

## **Does Telemedicine Have a Role in Technology-Enabled Health Care Reform?**

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Health care reform is near the top of most voters' agendas this year. Both presidential candidates have pledged health care reform and plan to use technology as part of that reform.

Presumptive Democratic presidential nominee Sen. Barack Obama's (Ill.) Web site says he would "invest \$10 billion a year over the next five years to move the U.S. health care system to broad adoption of standards-based electronic health information systems, including electronic health records, and will phase in requirements for full implementation of health IT." Obama "supports increasing rural access to care by promoting health information technologies like telemedicine," it states.

Presumptive Republican presidential nominee Sen. John McCain's (Ariz.) Web site says, "We should promote the rapid deployment of 21st century information systems and technology that allows doctors to practice across state lines."

Clearly, the major challenges in health care reform are to simultaneously insure the uninsured, increase access to specialty services and improve quality and patient safety while at the same time reduce costs. This all would have to occur against a backdrop of an exponential increase in new treatments that do work but are contributing to skyrocketing health care costs.

Many of these treatments have powerful physiological effects, making them potentially dangerous and mistakes potentially expensive. The trial-and-error method of finding the right treatment is often no longer safe or affordable. This all puts a higher premium on correct diagnosis and treatment. The literature is replete with articles discussing the human and financial costs of misdiagnosis and other errors in health care.

### **Health System Redesign Needed**

A fully technology-enabled health care system will require a spectrum of advanced information and telecommunications tools used in coordination with patients, health care providers, hospitals, pharmacies and others. Rather than simply applying these technologies to our current broken health care system, we must redesign the health care system in a manner previously impossible prior to the availability of these technologies.

Appropriate application of these technologies will ideally lead to having the right information and expertise, in the right amount, where and when it is needed for the next evidence-based health care decision to be made.

The first category of information necessary to create this model of health care is information about the patient. There is widespread agreement that EHRs are essential for patient safety, health care quality and portability. Patients have increasingly complex medical histories and medication regimens that require timely and accurate patient information at all points of care. Both presidential candidates have suggested that EHRs will be a key component of their health care reform packages.

Recognition of the value of EHRs, as well as mandates from state legislatures, quality assurance organizations and patient advocacy groups already have providers spending billions to complete implementation.

#### Evidence-Based Science Essential

Current evidenced-based medical science is the second category of information that has become essential to providing quality patient care. Understandably, physicians are increasingly unable to stay abreast of all that's new in medicine without the aid of technology.

At the beginning of this decade, articles began appearing in the literature stating that it was no longer possible for individual clinicians to rely only on the "unaided human mind" to remain up-to-date on expanding medical science and to be able to appropriately apply that science to each patient.

In many cases, this is beginning to be addressed by access to quality medical informatics tools that are increasingly available in handheld devices and Web-based applications. These tools allow for rapid searches of the literature, online medical texts and decision support algorithms.

However, even with the best use of these tools, primary care providers often need the expertise of a specialist to customize ever-changing complex diagnostics and treatment regimens to a particular patient. Often, this can occur rapidly and remotely with telemedicine, the use of telecommunication and IT to provide health care at a distance.

#### Telemedicine Can Help Reduce Costs

A major driver behind health care reform is the need to reduce costs. Telemedicine has a potential role to play here as well. Even in the current model of health care in the U.S., telemedicine is being touted as a potential cost reduction tool.

Multiple studies have supported this claim. Researchers at the University of California-Davis demonstrated savings from avoided transports of children in a study of remote pediatric critical care consultation. Studies on remote adult ICU care have shown savings from decreased lengths of stay. Several studies have also demonstrated savings in outpatient consultation using telemedicine. Store-and-forward telemedicine models for

retinal screening for diabetics and diagnosing skin lesions have only begun to be deployed on a wide scale but are already showing promise.

However, where the greatest gains in terms of cost reductions may be made is in the use of home telemedicine for the management of chronic disease. Chronic disease accounts for an increasingly large percentage of U.S. health expenditures. Home telemedicine has shown real promise in better and more cost effective management of these patients.

The Veterans Health Administration has launched a major effort in this area. One VHA home telemedicine chronic disease management project demonstrated “a 40% reduction in emergency room visits, 63% reduction in hospital admissions, 60% reduction in hospital bed days of care, 64% reduction in VHA nursing home admissions and 88% reduction in nursing home bed days of care.”

Another simple example of how telemedicine might reduce cost is by reducing outpatient overhead. In the current model of specialty consultation, all of the staff and office space are often nearly completely duplicated between the primary office that referred the patient and the specialty office providing the consultation. If 50% of consultations were performed via video conferencing, specialty offices could potentially reduce space, house more physicians and/or possibly use less staff.

If reimbursement models were changed to allow a specialist to bill for smaller increments of time, providing just the amount of information the primary care provider needed to make the next decision for the patient, specialists may be able to see more patients per hour and at a lower cost per patient. This may also improve access during a growing physician shortage.

#### Telemedicine Can Improve Access

Improved access, another goal of health care reform, has already been demonstrated in existing telemedicine networks, particularly in rural areas. This is likely to expand in the future.

Last November, the Federal Communications Commission dedicated more than \$417 million for its Rural Health Care Pilot Program for the construction of 69 statewide or regional broadband telehealth networks in 42 states and three U.S. territories. This program is designed to dramatically increase the number of telemedicine capable sites by several thousand.

Legislation to expand telemedicine payment is also in the works. On July 9, the Senate passed the Medicare Improvements for Patients and Providers Act (HR 6331), which in addition to reversing proposed Medicare cuts, added skilled nursing facilities, hospital-based dialysis centers and community mental health centers as originating sites for the Medicare telehealth program.

Telemedicine payment for skilled nursing facilities alone opens the door for significant savings from unnecessary ambulance transports of patients from these facilities, an issue recently addressed in a report by the Office of Inspector General.

#### Telemedicine Can Deliver Quality Care

Some concerns regarding quality of care provided through telemedicine have been raised. Although more research is necessary, numerous studies have demonstrated that telemedicine can be comparable in quality to face-to-face care in a variety of specialties. A recent paper on a comprehensive telemedicine stroke program at the University of Maryland demonstrated that “stroke services delivered by telemedicine are safe, efficacious and comparable to those rendered face to face.” The study described telemedicine as “a means of providing disability-reducing therapies earlier to a large number of patients.”

The quality of telemedicine is likely to improve and become more acceptable to patients and physicians as innovations such as HD video conferencing are routinely employed.

Clearly, the Holy Grail in health care reform is a combination of cost reduction, improved access for underserved populations while at the same time improving quality and patient safety.

The use of telemedicine as part of a technology-enabled health care system that includes fully implemented EHRs, the use of medical informatics and decision support tools can play a significant role in accomplishing this. We can only hope that health care reform efforts take full advantage of the potential of these technologies.