these tools for their young docs, so you now see increasing numbers of doctors utilizing mobile tools at the bedside, which definitely contributes to an increase in patient safety.

Over the past couple of years, physicians have been migrating away from the PDA toward the use of smartphones. This is being driven by physicians' desire for a single converged device. Healthcare organizations have been experimenting with mobile devices and clinical applets including e-prescribing, charge capture and patient results viewing. These applets have limited functionality with limited integration with back-office systems making them ideal for the smartphone. Healthcare organizations are starting to expand these deployments from pilot projects to enterprisewide.

Healthcare organizations are also deploying clinical applets for nurses that assist with positive patient identification, bar-coding medication administration and vital sign i/o collection. Organizations are also trying to extend the reach of their existing clinical systems to the bedside so that clinicians can access more robust, multifunction clinical applications including the electronic medical record, clinical documentation and CPOE. As you imagine, the PDA/smartphone has limited screen real estate and processing power to support these applications, so many healthcare organizations are looking at larger mobile computing form factors including tablet PC and mobile clinical carts.



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HCT: ***In your personal vision, where do you see all of this headed?***

GM: Definitely toward mobile devices. Clinicians will continue to migrate toward the smartphone as device costs and associated voice/data plans come down in price. Healthcare organizations will continue to make investments in tablet PCs and mobile clinical carts. Clinical applications now accessible at the bedside will start to incorporate greater levels of decision support enabling clinicians to practice evidence-based medicine. Clinicians will need devices that are network-agnostic that will enable them to transparently migrate from one wireless network to another without having to know the technical details. This would include support for cellular, WiFi, WiMax, etc.

We're also seeing a need for a common wireless infrastructure. Healthcare organizations are looking to capitalize on their existing wireless investments by deploying a common infrastructure to support wireless data, voiceover IP communications and location-based services. To support these solutions, healthcare organizations will need to expand their wireless footprints to provide more ubiquitous coverage throughout their facility including elevator shafts, stairwells and storage areas. Distributed antennae systems will enable healthcare organizations to have single managed wireless infrastructures instead of disparate wireless networks that are not able to communicate with one another

And finally, we are going to start seeing healthcare organizations deploying unified messaging solutions that will provide clinicians with a single universal in-box to receive all voice, text messages, emails and fax messages. This will hopefully improve communication and collaboration between clinicians. ■