



Telehealth: Into the Mainstream?

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OVERVIEW — *Telehealth, and its subset telemedicine, extend across a range of technologies allowing patients to seek diagnosis, treatment, and other services from clinicians by electronic means. Telephone, videoconferencing, iPads, and apps are all employed. In its most established form, hospitals and medical centers use telehealth to reach patients in underserved rural areas. Proponents of telehealth suggest it can relieve medical workforce shortages; save patients time, money, and travel; reduce unnecessary hospital visits; improve the management of chronic conditions; and improve continuing medical education. But telehealth also faces ongoing challenges. States require physicians to be licensed in each state where they treat patients, even if from a distance. Most clinicians have not been trained in telehealth. Security concerns linger. Who should have access to telehealth and how it should be reimbursed are questions without fixed answers. This issue brief looks at telehealth's promise and its challenges and considers opportunities for policymakers to help in charting its future course.*

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Telemedicine and telehealth, as a means of delivering care to hard-to-reach patients, hold appeal on a number of fronts. They can save time, money, and the inconvenience of travel. They can make rare expertise more broadly available. They can bring succor to patients who might otherwise go untreated. Success stories abound. At the same time, they are unfamiliar to most and somewhat unnerving to those thinking about accountability, oversight, and cost. Still, the technology of reaching patients remotely is being applied in a variety of settings and supported by a variety of payment mechanisms. While the evidence on cost and value is mixed, and larger-scale benefit may not be achieved until reimbursement is modified, there is strong interest in further application of this still-evolving means of delivering medical care.

Definitions as well as terminology continue to evolve. Telemedicine and telehealth tend to be used interchangeably, though some use telemedicine to refer to interactive patient-physician communication and regard telehealth as a broader electronic category more aimed at the consumer seeking health information.¹ The term “connected care,” encompassing both, has recently come into vogue.

Some years ago, the Federation of State Medical Boards defined telemedicine as “the practice of medicine using electronic communication, information technology or other means between a physician in one location and a patient in another location with or without an intervening health care provider.”² The American Telemedicine Association (ATA) means to be inclusive: “[T]elemedicine is the use of medical information exchanged from one site to another via electronic communications to improve a patient’s clinical health status. Telemedicine includes a growing variety of applications and services using two-way video, email, smart phones, wireless tools and other forms of telecommunications technology.”³

Telehealth can encompass a variety of services. Its evolution probably began with the nurse call center, offered to patients by some health plans and disease management companies as a means of obtaining immediate medical guidance by telephone. To some, e-mail

communications at one end of a spectrum and the ever-swelling host of medically related smart phone “apps” at the other all come under the heading of telehealth. The example familiar to most—and what this paper will focus on under the label telemedicine—is real-time consultation between physicians or other clinicians and patients.

Proponents of telemedicine and its broader use suggest that, in addition to addressing the geographic maldistribution of providers and offering patients timely access to services unavailable locally, it can:

- make a significant difference in the management of chronic conditions, particularly among the elderly;
- with proper attention to security, offer a discreet, nonthreatening modality for mental health therapy;
- improve continuing medical education; and
- save money for patients who would otherwise have to travel long distances to seek medical attention.

Telemedicine does not seem to have actual opponents, but not all providers are interested in practicing it. Some states and medical societies are concerned with retaining regulatory authority and ensuring that citizens have recourse available in the event of adverse action. Privacy issues worry some. Many are concerned with how to keep the reins on another category of health expenditure.

TELEHEALTH IN OPERATION

Three major categories of telehealth are well-established:

1) Interactive videoconferencing involves a patient in one location and a provider in another, with the provider offering the same diagnostic, treatment, advice, or counseling services that would be provided through an in-person encounter. In some cases, only the doctor and patient are involved; at other times, a local clinician or mid-level provider may be present with the patient in order to understand what follow-up services may be required, or simply to learn by observing the interaction.

Interactive videoconferencing networks may be sponsored by a range of organizations, such as a hospital, an academic health center, a health maintenance organization (HMO), or even an enterprising physician practice. Some states have established telemedicine

networks, funded in part with grants from the Health Resources and Services Administration (HRSA), to serve their rural populations. For example, the Missouri Telehealth Network was founded to enhance access to care in underserved areas of the state as well as to provide educational opportunities for health care providers. Physicians in 29 specialties may be consulted from more than 200 sites in more than 60 counties.⁴

A nationally known example is Project ECHO (Extension for Community Healthcare Outcomes), which began as a way to expand access to treatment for hepatitis C, of which there was a high incidence in rural New Mexico. The program has since grown to encompass other diagnoses, including behavioral health conditions. ECHO uses video conferencing technology to allow front-line providers serving rural and low-income patients to interact with specialists at the University of New Mexico to seek patient-specific consultation. Its mission involves both educating providers and improving patient outcomes.⁵ The program was the model for the U.S. Department of Veterans Affairs' (VA) Specialty Care Access Network Extension for Community Healthcare Outcomes (SCAN-ECHO), now in use around the country.⁶

Some telemedicine initiatives are more targeted. For example, Bon Secours Health System in Virginia has used telemedicine to offer neurological consultation to stroke victims in its emergency department in the absence of staff neurologists willing to provide on-call services. As a result, rates of appropriately administering the clot-dissolving drug tPA—which has an effectiveness window measured in minutes from the time of a stroke—improved markedly. The University of Virginia established a telemedicine partnership with federally qualified health centers and county health departments to make specialists and case managers available to a high-risk perinatal population.⁷ Participating patients sought treatment earlier in their pregnancies, and the number of missed appointments and the rates of preterm delivery both decreased.

In some settings, telemedicine is incorporated into general medical practice to gain efficiency. For example, at Kaiser Permanente in northern California, a patient with a rash can send a dermatologist a digital image of his skin via secure email. Dermatologists are able to make a diagnosis and prescribe treatment in 80 percent of such cases using only electronic communication.⁸

The military was at the forefront of exploring the use of telemedicine technologies. Today, a soldier in Afghanistan can be treated by a physician whose specialty is not represented on base. The VA has a nationwide network connecting community-based outpatient clinics with hospitals and specialty care centers. It also uses telemedicine technology as the means to bring together groups of veterans with similar issues to exchange information with each other and with VA personnel; examples include a tele-amputee group in West Virginia and an anticoagulation medicine management program in Pennsylvania. For both active service members and veterans, telemedicine's cost effectiveness can readily be demonstrated. An Army physician in Hawaii, talking to a reporter for *Stars and Stripes*, suggested that the cost of a videoconferencing set-up, which would serve multiple soldiers, would be nearly equivalent to the cost incurred to medevac a single person to a mainland hospital.⁹

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Both the U.S. Department of Defense (DoD) and the VA have found telemedicine particularly valuable in treating mental illness. The soldier in Afghanistan, for example, can also have access to psychiatric care via Skype-like technology when he is stationed in a remote location. In addition, a DoD physician noted in an interview that sitting alone at a computer rather than in a waiting room with others lessens the stigma some people associate with seeking behavioral health services.¹⁰ The VA cites post-traumatic stress disorder (PTSD) patients as being more amenable to treatment in the privacy of their homes.

2) Store-and-forward technology allows digital images to be captured at the patient's site of care, stored, and forwarded to a clinician in another location for interpretation. This form of telehealth is most commonly employed in specialties such as radiology and dermatology, where images are of critical importance. While it is possible for transmission to occur in real time, the process is usually asynchronous, not requiring sender and recipient to be present online at the same time.¹¹

3) Remote monitoring covers a range of activities, from passive observation to use of alarms, to feeding vital statistics to a physician, to self-management support. Such technologies can aid in chronic illness management and rehabilitation by providing a patient with a channel for encouragement and tools to stick with a daily regimen. The VA uses home monitoring to support the care of over 140,000 veterans in their homes, helping them to continue living independently.

However, the research literature presents a mixed picture of clinical effectiveness. On the one hand, CHRISTUS St. Michael Health System in Texarkana, Texas, achieved 95 percent patient satisfaction, a positive return on investment, and reduced per-patient costs considerably for a small group of elderly patients with whom it piloted the use of remote monitoring equipment to electronically track weight, blood pressure, and blood oxygen.¹² And Geisinger Health Plan reported in 2012 that its home telemonitoring program for patients with congestive heart failure reduced their hospital readmission rate by 44 percent.¹³

On the other hand, a study supported by the U.S. Agency for Healthcare Research and Quality found that adding telemonitoring to the routine care of diabetes patients did not significantly change outcomes. Similarly, a randomized controlled trial in Mayo Clinic's Employee and Community Health program found that the designated primary outcome of hospitalizations and emergency department visits did not differ between the telemonitoring and control groups. In fact, mortality was higher in the former.¹⁴

Evidence of the value of remote monitoring of intensive care units has been similarly ambiguous. This technology allows a small group of intensivists or other specialists to keep track of dangerously ill patients in multiple locations from a distance. Some hospital systems report savings of both lives and dollars; others have elected to remain with traditional staffing models.¹⁵

It may be that these differing results arise from differences in the populations studied, or differences among diseases, rather than the presence or absence of monitoring. Likewise it is difficult to assess telemedicine's overall impact on cost. A specific program may be able to show that it has saved money. Accounting for expenses and savings to individuals, providers, and health plans is complex, as is assessing the net effect of easier access on cost.

GROWTH AND CHALLENGES

Telemedicine is a growing component of health care in the United States. According to the ATA, there are currently about 3,500 service sites in the United States, and half of all U.S. hospitals now use some form of telemedicine.¹⁶ (A study published in the journal *Health Affairs* put the figure at 42 percent.¹⁷) The Veterans Health

Administration's programs delivered care to more than 600,000 veterans via telemedicine.¹⁸ Twenty states and the District of Columbia have enacted legislation requiring insurance policies regulated by the state to cover health care services delivered via telemedicine just as they would services delivered face to face.¹⁹ This authority does not extend to self-insured plans governed by the federal Employee Retirement Income Security Act of 1974 (ERISA), but there is anecdotal evidence that employers who sponsor such plans increasingly see telemedicine as a way to reduce the travel and wait times associated with physician office visits. Some employers have made video-conferencing capability available in onsite clinics, or have arranged with health plans to provide patients with access to physicians or other clinical professionals via secure portals.

Notwithstanding these signs of growth, telehealth has yet to fully establish itself as a routine feature of American health care delivery. Issues still open to debate include:

Licensure

All states have statutes governing the practice of medicine within their boundaries, including the delegation of authority to state boards of medicine to issue licenses and regulate medical practice. The avowed purpose of controlling medical practice via licensure is to protect patients by assuring that medical practitioners are qualified and fit to practice. State boards of medicine hold the power to discipline physicians who fail to comply with medical practice rules and standards.

Rules and procedures (including those for obtaining a license) are not uniform among states, however. In order to practice in more than one state, a physician must be licensed by each. Some exceptions are made for physician-to-physician consultations and for the remote reading of images without patient contact. Securing and maintaining more than one state license is common in some areas, such as Washington, DC, where metropolitan areas cross state lines. Federation of State Medical Boards (FSMB) survey data indicate that about one-fifth of physicians practicing in the United States hold more than one active license.²⁰

Telemedicine essentially renders physical location irrelevant for the purposes of consultation, treatment, and possible follow-up. But

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licensure laws are not so flexible, and may deter physicians from considering telemedicine. Fifty-seven state boards (of a total of 70, some states having separate boards for allopathic and osteopathic medicine) and the District of Columbia require that physicians engaging in telemedicine be licensed in the state in which the patient is located.²¹ Some analysts have suggested that this is backwards, in that the patient could be seen as (virtually) traveling to the physician's location. In the world of face-to-face visits, a patient who lives in Alexandria and drives into the District of Columbia to see a specialist, for example, does not trigger the need for the physician to be licensed in Virginia.

Various remedies have been proposed to ameliorate this situation. Some have called for a national-level license, pointing out that all states already use the nationally administered United States Medical Licensing Examination to assess physicians' fundamental knowledge and skills. Others suggest that a license issued by one state should be recognized by others, as is the case with a driver's license. Neither of these ideas has been welcomed by states.

However, the FSMB has been working for several years on reducing the burden of multiple licensure requirements. For example, the group established a credentials verification service that offers a permanent, primary source-verified repository of the credentials a physician or physician assistant would need to apply for additional licenses. Under a grant from HRSA's Office for the Advancement of Telehealth, FSMB has worked with state boards to draft an interstate compact for physician licensure intended to streamline the process of applying for additional licenses. State medical boards would retain their licensing and disciplinary authority (and fees), but would share information, investigations, and processes "essential to the licensing and regulation of physicians who practice across state borders."²² The proposal has been released to member boards for discussion. Nurses have a similar interstate compact, which has gained the participation of 24 states. A license issued by one member state is recognized by other members, allowing for mobility.

The Servicemembers' Telemedicine and E-Health Portability Act of 2011 (STEP) eased licensure issues for DoD. Physicians who are members of the armed forces already had privileges at any military facility on the basis of holding one state license. STEP waives a local license requirement for health care providers who are not members of the services, but working as DoD contract employees, for the purposes

of performing authorized telemedicine services. Similar legislation targeted to the VA was introduced in both the 112th and 113th Congresses but has not been considered at the Committee level.

Credentialing and Privileging

Credentialing is the process of obtaining and verifying health care providers' documentation of qualifications such as education, licensure, board/specialty certification, work history, and malpractice record. Privileging is the process whereby an organization (such as a hospital) defines the scope and content of work that a clinician is authorized to perform for the organization, on the basis of the clinician's credentials and performance. In common parlance, both may be combined in the term credentialing. Both are routinely carried out by health care institutions. Where a telemedicine transaction involves two such institutions, there was long a question of which was ultimately responsible for credentialing and privileging. Both CMS (the Centers for Medicare & Medicaid Services) and the Joint Commission now allow the hospital where a patient is being treated via telemedicine to rely on information furnished by the distant hospital (where the provider of telemedicine services is located) in making its privileging decisions.

Privacy/Security

As with electronic health records, a major concern is unauthorized access. Can hackers gain entry to a system? Will data be stored on a machine that can be stolen? Remote monitoring raises other fears: will sensors transfer more information than intended, or beyond the intended recipient? For example, will a sensor designed to detect falls also indicate to observers when no one is home?²³

Malpractice Coverage

The uncertainty in this area can serve as a deterrent to provider participation. The Physician Insurers Association of America has reported that 18 out of 19 of its member companies provide malpractice insurance for telehealth; however, 13 of those 18 reserve the right to selectively deny coverage. Reasons given include if a patient or service is located in a state where the insurance company is not licensed, if the physician engages in direct care rather than

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consultation, and if the patient location or the service presents an above-average risk.²⁴

Remote Prescribing

Prescribing requires attention not only to state scope of practice regulations, but also to the state pharmacy board's standards of practice and rules. States generally require a physician-patient relationship to exist before the physician can initially prescribe medication to a patient; many also require a physical exam.²⁵ Though protocols for doing an exam electronically have come to be accepted, a face-to-face encounter may be necessary in the case of controlled substances.

Training

Organizations making use of telehealth technology caution others that it does not figure in the training of today's medical professionals. While communicating via Skype or a similar service is possible for anyone with a computer (or a smartphone for that matter), issues such as the image clarity necessary for diagnostic analysis, the ability to gain patient trust in an unfamiliar situation, system security, and care documentation all require consideration and instruction.

Reimbursement

The absence of a defined and consistent reimbursement policy for telemedicine services is the subject of much lament, though complaints about reimbursement are hardly unique to this subset of health care. How telemedicine might fit into a physician's revenue expectations is not clear. If 20 states mandate coverage by private insurers, it follows that 30 do not, though most major insurance companies cover at least some telemedicine services. Much has been accomplished with grants, notably from HRSA, but these were or are time-limited. Publicly funded health programs are big users of telemedicine, but they are subject to a variety of rules.

Those keeping an eye on publicly funded insurance programs worry about the uncontrolled use of telemedicine leading to a "woodwork effect." Until January 1, 1999, **Medicare** paid for telemedicine services only where no face-to-face encounter between doctor and patient was necessary, for example, the reading of x-rays. The Balanced Budget

Act of 1997 provided that, beginning in 1999, the program would pay for consultations delivered via an interactive telecommunications system on behalf of patients in rural health professional shortage areas (HPSAs). Originally the payment was set to the physician fee schedule and split 75-25 percent between the distant physician and the originating physician, respectively. Originating sites had to be specified types of facilities. Payment changed under the Medicare, Medicaid, and SCHIP (State Children's Health Insurance Plan, now known as CHIP) Benefits Improvement and Protection Act (BIPA) of 2001, such that fee schedule payments now go 100 percent to the distant physician, while the originating site is paid a facility fee (set at \$24.63 in 2014).

Other changes, in BIPA and subsequent legislation, removed the requirement that the patient have an originating physician with him or her, expanded the types of facilities permitted and the types of services covered, and broadened the geographic criteria for originating sites to include all areas outside metropolitan statistical areas (MSAs). CMS has adopted for 2014 a further expansion that would define some areas within MSAs as rural.²⁶ Acknowledging the complexity created by trying to be more inclusive, CMS has pledged to work with HRSA to develop a website tool to assist potential originating sites to determine their eligibility. Critics charge that a definition that can change with new census information is confusing for beneficiaries and providers alike, and that uncertainty about how it may change in the future deters investments. Telehealth proponents would like to get rid of the "rural only" rule altogether, pointing out that specialty shortages exist in urban areas as well and that frail elders in cities could be well served by telehealth.

A study of Medicare telehealth use by Martin Gilman and Jeff Stensland sought to measure the growth in telehealth services following the post-1999 changes. They found that growth in the adoption of telehealth among providers had been modest. The 12,000+ increase in telehealth visits from 2006 to 2009, they calculated, represented one additional telehealth visit per 700 rural beneficiaries. Roughly half the volume of claims was filed by mental health professionals.

CMS does not define telehealth under the **Medicaid** program, nor require it to be covered. The ATA says that 44 states and DC have some form of coverage and reimbursement for services delivered via video conference, while 18 states pay for some home telehealth

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services.²⁷ The National Conference of State Legislators website lists only Idaho, Massachusetts, New Hampshire, New Jersey, Ohio, Rhode Island, and Tennessee as states whose Medicaid programs do not cover telehealth.²⁸ Because Medicaid does cover transportation, savings in that category accrue to the state as well as the patient.

Analysts have observed that telehealth lacks specific quality standards and performance measurement systems needed to support increasingly common pay-for-performance and value-based reimbursement programs. Clinical quality metrics related to processes and outcomes presumably should not differ from the patient perspective regardless of the means by which care is delivered, but there is as yet no mechanism for determining when telehealth intervention is appropriate, or for establishing best practices.

OUTLOOK

New telehealth legislation had been introduced in 20 states at the time of writing.²⁹ Federal proposals await action as well. In addition to the Veterans' E-health and Telemedicine Support (VETS) Act of 2013 (H.R. 2001) referenced above, The TELE-MED Act of 2013 (H.R. 3077) would extend the same kind of authority to physicians treating Medicare beneficiaries. That is, a physician licensed in one state would be permitted to provide telemedicine services to Medicare patients in another state without having to obtain a license from that state. State medical boards are not among this bill's supporters. They point to its failure to specify what rules apply to physicians practicing across state lines and how discipline would be enforced, and suggest that it leaves Medicare beneficiaries too vulnerable. Another bill, the Telehealth Enhancement Act of 2013 (H.R. 3306) would promote and expand the use of telehealth under Medicare and other federal health programs, in part by adding additional locations to those deemed acceptable originating sites, including the patient's home in the case of those who are homebound and/or receiving hospice or dialysis services at home. The Telehealth Modernization Act of 2013 (H.R. 3750) would create a federal definition of telehealth and provide, its sponsors say, a spur to innovation and research and principles that states can look to in developing new policies.

Many federal agencies continue to play a role in encouraging the expansion of telehealth. CMS, HRSA, DoD, and the VA have been mentioned above. The Bureau of Prisons and the Indian Health Service

use telehealth. The Federal Communications Commission sponsors the Healthcare Connect Fund to broaden access by health care providers to robust broadband networks. The U.S. Department of Agriculture operates the Distance Learning and Telemedicine Loan and Grant program for the acquisition of telehealth equipment to enhance the learning and health care of rural residents.

Among private insurers, telehealth at home is also becoming a reality. Several major insurance plans have partnered with vendor firms such as American Well and Teladoc to let their members have access to a board-certified doctor on demand. Patients can download a mobile app or go to their computers to create an account and connect to a physician by telephone or over a secure video network.³⁰

The growth of mHealth—the practice of medicine and public health supported by mobile devices—has many analysts speculating about its future role. Some are enthusiasts, envisioning mHealth as the standard channel for maintaining an ongoing dialogue between patients and clinicians. Others reserve judgment. Steven Steinbuhl and colleagues observed in a *Journal of the American Medical Association* commentary, “When such a high level of interest and promise coexists with such a paucity of evidence, there is potential for hype to dominate the discussion around mHealth.”³¹

Telehealth practitioners emphasize that their technology is not intended to stand alone, but to be part of a continuum of care modes seeking to offer the right care at the right time to patients. Telehealth can be expected to grow and refine its practice, and mHealth probably will play a larger part over time, but there will always be a place for in-person, hands-on outpatient and inpatient care, they say. Evidence about the efficacy and efficiency of various forms of telehealth is still being amassed, and is still needed.

Among private insurers, telehealth at home is also becoming a reality.

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