

The Rise of Telemedicine: Yes, There's a Virtual Doctor in the House



As late as the 1960s, doctors often went to patient homes. A decade later, comparing something with “a doctor’s house call” had become a sarcastic comment on the loss of the personal touch.

Fast forward to today: The technologies that allow for visual communications and information exchange at a distance are fueling the growth of telemedicine and are letting physicians connect with their patients in homes, offices and dispersed clinical settings.

Although the adoption of telemedicine is not yet widespread, it is on the radar of both consumers and the healthcare industry. For providers, telemedicine can play a significant role in solving the challenging equation of maintaining or improving healthcare outcomes while reducing costs — especially where reimbursement is not based solely on a fee-for-service model, as in the case with accountable care organizations (ACO) operating in commercial programs or in Medicare’s Pioneer ACO and Shared Savings Program.

Despite the fact that telemedicine still is relatively new and has its doubters, its promise is not lost on healthcare providers. [A 2013 study by the Healthcare Intelligence Network](#) found that 74 percent of organizations were planning a telemedicine initiative within the next 12 months. Not surprisingly, four of the top five targets were for conditions that are the most expensive to treat and that are especially prevalent among the elderly: congestive heart failure (53 percent), diabetes (50 percent), chronic obstructive pulmonary disease (38 percent) and hypertension (38 percent). The fifth, mental health (31 percent), is a key factor in worker productivity and, therefore, is driving demand for treatment among employers.

Consumers also are warming to the idea of telemedicine. According to a [2013 Cisco study](#), 74 percent of patients are

comfortable communicating with doctors via technology. With the mounting shortage of physicians, especially for primary care, telemedicine offers patients the convenience of connecting with medical professionals more easily, particularly with specialists who otherwise might be inaccessible.

The Case for Telemedicine

Telemedicine includes a broad range of technologies — everything from in-home heart pressure monitoring to live video consultations. In this article, our focus is on the growing potential of synchronous and asynchronous online communications between patients and clinicians. These communications can occur through televisits, web-based group meetings and pre-recorded video presentations.

These virtual communications can ease demand management challenges for healthcare providers by increasing the number of patients under a doctor’s care and the frequency *and* quality of contacts that providers can have with those patients.

Increasing the number of patients a provider can treat builds one side of the reimbursement equation: For programs such as Medicare ACOs that include fee-for-service payments, the provider can be paid for the added visits (see “The Path Forward,” page 4). For programs driven

by value-based care arrangements, the ability to enlarge the population of individuals covered or attributed to the provider can garner additional reimbursement.

Increasing the number of contacts with patients in either a fee-for service or value-based care arrangement also addresses the outcomes side: Clinicians can follow up more regularly with all patients and devote extra time to those with acute issues. In addition, more follow-ups can ensure that patient issues — such as compliance with medication regimens and health improvement habits — aren’t falling through the cracks. From a population health perspective, telemedicine also can help reach members of the population who previously were not going to a hospital or a physician’s office.

Improving the economics of healthcare delivery

Research is demonstrating telemedicine’s effectiveness on both sides of the cost-quality equation. [A 2011 study published in Health Affairs](#) examined Medicare’s Health Buddy system that integrates telemedicine into care management for patients with chronic diseases. The Health Buddy system provides patients with a home device that can be used to monitor and transmit vital signs and receive medical advice. According to the study, the program reduced provider costs by 7.7 percent to 13.3 percent per patient per quarter. Similarly,

an extensive 2008 meta study of different telehomecare technologies, conducted by researchers at the University of Laval in Quebec, found that such techniques significantly reduced total provider expenditures, as well as costs per patient and visit.

Telemedicine is having an economic impact on provider-to-provider interactions as well. [Research by the Center for Technology Leadership](#) (sponsored by Partners HealthCare) found that the expected savings gained from reducing the number of physical transfers between Emergency departments through telemedicine easily could cover the costs of equipping all U.S. emergency rooms with telemedicine capabilities. Similarly, the costs to outfit a nursing home with telemedicine technologies would be more than offset by reducing the costs of transporting patients to emergency rooms and physician offices when issues arise that can be handled remotely.

Improving healthcare outcomes

Equally, if not more important, telemedicine has been shown to improve outcomes. Although the research is not yet exhaustive, studies to date underscore telemedicine's potential. For example, [a partnership between Southwest Georgia Health District's Centering Pregnancy program and Atlanta's Women's Telehealth](#) greatly reduced pre-term births among Hispanic and African-American women in an underserved section of Georgia. In a pilot program, physicians participated online in on-site patient group meetings and also were available online when specific patients needed an intervention. The results were impressive. Among African-American women, for example, the incidence of pre-term births (with their attendant costs in money and resources) was 8.1 percent compared with the baseline rate of 18.2 percent in the region.

Colorado's Centura Health has used telemedicine to improve outcomes through [Centura Health at Home](#).

The program, which began in 2004 and combines home monitoring with a call center, focuses on reducing avoidable hospital readmissions (both a large driver of healthcare costs and an indication of suboptimal care). At one of Centura's hospitals, for example, the readmission rate for congestive heart failure fell from 13.8 percent to 4.2 percent. In cases of chronic obstructive pulmonary disease, the readmission rate dropped from 14.1 percent to 6.7 percent. For diabetes patients, it went from 14.7 percent to zero.

Additionally, telemedicine can boost patient satisfaction ratings, an important metric in a number of reimbursement equations. A [study by The Commonwealth Fund](#) found that home monitoring can improve patient satisfaction by as much as 85 percent.

Insights from the Field — Massachusetts General Hospital

Massachusetts General Hospital (MGH) is a telemedicine leader and has deployed telemedicine in 10 clinical areas, including cancer treatment, dermatology, neurology, pediatrics and primary care. For MGH, telemedicine is a key component that supports the institution's quest to improve population health management and shift from physician- to patient-centered medicine. Telemedicine drives patient-centered approaches by providing access to doctors in accordance with the needs of the patient rather than the convenience of the institution. Consider a daughter caring for an aging father. Getting the father ready for an appointment, taking him to the provider's office and then driving him back home can take up most of a day. However, the time actually spent with the physician may be, say, only 15 minutes. With telemedicine, the father can consult with the physician from home, and the daughter can join from the office and not have to take time off from work.

Massachusetts General Hospital can point to measurable successes. In a partnership with the Spaulding Rehabilitation Hospital, MGH provides online consultations between physicians and patients in rehab. Before telemedicine, patients who needed to see their doctor had to be sent by ambulance, a costly round-trip expense. Furthermore, the patient would lose nearly a full day of therapy. Telemedicine eliminated the transport costs and, by not interrupting therapy, reduced average rehab stays by three days. But less easily measured outcomes also are important. For example, MGH found that telemedicine empowers patients to take a greater role in their own healthcare. In one pilot program, an MGH patient had a thigh wound that she couldn't physically see. Through the use of video cameras, the patient could view the wound on a split screen with her doctor. It was the first time she was talking with the doctor about her condition versus the doctor talking to her about it.

Moving the ball

To move its telemedicine efforts forward, MGH carefully builds both a medical and business case for any application. The medical case demands data, which requires experimentation. "Doctors are busy and can't embrace every new development in the field," says Taylan Bozkurt, Operations and Financial Specialist for Surgery at MGH who is involved in a number of its telemedicine initiatives. "To get a doctor's attention, you have to have legitimate and compelling data."

The medical case also needs a clinical champion. And, as Bozkurt points out, those champions aren't necessarily just those early-adopting physicians with a clear bent toward innovation. One veteran MGH burn surgeon became a telemedicine devotee when he realized that one of his patients had to travel a full day from northern Vermont for a short consultation. Bozkurt also cautions healthcare leaders not to assume that young tech-savvy physicians will immediately jump on board. These

doctors still are focused on building their clinical skills; previous internships and residencies probably have not included exposure to telemedicine. “So these physicians may not have the bandwidth for telemedicine early in their career,” says Bozkurt.

Since telemedicine interactions are not yet commonly reimbursed in the still-dominant fee-for-service model, the business case for telemedicine shouldn’t concentrate solely on revenue enhancement. Telemedicine should assess the impact on margin and opportunity costs as well. For example, if telemedicine can help reduce hospital readmissions, the avoidance of penalties currently assessed by Medicare for avoidable readmissions should be accounted for. This year, [Medicare is levying fines against a record number of hospitals](#) — 2,610 — for failing to meet the 30-day readmission standard. The total fines are estimated to be \$428 million. In some cases, these penalties represent up to 3 percent of the facility’s total Medicare payments.

As for opportunity costs, if telemedicine can prevent conditions from becoming acute and consequently time consuming, physicians in a provider practice can use the time not spent treating those patients to add new patients to their roster. The opportunity cost of lost revenues from not adding patients should be assessed when constructing the business case for telemedicine investments.

Competition is another factor. Texas-based MD Anderson Cancer Center had developed telemedicine partnerships with three local Boston-area hospitals. These partnerships presented potential competition for the Dana-Farber Cancer Institute, which, like MGH, is part of Partners HealthCare. As Bozkurt points out, “If you are a strategic thinker and follow advancements in telemedicine, you quickly realize that any major provider can build a presence in your own backyard,” as MD Anderson was beginning to do. That type of emergent competition by geographically remote organizations likely will increase as providers look for alternatives to mergers and acquisitions that are fraught with regulatory difficulties, culture clashes and administrative complexity.

The Path Forward

As is the case with most new technologies, the adoption of telemedicine will be incremental. It also will be transformative. For example, when smartphones first appeared, they were an expensive novelty, and some experts wondered whether consumers needed or wanted to carry a computer in their pocket. And when Amazon first started selling books online, few imagined consumers buying everything from refrigerators to wedding gowns on websites. Telemedicine will follow a similar path as cost pressures and consumer demand continue to build.

Nonetheless, obstacles remain. Regarding regulations, most states still require that physicians be licensed in the state where their patients reside, which, in some instances, can constrain the provider’s ability to employ telemedicine across state lines. And although new telemedicine technologies are being made readily available and are maturing rapidly, older patients — the largest portion of the market — often prefer to see their doctor in person.

Although how payers will reimburse for specific telemedicine services is an open question, roadblocks facing providers are starting to come down. On the reimbursement front, U.S. Rep. Diane Black (R-TN) introduced the bipartisan ACO Improvement Act of 2014, which would expand coverage for telemedicine services. [A 2014 analysis conducted by the American Telemedicine Association](#) found that the number of states requiring private insurers to cover telemedicine services had doubled to 21 (plus the District of Columbia) over the past three years. The study also found that 47 state Medicaid agencies now cover some form of telemedicine. As the healthcare industry continues to move toward more consumer-driven approaches, patients likely will demand the option of using telemedicine.

Making the Decision

Before embarking on telemedicine initiatives, healthcare providers should answer these central questions:

Lessons Learned from a Regional Medical Center

New Hanover Regional Medical Center in Wilmington, N.C., began experimenting with telemedicine back in the 1990s using the less-than-optimal communications equipment from that era. Today, the three-campus teaching hospital with 855 beds has broadened its telemedicine services to pediatrics and psychiatry.

Not all the hospital’s efforts took flight, however, which offers important lessons about how to move forward. When the organization first launched telemedicine in pediatrics — for

endocrinology, pulmonology and dermatology — the hospital learned that current technologies don’t always provide the best patient-doctor interactions. Pediatric pulmonology, for example, never really gained a footing, as some of the technology such as telemedicine stethoscopes can be cumbersome to handle. Pediatric endocrinology and dermatology, however, did take off.

“Telemedicine can be very effective when doctors need to physically see the patient or discuss data such as lab results,” says Joseph

Pino, M.D., former New Hanover Chief of Staff. “In other clinical areas, the technologies can be more difficult to use, and that should be part of the decision of which areas to pursue.”

Additionally, the hospital learned that not all doctors are equally adept at learning how to make the most of cameras and other technologies. “Telemedicine is analogous to bedside manner,” says Pino. “Some doctors are better equipped to develop telemedicine etiquette than are others.”

“Does our organization understand the regulatory environment?”

For local providers with existing patient relationships, regulations aren't a major challenge. However, if the goal is to take on additional patients or provide a new service such as urgent care, the regulatory challenges become more complex and can vary widely by state. For example:



Separate telemedicine services

— State regulations differ on whether telemedicine services can be provided separately or must be used in conjunction with a prior or subsequent in-person evaluation.



Types of covered services

— In states where regulations allow coverage for telemedicine reimbursements, they typically apply to office visits only. Coverage of other services can vary significantly.



Patient setting

— A number of states don't cover telemedicine services when a patient is at home and the provider is remote. Patients must travel to an acceptable facility or provider location.



Types of providers that can provide services

— Many states restrict the types of telemedicine providers covered. For example, a number of states do not recognize telemedicine services offered by mental health professionals.



Licensing requirements

— If providers wish to offer telemedicine services across state lines, typically a license in the state where the patient is receiving treatment is required.



Geographic restrictions

— Medicare currently limits reimbursement for telemedicine services to individuals in remote locations or with other access restrictions.

“What is the return on investment for our organization?”

While ACOs may not be reimbursed directly for telemedicine services, their use can increase both the number of patients under treatment and how often physicians can see each patient. Because reimbursement in many ACOs includes a shared savings or more extensive risk-sharing arrangement, ACO providers can use telemedicine to help reduce costs and increase savings. In addition, many ACO assessments have quality metrics — including patient satisfaction — that can be met and improved with telemedicine services.

For providers that aren't part of an ACO, consumer-driven health plans can be a potent opportunity. Consumers with high-deductible insurance plans are eager to control their healthcare costs. Value-based pricing for telemedicine consultations should factor in the amount of time a patient saves. In

markets where saving time is extremely important, premium pricing may be an opportunity. Perhaps most important, as MGH's Bozkurt points out, telemedicine can significantly reduce operating expenses and lost opportunity costs.

“Is the organization prepared to use the technology, and is the market ready for telemedicine?”

The organization's information technology infrastructure must be able to handle high volumes of video transmissions, and the network must be sufficiently secure to protect patient information. Healthcare providers also need to examine their circle of care and evaluate whether it translates effectively to telemedicine. For example, current technologies can provide strong visual and audio interactions, which may be more appropriate for certain types of hospital discharge management, postoperative follow-up or behavioral therapy than other types of interactions. Healthcare providers also must assess their patients' comfort level with telemedicine and determine what can be done to improve their comfort zone.

The image of a doctor arriving at one's home with an iconic black bag has all but faded from memory. Technology, however, is making an effort to recreate — at least virtually — that experience while also attempting to slow the rise in healthcare costs without diminishing (and even possibly improving) the intimacy of care. And this is not in any way science fiction. Between 2012 and 2013, [more than 10 million Americans benefited directly from telemedicine services](#). Google recently announced a new program where users will be able to chat with nurses online every time a medical condition is entered into the search bar.

The trajectory of telemedicine seems clear. Healthcare providers should strongly consider telemedicine along with other technologies as part of the arsenal of tools available to meet the challenging mandates of healthcare reform. ■

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