IS TELEMEDICINE THE NEXT BIG THING . . . AGAIN?

BY SAM SERVELLO
John lives in a rural town deep in the Adirondacks and shows signs of having a stroke. An ambulance rushes John to a local hospital. The nearest stroke/neurology unit is located 190 miles away in Albany. The majority of strokes may be averted with appropriate specialist intervention if done during the three hours after stroke symptoms first occur. Therefore, the faster John gets help, the more likely permanent brain damage or death will be avoided.

With telemedicine, John’s health care providers at the rural hospital can consult with the stroke specialists at Albany Medical Center via videoconference, sharing data, digital images, lab results, and medical records in real time. John is treated by the physicians at the rural hospital in consultation with the specialists in Albany, saving John from having permanent brain damage due to the quick intervention afforded by telemedicine.

As in John’s case, telemedicine is particularly helpful to patients in rural areas as well as in underserved urban areas as well as those states with large swaths of isolated geography where needed health care specialists may be few in number.

A Brief History of Telemedicine
Aerospace and military arms of the US government have been at the forefront of the development and implementation of telemedicine.1 In the 1960s NASA sought to understand the physiological and psychological effects of spaceflight would have on the human body by sending biometric data to scientists on Earth via a telemetric link. After successful missions sending astronauts to outer space, NASA turned its focus to longer duration human spaceflights, envisioning the occupation of an orbiting space station. Once astronauts are in a space station, the ability to not only monitor biometric data, but also to engage in at least rudimentary guided medical treatment by nonphysicians is critical.2 These initiatives ushered in satellite technology and the development of telemedicine. By 1975 there were 15 active telemedicine projects.3

One of the earliest applications of telemedicine outside of the government was the STARPAHC, or Space Technology Applied to Rural Papago Advanced Health Care program, which was developed by NASA to deliver health care to the Papago Indian Reservation in Arizona. STARPAHC ran from 1972–1975 with the goal of delivering health care to the isolated reservation.4

The military continues to be at the forefront of the development of telemedicine. Since the 1990s the Telemedicine & Advanced Technology Research Center of the United States Army has been actively involved in the advancement of telemedicine.5 In 2013, as part of the National Defense Authorization Act, telemedicine services were expanded as part of an extension of the Transitional Assistance Management Program. The legislation gives returning veterans extra telemedicine health care coverage.6 This is meant to help those suffering from PTSD, reducing any stigma a veteran may perceive from walking into a mental health professional’s office that may otherwise be an impediment to their seeking care.

With the proliferation and greater use of personal computers in the 1990s came an interest in developing new and various forms of telemedicine utilizing personal computer software. Such applications ranged widely across many medical specialties, but none found great success. Multiple grants were awarded in the 1990s through different US government agencies. Telemedicine was the “next big thing.” Due to the rapid growth of telehealth initiatives, Congress requested a review of activity in this area by the US Department of Commerce, which published the 1997 Telemedicine Report to Congress.7

Next Big Thing . . . Again?
Telemedicine has been the “next big thing” for many decades. So why are we currently experiencing a renewed and fervent interest in the topic?

Advancement in Technology
First, advancement in technology has allowed for more data to be transmitted more accurately along with video in higher definition than ever before. Those of you who remember the advent of the phone modem connecting to the Internet from your home comput
video chat such as Skype, iChat, and FaceTime. Patients are more comfortable with banking online, shopping online, and disclosing personal information to others online through social media. For the younger population, there is every possibility that they will grow to expect telemedicine services from their physicians, as so many other interactions with professionals occur online.

Shortage of Providers
Third, there is an anticipated physician shortage, given the coverage expansion under the Patient Protection and Affordable Care Act of 2010 (PPACA) as well as the fact that the US population is aging, which will shortly transfer into the need for more health services. According to the Association of American Medical Colleges’ Center for Workforce Studies, there will be 45,000 too few primary care physicians by 2020.

Success of Telemedicine
Fourth, patients have reported satisfaction with their care in telemedicine. A 2011 study from UC Davis Medical Center found patients reported increased satisfaction from teledermatology services compared to traditional care.

A 2013 study from researchers at the University of Massachusetts Medical School found that the use of remote patient monitoring led physicians to manage problems earlier, follow best practices more closely, and respond to medical alarms more quickly. They also found that the percentage of patients in the ICU telemedicine intervention group had a significant lower mortality rate than the control group without telemedicine services. The length of stay in the ICU for telemedicine patients was 20 percent lower than the control group. Overall, the telemedicine patients spent half a day less in the hospital for a seven-day stay than for nontelemetry patients; one day less in a two-week stay; and 3.6 days less in a 30-day stay.

Financial Incentives
Fifth, many innovations under the PPACA have changed financial incentives in a way that encourage greater use of telemedicine. As the traditional fee-for-service payment model gives way to incentives to reduce cost as part of the shared savings program, accountable care organizations will drive adoption of telehealth. For example, a provider can utilize telemedicine for follow-up appointments for diabetes and hypertension, provide mental health visits that are required for prescription refills, or identify those patients with hypertension and find those who are not controlling their blood pressure, reducing the risk of hospitalization or readmission to a hospital.

PPACA created the Center for Medicare & Medicaid Innovation (CMMI), which is designed to “test innovative payment and service delivery models to reduce program expenditures while preserving or enhancing the quality of care furnished to individuals.” The CMMI funds certain programs to promote integration of health care, many of which incorporate the use of telemedicine. A good example of programs CMMI funds that include the use of telehealth services is the “Transitional Care Teams to Improve Quality and Reduce Costs for Rural Patients with Complex Illness” project. CMMI recently funded this project for $7.6 million dollars through the University of Iowa, with an estimated three-year savings of $12.2 million dollars.

Moreover, several states have also created initiatives that incentivize the use of telemedicine. For example, beginning January 1, 2014, the New York State Office for People with Developmental Disabilities began to transition from a fee-for-service model to a capitated system by use of a new specialized managed-care organization. Telehealth may be a way for providers of residential, medical, and other services for the developmentally disabled to lower costs and increase quality. Being able to monitor key health indicators of the residents may reduce nonreimbursable costs.

Examples of Important Current Uses of Telemedicine in the Clinical Setting
One example is the emergence of eICU (electronic intensive care unit) programs. Computerized diagnostic aids continually analyze patient vital signs and provide electronic access to electronic health records, lab results, medications, medical imaging, and other patient data. Alerts are sent to health care providers regarding adverse trends in the patient’s status. These alerts may be critical to preventing adverse outcomes. Such information can be sent to physicians specializing in intensive care medicine working from a remote site and coordinating care with the ICU at the hospital. By monitoring patients’ vital signs from a remote location to detect signs of trouble, these specialists can assist a hospital in the middle the night while the attending doctor sleeps.

In a November 2007 study, the Center for Studying Health System Change, a nonpartisan policy research group, cited a report that found 73 percent of emergency departments (EDs) in the United States report inadequate on-call coverage by specialist physicians. One study found 21 percent of patient deaths or permanent injuries related to ED treatment delays are attributed to lack of specialists’ availability. Using specialists at a remote location is yet another way that telemedicine may be able to assist in the delivery of needed care in a timely manner.

Patients now have access to physicians online 24 hours a day, seven days a week. Minnesota-based OptumHealth, an affiliate of UnitedHealth

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Group, partnered with American Well to offer “virtual house calls” through NowClinic. NowClinic patients can interact with physicians through instant messenger, secure chat, webcam, and telephone. Also, Beth Israel Medical Center in New York City has partnered with Teledoc to provide similar access to a doctor via telemedicine.

**Unprecedented Anticipated Growth in Telemedicine**

Based on one report, it seems that telemedicine is in fact the next big thing, or at least is set to expand significantly. In an October 2013 report, “Global Markets for Telemedicine Technologies,” BCC Research found that the global telehome and telemedicine market was valued at almost $13.8 billion in 2012 and was expected to reach $16.1 billion in 2013. According to the report, the market is projected to grow to $35.1 billion by 2018 and with a projected a five-year compound annual growth rate of 16.9 percent from 2013 to 2018.

**What Are the Barriers to Telemedicine?**

Many competing factors create obstacles to expansion. Two of the most difficult are licensure and reimbursement.

**Licensure**

The practice of medicine occurs where a patient is located. Therefore, if a patient is located in the state of New York, the provider must be licensed in New York. According to the Federation of State Medical Boards (FSMB), 11 states’ medical boards issue special licenses or certificates related to telehealth. The licenses could allow out-of-state providers to render services via telemedicine in a state in which they are not licensed, or it allows the clinician to provide services via telehealth into a state if certain conditions are met. These licenses are often limited in scope and do not provide a sufficient mechanism to expand telemedicine.

FSMB is in the process of creating an interstate compact for physician licensure. According to an FSMB January 14, 2014, press release, the Interstate Compact Taskforce distributed a draft of the compact to the state medical boards for comment. The compact proposes a new licensing option under which qualified physicians seeking to practice in multiple states would be eligible for expedited licensure in all states participating in the compact. The participating state medical board would retain their licensing and disciplinary authority, but such boards would agree to share information and processes essential to the licensing and regulation of physicians who practice across state borders. Physicians would continue to be under the jurisdiction of the state medical board where the patient is located at the time of the medical interaction. This is particularly important from a reimbursement perspective.

A payor, whether public or private, will not reimburse for a service rendered outside the scope of the license of the practitioner. Moreover, claims submitted to the Medicare program usually require the submitter to certify that the services were provided in accordance with all applicable federal and state laws and regulations. Therefore, if the claim is filed with the Medicare program and the practitioner was not licensed properly, the claim would violate the False Claims Act.

Two Congressional bills were introduced in 2013 regarding telehealth:

1. HR 3077, the TELE-MED Act, which permits Medicare providers licensed in a state to provide telemedicine services to Medicare beneficiaries in a different state regardless of licensure laws in the other state.
2. HR 3750, the Telehealth Modernization Act, would promote the provision of telehealth by establishing a federal standard for telehealth, offering a federal definition of telehealth and listing standards that states should follow when authorizing a health care practitioner to deliver services via telehealth.
Reimbursement

The successful development and expansion of telemedicine services depend on the extent to which they are reimbursed by payors. Medicare, Medicaid, and private payors all apply different definitions, may cover different services, and have varying requirements for payment, which lends to confusion in the area.

Payors may question whether telemedicine will lead to overutilization by encouraging more access to testing and review of patient conditions. Payors might be reluctant to cover merely additional technologies. However, where a better, new technology improves care over an existing technology, there is a much better chance of coverage. Similarly, where additional services can help a patient avoid more expensive hospitalizations, emergency room care or the length of hospitalization due to expensive hospitalizations, emergency room care or the length of hospitalization, payors will be interested in the utilization of such technology.

Medicare

Medicare limits where the patient receiving the services can be located. Medicare will only pay for telehealth services that meet the requirements listed in the Medicare Carriers Manual:24

- **Type of Site Where Medicare Beneficiary Is Located:** The patient is seen at one of the “originating sites” specified in the Manual.
- **Type of Provider:** The encounter was performed by a type of provider specified in the Manual at the “distant site.”
- **Live, Real-Time, Interactive Audio/Visual:** Encounter must use real-time, interactive audio/video telecommunications.
- **Location of the Medicare Beneficiary:** Beneficiary must be in a “federally designated rural Health Professional Shortage Area (HPSA) or in a county that is not included in a Metropolitan Statistical Area (MSA).” In December 2013, this was expanded to include underserved populations located in areas near or on the outskirts of an MSA.25

Medicaid

According to the American Telemedicine Association and the National Conference of State Legislatures:

- 43 states have some Medicaid coverage for some form of telehealth;26
- 40 states have some coverage for telemental health;
- 18 states have some form of coverage for home telehealth;
- 12 states have some form of coverage for remote patient monitoring;
- 7 states have some form of coverage for store and forward-based services.27

Importantly, none of the 43 states that have some telehealth Medicaid coverage define telehealth the same or regulate telehealth in the same manner. Some state’s statutes follow the Medicare rules. Others have their own regulatory scheme. This leads to confusion among practitioners of telehealth services. This disparate treatment of telehealth is one of the barriers to the expansion of telehealth services and a main rationale behind the proposed Telehealth Modernization Act.

Private Payors. Currently 21 states have laws impacting reimbursement policies of private payors. Some states require any regulated insurance company operated in the state to offer those mandated coverages as a condition for doing business in the state.28 Due to the potential for cost savings, private payors may choose to cover telemedicine in more states than the 21 states with telemedicine parity laws. Many private payors have policies specific to the payment for telemedicine services.29

Other Barriers to the Expansion of Telehealth

Though they are beyond the scope of this article, there are still several other barriers to the expansion of telehealth that include issues regarding malpractice, informed consent, credentialing and privileging, online prescribing, and insurance, among others. It should be noted that many health care providers still have concerns over malpractice and the effectiveness of treatment via telemedicine. The Deloitte Center for Health Solutions found that only 18 percent of primary care physicians in a 2013 survey used telemedicine for follow-up diagnostic visits.30

Conclusion

All indicators point to an imminent explosion of telehealth in the United States. We have been here before, however. In the 1990s there was much excitement around telehealth and telemedicine with a push toward adoption. Although many factors have shifted in favor of telehealth in the intervening years, many barriers to the expansion continue to exist. Time will tell whether telemedicine is indeed the next big thing.

Endnotes

1. There is no one definition of telemedicine or telehealth. In general, telemedicine is specific to remote clinical services and involves use of electronic information and telecommunications technologies to provide or support clinical health care at a distance, including diagnosis or treatment of a patient, most frequently using an interactive video encounter.

Telehealth can refer to remote nonclinical services, such as provider training, administrative meetings, and continuing medical education, in addition to clinical services. Telehealth is a broader term than telemedicine. Telehealth means the use of electronic information and telecommunications technologies to support long-distance clinical health care as well as patient and professional

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health-related education, public health, and health administration. This also includes remote patient monitoring devices, which are used to collect and transmit patient data for monitoring and interpretation. Therefore, telemedicine is a subset of telehealth.


13. Id.


19. The Beth Israel/Teledocs link can be found at http://www.teladoc.com/bethisrael (last visited Feb. 6, 2014).


24. Section 15516 of the Medicare Carri...s-coverage-for-telehealth-services.aspx (last visited Mar. 21, 2014).


