Telemedicine:
The Promise and Challenges

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Telemedicine began over forty years ago with a small number of hospitals extending care to patients in remote areas. Now, in an effort to improve access to care, particularly in rural and underserved areas, and to lower costs, the field of telemedicine is taking off. Consider the Department of Veterans Affairs (VA), which served more than 690,000 veterans with more than 2 million telemedicine visits in 2014.[1] Most of the visits were for veterans living in rural areas with limited access to VA health care. The VA boasted a 34 percent reduction in readmissions for home telehealth participants in 2014, and a 42 percent decline in bed days for telehealth participants.[2]

Meanwhile, the number of states making telemedicine coverage mandatory for private insurance plans has grown. Coverage was mandatory in five states in 2000, 12 in 2011, and 24 plus D.C. as of May 2015.[3]

Coverage of telemedicine by private insurance is mandatory in 24 states plus DC — up from five states in 2000.

In a health care delivery system in which costs are high, quality is inconsistent and provider shortages threaten access to care, telemedicine is becoming a widespread tool. Telemedicine can now be found in hospitals, specialty departments, home health agencies, accountable care organizations, private physician offices, consumers' homes and workplaces.[4] Early evidence finds improved access and lower health care costs, but telemedicine continues to face regulatory barriers as well as provider and consumer skepticism.

What is Telemedicine?

Telemedicine is used to exchange medical information from one site to another via electronic communication. It includes a growing variety of applications and services using two-way video, email, smart phones, wireless tools and other forms of telecommunications technology.

Sometimes it is referred to as telehealth. For the purposes of this toolkit, telemedicine will be considered a subset of telehealth. It will not focus on the broader category of health information technology, which includes electronic health records (EHRs).

Telemedicine services include primary care and specialist referral services involving the use of live interactive video; remote patient monitoring, devices to remotely collect and send data to a provider for interpretation; and medical education, including continuing medical education for health professionals and special medical education seminars for targeted groups in remote locations.[5]

The Office of the National Coordinator for Health IT (ONC) in 2014 issued the Federal Health IT Strategic Plan: 2015–2020, identifying the federal government's health IT priorities, including those for telehealth and telemedicine technology. The primary goal, according to the office, was to accelerate the adoption and use of meaningful health IT, including telehealth and mobile health, with behavioral health care providers, among others, being expressly noted for assistance.[6] Specifically, it recommended increasing access to broadband connectivity, especially in rural areas, to accommodate high-resolution imaging, telehealth/telemedicine, and mobile health.[7]

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Current Applications

With the improvement in technology and expansion of broadband connectivity, uses that have expanded over the last decade include remote readings of radiologic images, 'round-the-clock intensive care unit consultations and telephone outreach services to manage people with chronic conditions.[8] Telemedicine is also growing in the fields of dermatology and psychiatry.

Examples

- A hospital in New Albany, Mississippi connects with neonatal intensivists at North Mississippi Medical Center in Tupelo, nearly 30 miles away. Through long-distance electronics, the hospital is controlling robots to take care of newborns with special needs.[9]
- A critical access hospital in Mississippi offers emergency services, psychiatry and other treatments, and has recently added remote monitoring of diabetes patients. [10]
- A substantial and expanding area of services to which telemedicine is applied is telemental health services, also known as telepsychiatry or telepsychology. The most common services offered by such programs include medication management, diagnosis and evaluation, psychotherapy and crisis stabilization.[11]

The VA was an early adopter of telemental health services. It initiated programs as early as 2004, and, in 2013, more than 600,000 veterans accessed care in this way. Currently, a major area of telemedicine in the VA, one that uses store-and-forward technology, is teledermatology. Store and forward technology is the acquisition and storing of clinical information that is then forwarded to, or retrieved by, another site for clinical evaluation. The number of VA patients receiving dermatology care remotely through this method increased by 279 percent over three years to more than 45,000 patients in fiscal year 2013.[12]

Policy Issues

Despite significant progress, several factors are hindering the rapid and widespread use of telemedicine, including reimbursement for services and licensing across state lines.

A major factor is the lack of reimbursement for various services by Medicare, some Medicaid plans and some private insurance.

Limited reimbursement and challenges with state licensing hinder widespread telemedicine use.

Medicare telemedicine restrictions in statute are the following:

- Almost 80 percent of Medicare beneficiaries are not covered because they live in a "metropolitan area";
- No coverage for "store-and-forward" services, such as wound management and diabetic retinopathy, outside of a couple of demonstration sites;
- No telemedicine for some services otherwise covered by Medicare, such as physical therapy, occupational therapy and speech-language-hearing services;
- No coverage for some patient sites outside of some designated health facilities — no coverage in a patient's home; and
- Only coverage for designated health procedure codes.

Also, Medicare does not cover remote patient monitoring of chronic conditions.

The recent Medicare Access and Chip Reauthorization Act includes three provisions directly important for telemedicine. First, as an alternative to fee-for-service reimbursement, an alternative payment methods (APM) program will launch by October 2016, and restrictions on telehealth will apply only to fee-for-service care. Also, the Government Accountability Office will study and report on telehealth, in general, and remote patient monitoring, in particular. Finally, the use of telehealth or remote monitoring shall be part of the clinical practice improvement activities used for a merit-based incentive payment system.

A 50 state telemedicine gaps analysis by the American Telemedicine Association (ATA), updated in May 2015, portrays a complex policy landscape of 50 states with 50 different telemedicine policies with regard to coverage and reimbursement. Five states and the District of Columbia got a composite grade of "A" and two received failing grades.[13]

For Medicaid, 47 states and the District of Columbia provide some form of reimbursement for telemedicine services. State laws vary from encouraging the use of telemedicine services, as in New Mexico, to specifying and limiting the location in which reimbursable services may be provided. An example of the latter is New York, in which Medicaid currently covers medically necessary physician specialist consultations provided via telemedicine to patients in emergency rooms, hospital outpatient departments and hospital inpatient settings.[14] State plans are moving toward full parity between telemedicine and in-person coverage.

According to a recent survey about telemedicine license portability, rapid growth of telemedicine faces consistent resistance because of the time-consuming, costly, and variable process of medical licensure by the states. Surveyed physicians point to inconsistency in the licensing process from state to state and frequent lost applications causing multiple delays.[15]

To facilitate interstate health care, there are two types of licensure compacts that states are pursuing:

- Multiple state licenses with expedited processing: Federation of State Medical Boards
- One state license based on reciprocity: National Council of State Boards of Nursing, Association of State and Provincial Psychology Boards

Evidence

Evidence of the appeal of telemedicine and its potential to improve access to the underserved can be seen in states such as Mississippi, which ranks at or near the bottom in most health rankings and has the most severe doctor shortage in the country.[16] Mississippi's Center for Telehealth includes 35 specialties. It provides 8,000 telemedicine visits a month and 100,000 a year across the state. Health officials in the state are now working to expand telemedicine to schools to help nurses manage chronic disease and other conditions.[17]

Small hospitals in Mississippi calculated a 25 percent cost reduction, and attributed it to their ability to avoid hiring temporary emergency department doctors who would have been paid under contract.[18]

In addition, preliminary studies show positive results in controlling blood sugar with no hospitalizations or emergency department visits with remote monitoring of diabetics.[19]

Also, studies have shown that the quality of health care services through telemedicine is as good as services through in-person consultations. In some specialties, such as emergency medicine, increased timely access improves outcomes.

For example, cardiac arrest patients in rural Mississippi emergency departments fare as well, on average, as those treated at a larger hospital in Jackson.[20]

Looking Forward

Researchers, analysts and policymakers generally concur that telemedicine has tremendous potential to address a variety of access and care needs of the American population in our changing health care system. However, to realize the full potential of telemedicine, they say, the following is needed:

- comprehensive reimbursement policies
- guidelines for ethical conduct of a teleconsultation
- acceptable security measures of patient records
- adequate and compatible infrastructure that could require a costly investment
- resolution of licensure issues for delivery of services across state lines
- physician and patient buy in

Still, advances in mobile connectivity are driving adoption of telemedicine. Indeed, health information technology vendors are focusing on the development of innovative products and services and the need to improve bandwidth to enhance the reach of mobile health. Industry analysts predict major expansion to occur in the next five years.[21]

Advances in mobile connectivity and new state laws are driving adoption of telemedicine.

New partnerships between health care organizations and telecommunications companies are emerging to increase the scope of telemedicine services. In February 2015, one such partnership between The Cleveland Clinic and Cox Communications seeks to improve in-home patient monitoring and treatment through expanded broadband services.[22]

At the same time, states are changing laws to advance the adoption of telemedicine. For example, a bill before the Oregon legislature in early 2015 would provide insurance coverage for telemedicine services anywhere, including in patients' homes. Up to now, Oregon law has only required coverage of telemedicine if it took place at a medical facility. Under the measure, a person at a rural hospital could receive a telemedicine consultation from a big-city specialist.[23]

For More Information

Background

What is Telemedicine?
American Telemedicine Association
http://goo.gl/SvWVnz
The American Telemedicine Association (ATA) defines telemedicine and provides background information on services and delivery mechanisms.

Outlook

"Interstate Medical Licensure Effort Gaining Ground"
Cheney, Christopher, HealthLeaders Media. February 2015
http://goo.gl/TWNLcg
This article reports that 12 state legislatures have introduced the Interstate Medical Licensure Compac and that 26 state medical and osteopathic boards have endorsed it. The aim of the compact is to help ease staffing shortages at rural hospitals and break down barriers to expansion of telemedicine, according to the framers of the draft model legislation.

"Telemedicine market to nearly double over next 5 years"
Dvorak, Katie,Fierce Health IT. December 2014
http://goo.gl/gVkzXk
This article provides an industry perspective highlighting its growth potential over the next five years. It notes that advances in mobile connectivity are a key factor in driving adoption of telemedicine and that mobile devices can be used for remote monitoring and medicine compliance. The article notes that vendors are focusing on the development of innovative products and services and on the need to improve bandwidth to enhance the reach of mobile health.

"Cleveland Clinic partnership aims to boost telemedicine services"
Dvorak, Katie, Fierce Health IT. February 2015
http://goo.gl/K04DTa.
This article announces a new partnership between The Cleveland Clinic and Cox Communications. It notes that the partnership is looking to improve in-home patient monitoring and treatment services and will provide video consultations through broadband services. It further notes that Cox has already been working with The Cleveland Clinic on HealthSpot—walk-in kiosks that allow patients to videoconference with physicians.

Federal Health IT Strategic Plan, 2015–2020
Officer of the National Coordinator for Health Information Technology
http://goo.gl/zsKf28
This document lays out ONC's goals and objectives for achieving more widespread adoption of health IT to improve health, health care and lower costs.

"Will 2015 deliver the promise of telemedicine?"
Patel, Chirag, VB News. December2014
http://goo.gl/wTTGmh
The author claims that remote health care started to take off in 2014 with the proliferation of wearable devices. In addition, the author notes that providers started to embrace seeing patients through video chat. He predicts that 2015 will see further proliferation of telemedicine and cites indicators such as investments that Google Ventures and others are making in health care and innovative sciences.

"Mississippi emerges as leader in telemedicine"
Pittman, David, *Politico*. February 2015
http://goo.gl/kQJxEX
The author indicates that Mississippi's dominance in telemedicine technology emerged from its own poor health. It cites several examples of telemedicine services and its reach to rural and underserved populations.

"The Doctor Will See You Onscreen"
Xu, Rena, *The New Yorker*. March 10, 2014
http://goo.gl/p1hUvg
This article provides a medical student's perspective of the role that telemedicine could play in improving timeliness, quality and efficiency of care delivery. The author claims that telemedicine works especially well for urgent care and that it may be gaining ground in light of incentives in the Affordable Care Act that pay for performance. She also notes that the number of states making telemedicine coverage mandatory for private insurance plans has grown—from five in 2000 and twelve in 2011 to nineteen as of early March 2014.

Licensure

A Survey and Review of Telemedicine License Portability
Rogove, Herbert J, et al., Telemedicine and e-Health. February 2015
http://goo.gl/MzwGsd
This survey provides insight into the aspects of state licensing that pose barriers to the growth of telemedicine. It points to inconsistency in the licensing process from state to state and frequently lost applications.

50 State Telemedicine Gaps Analysis — Physician Practice Standards and Licensure
Thomas, Latoya and Gary Capistrant, American Telemedicine Association
http://goo.gl/Ohh0LN
This report by the ATA compares physician practice standards in telemedicine for all 50 states. The analysis assigns a grade that indicates existing policy barriers that inhibit the use of telemedicine. State laws and medical board standards were used to extract the data.

Reimbursement

Telemedicine
Medicaid.gov, Centers for Medicare and Medicaid Services
http://goo.gl/V6S3ke
This webpage reviews Medicaid reimbursement guidelines for covering telemedicine services.

50 State Telemedicine Gaps Analysis — Coverage and Reimbursement
Thomas, Latoya and Gary Capistrant, American Telemedicine Association. May 2015
http://goo.gl/Ohh0LN
This report by the ATA compares Medicaid coverage, coverage by others payers, and other state initiatives. The analysis assigns a grade that indicates existing policy barriers that inhibit the use of telemedicine. State laws and regulations were used to extract the data.

"National Action Needed to Advance Telemedicine"
Goozner, Merrill. January 2015
http://goo.gl/VdGU5D
In this editorial, the author argues that telemedicine is in "regulatory limbo," and calls on the federal government to remove legal, financial and regulatory barriers with regard to reimbursement and licensing.

"Bill Looks to Boost Medicare Reimbursement for Telehealth"
Tahir, Darius. January 2015, *Modern Healthcare*
http://goo.gl/XK2ZJM
The author writes that a key House committee has drafted a bill calling for Medicare to pay providers the same rates for telehealth services as for comparable in-person visits—as long as it doesn't raise overall costs. The bill would require the Centers for Medicare & Medicaid Services (CMS) to come up with a methodology within four years for reimbursing both hospital and physician telehealth services, especially those that meet unmet service needs.

"Legislature 2015: Oregon Senate considers reimbursement"
Thompson, Dennis, *Portland Business Journal*. February 6, 2015
http://goo.gl/SgCzMa.
The author describes a bill before the Oregon Senate that could dramatically expand telemedicine in Oregon, allowing people to "see" a doctor or nurse via two-way video conferencing

State Coverage for Telehealth Services
National Conference of State Legislatures
http://goo.gl/yqPz1I
This webpage provides text and graphics describing states with coverage for telehealth services, including requirements for Medicaid and private insurance coverage.

Uses of Telemedicine/Additional Health Policy Considerations

"Use of Telemedicine Can Reduce Hospitalizations Of Nursing Home Residents And Generate Savings For Medicare"
Grabowski, David and O'Malley, A. James
http://goo.gl/UpWaVc
This study found that off-hours telemedicine coverage in a chain of nursing homes generated cost savings for Medicare through fewer hospitalizations. The authors noted considerable variation in engagement across the different nursing homes that had telemedicine services. They further suggest that telemedicine providers and nursing home leaders will have to take additional steps to encourage buy in among nursing home administrators, front-line staff members, and physicians.

"Telemedicine, rural elderly and policy issues"
Goins, RT, et al., *J Aging Soc Policy*. 2001; 13(4):53–71
http://www.ncbi.nlm.nih.gov/pubmed/12418382
The authors suggest that the use of telemedicine will help address many of the problems facing the delivery of health care services to rural elderly. The paper reviews some innovative projects delivering services to the elderly, and discusses several issues that need to be addressed before telemedicine can reach its full potential in improving access to health care, including reimbursement policies, patient and provider liability and confidentiality, and the infrastructure supporting telemedicine.

"Telemedicine: Many Opportunities, Many Legal Issues, Many Risks"
Kadzielski, Mark and Kim, Jee-Young, Pepper Hamilton, LLP. July 2014
http://goo.gl/T2IxX1.
The authors contend that providers and entrepreneurs must be mindful of several legal issues to ensure their telemedicine services are compliant with federal and state requirements and appropriately protect patient safety and privacy. The issues are listed in detail.

"Telemental Health in Today's Rural Health System"
Lambert, David, et al, Maine Rural Health Research Center. December 2013
http://goo.gl/St2mzN
This issue brief describes the history of telemental health services and the role it plays today in providing access to mental health services in rural areas.

"Three Solutions for Major Telemedicine Barriers"
Roney, Kathleen, Becker's Health It and CIO Review. March 2012
http://goo.gl/W3v3MJ
The author reviews a study that found that, despite numerous benefits, there are three major barriers — licensing, credentialing and reimbursement — to telemedicine implementation and use that need to be addressed. The article also lists the study author's proposed solutions to these barriers.

"New Telemedicine Policy Pleases Some, Others Have Issues"
Terry, Ken, Medscape Medical News. April 29, 2014
http://www.medscape.com/viewarticle/824269
This article reports that The Federation of State Medical Boards (FSMB) on April 26 adopted a "model policy on the appropriate use of telemedicine technology in the practice of medicine." It also notes that not everyone is happy with the policy. Particularly critical of several areas is the ATA, though initial reaction from leading telehealth firms was mostly positive, the article states.

"State Medical Boards Adopt Policy Guidelines for Safe Practice of Telemedicine"
Federation of State Medical Boards. April, 2014
http://goo.gl/L4oOTk
The model policy provides guidance for state boards to use in developing policies and protocols in the safe use of telemedicine. The essential provision states that the same standards of care be applied in telemedicine services as would be applied to in-person medical encounters.

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www.connectwithcare.org

American Medical Informatics Association
www.amia.org

American Telemedicine Association
www.americantelemed.org

Centers for Medicare and Medicaid, Medicare Telehealth Services
http://www.cms.gov/Medicare/Medicare-General-Information/Telehealth/

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http://cchpca.org/

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ENDNOTES

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