Board**Brief**

Prepared for Colorado Hospital Association Trustees

Governing in a Wired World

Gone are the days when you go the hospital lab to get your blood drawn, and wait for a letter in the mail or a follow-up appointment with your physician. Today, you can complete a well check-up with a quick finger prick and receive a full print-out of your blood test results in minutes. Soon, this may be done at home using an iPhone. And that's just the tip of the iceberg. Medical technology is changing in ways that drastically alter the way health care is delivered, and ultimately the way patients utilize and perceive the health care system.

When led by boards encouraging ahead-of-the-curve thinking, hospitals have the potential to maximize technology in ways that improve patient care and patient quality of life, while at the same time maximizing efficiency in a budget-restrained world.

Despite this potential, health care organizations have lagged behind other industries in technology adoption for years. While health care information technology (IT) is making great strides, hospitals and health systems' electronic medical records lack standardization and generally are not yet integrated across care providers. In the last few years, "meaningful use" has become a well-used term in hospitals across the country as they strive to achieve the IT objectives encouraged by the Obama Administration.

Part of the lag in technology adoption is due to the need for a long-ingrained cultural shift in the industry, as health care advances in its transition from an environment of independent, solo practices and stand-alone hospitals to a large scale coordinated effort that relies on technology and care coordination.

In areas of both information technology and medical technology, health care providers have great opportunities ahead. While IT has been much-talked about, the field of medical technology and the growth of "mHealth" is just beginning to gain momentum. In some instances, the opportunities are unknown and introduce new risks. But in today's world, hospital leaders have a lot to gain by taking the plunge. Although Facebook can take risks that health care organizations must be cautious about taking, hospital leaders

can still take note from the concepts the social media company uses with its employees— "done is better than perfect," and "the riskiest thing is to take no risks."

When it comes to patient care, quality is number one. But upgrading to the current socially accepted uses of technology and becoming a more efficient organization require improved utilization of technology, which may compel hospital leaders to cautiously try new approaches. In today's rapid-change health care environment, taking no risks can be quite risky.

mHealth: Changing the Way Health Care is Provided

Mobile health, or "mHealth," is more than the availability of health information online. mHealth is the wide variety of portable, mobile interfaces generated by smartphones, tablets and tablet PCs. It began as simply viewing health information and basic provider information with mobile devices. It has expanded to scheduling appointments online, emailing physicians and receiving emails or text messages with physician responses and appointment reminders, and providers' transition to using mobile devices in patient rooms rather than large computer stations. Now mHealth is evolving further, encompassing mobile health monitoring and diagnostic testing.

mHealth Has Great Potential, but Remains in Early Stages. Americans own more than 300 million mobile devices.[6] mHealth has the potential to improve patient experiences, minimize unnecessary care at a time when the health system is

projected to be highly overloaded, and reduce costs. According to an American Hospital Association report, mobile health can reduce the need for hospital admissions and physician office visits. Survey results have reported that 40 percent of physicians said they could eliminate 11 to 30 percent of office visits through the use of mobile health technology such as remote monitoring, email or text messaging with patients.[1]

Mobile devices also have the potential to significantly strengthen home monitoring, further reducing office visits and preventing unnecessary hospital admissions or readmissions. Dr. Eric Topol, a cardiologist and one of the world's top physicians, has become a well-known expert in the growing field of wireless medicine and remote monitoring. He describes how the potential of the smart phone is being explored, including new ways it is just beginning to be used, and innovations that are not yet fully tested. Modifications and "apps" (applications) allow smartphones to conduct an echocardiogram, saliva test, sweat test, blood test, perform a portable ultrasound, and even monitor a patient's vital signs wirelessly.

In the U.S., home care accounts for about three percent of national health spending. Labor accounts for two-thirds of home care, and technology represents only a small fraction of costs. Increased technology use in home care has the potential to prevent or delay the shift of patients to acute care or long-term care settings.[1]

Apps are Growing, but Hospitals Face Challenges. Within physician offices and hospitals, mobile medical applications are growing profusely. New apps are continually being developed that share best practice standards and protocols, allow for "video conferencing" with remote translators or medical experts, and much more. Smartphones, iPads and tablet PCs are also increasingly used in place of "old-school" computer work stations. One study reported that these mobile devices are now used in 80 percent of health care organizations. At the same time, half of the survey respondents in a recent health care IT poll indicated that nothing is being done to protect data on devices that are often individual devices brought to the site—otherwise known as the "BYOD" (bring your own device) revolution.[1]

HIPAA and other regulations do pose greater challenges to the adoption of mobile technologies when compared to other industries. But as consumers' preferences and expectations for technology escalate, health care organizations must catch up to other industries in their use of mobile technology. John Reed, senior executive director of Robert Half Technology, reiterated this importance in a recent news release about

New Technologies: A Sample of What's to Come

New technologies are emerging at a rapid pace. Some are available now, while others are still in the research and development phase. In the next decade technology has the potential to revolutionize the way health care is perceived and administered in the U.S. and around the world. A few examples of technologies available today and on the horizon in the near future include:[1,2,3]

- The ability to track every medication that is ingested, using pills tagged with digestible sensors activated by a change in the stomach pH

- Wireless sensors that monitor provider activities, such as nurse and physician hand washing

- An iPhone eardrum app that checks for an ear infection

- A modified iPhone that performs an electrocardiogram

- A non-invasive blood glucose monitor that wirelessly transmits blood sugar information to a smartphone or other wireless device

- A remote ICU monitor allowing patients to be monitored from home

- A portable ultrasound that transmits via a smartphone, allowing a real-time remote doctor visit and discussion of the results

- Nano sensors in the blood stream that pick up signals of precursors to a heart attack, and calls the patient's cell phone with a special ring tone warning that a potential heart attack is imminent

- A pill that can detect DNA fragments from cancer cells long before any tumor becomes visible

- Individualized medicine that is catered to each individual's health history and genetic make-up

health care organizations lagging in their use of mobile technology, stating that "Compliance issues have made it difficult for the health care industry to move as quickly as other sectors, but as consumer demand for mobile health information grows, formal mobile strategies are a necessary next step."[5]

E-Visits Can Improve Efficiency. The prevalence of "e-visits" is also growing, allowing patients and physicians to connect via texting and emailing. A recent study reported that the use of telephone and email visits cuts office visits by 26 percent,[1] a trend that has great potential to ease provider shortages and patient wait times in the coming years.

Technology Improves Patient Care

Improved quality of care is a critical component of health care reform. New technologies can improve care through a variety

of ways, from clearer documentation to improved communication between providers to simply removing human error and interpretation from the patient care equation. As a result, hospitals will face continuing pressures to implement systems like computerized physician order entry (CPOE). Many hospital leaders believe that the increased use of technologies such as bar-coding of medications and drug-alert systems hold the most promise for reducing errors, a concept that is reinforced by the Institute of Medicine (IOM), which argues that the implementation of a bar coding system could reduce medication errors by 70 percent in some hospitals.

The quality of care in hospitals and outpatient care settings can also be maximized through data review and analytics. As electronic health records and CPOE systems are increasingly implemented and expanded upon, there is great potential for guidance and decision-making tools based on data history.

While only a small percentage of hospitals implemented data analytics tools last year, more than half of hospitals are expected to do so by 2016. Data analytics can help identify patterns and insights that improve treatment and reduce costs.[4]

According to McKinsey & Co., "Big Data" could create $300 billion in value by reducing health care spending by eight percent. In 2012, health care generated an estimated 150 exabytes of health information. McKinsey & Co. believes that the massive data sets generated by health care activity could add value to health care by making information more transparent and quickly accessible, enabling better performance measurement through digital capture, and improving business analytics and decision support.[1]

Sources and Additional Information

1. American Hospital Association. 2013 Environmental Scan. www.aha.org.
2. Synderman, Nancy. iDoctor: Could a Smartphone Be the Future of Medicine? *Rock Center.* NBC News Video. January 24, 2013.
3. Weinstock, Matthew. Hospitals & Health Networks. Personal Interview. HealthForum-AHA leadership Summit, San Diego, CA. July 29, 2013.
4. Infographic: 5 Healthcare IT Trends Transforming Healthcare. *HIT Consultant.* April 10, 2013. www.hitconsultant.net.
5. Gregg, Helen. Report: Healthcare Lags Other Industries in Mobile Strategy. *Beckers Hospital Review.* March 26, 2014.
6. Gregg, Helen. 3 Challenges Faced by the mHealth Industry. *Beckers Hospital Review.* March 19, 2014.