Telemedicine
Connecting the Healthcare Continuum

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Telehealth and telemedicine are fast becoming a central theme for healthcare delivery in the U.S. and in many cases, around the world. In our highly technological world, the healthcare industry is harnessing the power of technology to best meet the needs of those they serve through the use of remote medical services.

While telehealth and telemedicine are closely aligned terms, they describe distinct matters. Telehealth more broadly refers to healthcare services that are provided remotely; whereas telemedicine refers more specifically to clinical services and the delivery of healthcare using technology across distances.¹ These terms are often used interchangeably with a variety of other terms such as e-health (healthcare using electronic processes to communicate health information) and mHealth (referring to the practice of medicine on mobile devices), as well as other information and communication technologies used to express the broad definition of remote healthcare.

Telemedicine is the delivery of healthcare services using information and communication technologies to exchange information for the diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of healthcare providers. The end result is improving the health of individuals and their communities.² It includes a variety of applications including two-way video, email, smartphones, wireless tools and other forms of telecommunications.³

The origins of telemedicine date back more than 50 years to the introduction of television. With the development of closed-circuit television and video communications, healthcare providers began using this technology for clinical situations that provided interactive consultation amongst specialists, general practitioners and primary care physicians.⁴ With recent developments in electronic communication and pioneering efforts within the technology market segment, the convenience, accessibility and geographic reach of telemedicine has significantly changed the service capabilities of the medical industry.

It should be noted that telemedicine is not a separate specialty, but rather it relates to a more efficient means of exchanging medical information and delivering clinical services.⁵ Third-party service vendors such as Software as a Service (SaaS) largely facilitate how the medical industry connects with its patients and each other. These software companies develop electronic health records (EHR) software with the main objective of creating platforms and digital environments where medical professionals can practice their craft.

With that said, these solution providers have evolved into their own dedicated health service industry segment with the singular purpose of supporting the telemedicine field. Today, this includes a wide range of capabilities including patient appointment management, image storage, lab results, and more.

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What can Telemedicine Deliver?

physician notes as well as prescription processing to name a few. Along with all this comes the regulatory requirements of the Health Insurance Portability and Accountability Act (HIPAA) and robust cybersecurity with features adequately designed to protect patient data.

- **Primary care and specialty services**: This can involve direct communications between a primary care physician and a patient to discuss a diagnosis or treatment plan, or a medical specialist consulting with another physician in reviewing a patient’s condition or treatment options.

- **Remote patient monitoring**: In years past, services such as Lifeline allowed users to call for emergency services in case they were injured and unable to access a phone. Remote patient monitoring has since matured and expanded. Services can now be used in home healthcare for the monitoring of vital signs, and collecting and transmitting information about a patient’s medical status. The data may be sent to a diagnostic center or to a home health agency for interpretation. Examples of such monitoring services include blood glucose monitoring, blood pressure readings, heart ECG data, height measurements and various other indicators for those patients who are homebound or who cannot conveniently arrange an in-person doctor’s visit. It is particularly useful for monitoring conditions that require frequent data collection and reviews, and it can help supplement home healthcare nursing services.

- **Consumer medical and health information**: The internet and mobile devices such as smartphones are being used to research and collect health information on specific topics of interest. This also includes online networking opportunities such as discussion groups to share peer-to-peer support. Wearable mobile health devices such as Fitbit and Apple Watch offer consumers a means of tracking daily activities with the intention of educating and motivating the user to adopt healthy lifestyle choices. Many healthcare insurers such as Blue Cross Blue Shield, Cigna and others offer online health assessments to their members to inform and guide members to healthy options.

- **Medical education**: Healthcare professionals can access training and continuing education services through webinar offerings. These are made available through a variety of medical institutions and health-care specialty services such as associations and government regulatory agencies.

According to the Center for Connected Health Policy, there are four distinct domains of applications:

- **Live Videoconferencing (synchronous)**: Live two-way interactions connecting a healthcare provider and a patient using audiovisual telecommunication technology.

- **Store and Forward (asynchronous)**: Enables a primary care physician to transmit electronic healthcare records such as images (MRI, CAT, PET and others) or laboratory results to a specialist for offline or real-time review. Electronic storage of these documents allows for access at a time and place convenient for the physician.

- **Remote Patient Monitoring (RPM)**: The collection of digital data for electronic transfer from one location to another, to allow for review, interpretation and record retention.

- **Mobile Health (mHealth)**: Services and information delivered through the use of mobile devices such as cell phones, tablet computers and PDAs. It can include public health information, education services by providing health information access, wide-scale alerts about disease outbreaks or targeted text messages that promote healthy behaviors.

- **Networked programs**: These network links are established using high speed lines and the internet to create communication platforms for tertiary care hospitals and clinics in remote, rural communities and suburban regions across the country and globally.

- **Point-to-point connections**: Through the use of private high-speed communication lines hospitals and clinics can deliver services remotely. This service mechanism can be used to provide specialty care through outsourced providers in areas such as radiology, psychology and...
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neurology. Examples of services delivered include radiographic image (x-ray, CT, MRI, PET, etc.) reviews, stroke assessments and real-time consultations in emergency rooms and intensive care departments.

• **Monitoring Center links:** Landlines, wireless connections and the internet enable communications directly between a patient and a center that provides home care monitoring services for cardiac, pulmonary or fetal monitoring.

• **Web-based e-health patient service sites:** Online outreach services are offered to provide direct patient care services where patients can obtain information to help self-educate and manage a medical condition. Healthcare assessments and patient-friendly information on medical conditions and illnesses are now readily available on medical insurance provider websites, as well as publicly accessible sites such as WebMD and others.

How prevalent is the use of Telemedicine?

According to a 2014 telemedicine survey conducted by Foley & Lardner LLP, 90 percent of participants representing executive leaders from for-profit and nonprofit health organizations including hospitals, physician groups and home health care organizations have implemented some level of telemedicine in their operations. These leaders also report that the future success of their organizations will be based on offering meaningful telemedicine services.

With the Affordable Care Act, financial and payment incentives have created a shift leading to reimbursements based on positive patient outcomes rather than fee-for-service models. Telemedicine offers ways to cost-effectively streamline operations and create a variety of ways to connect and stay engaged with patients. It also provides a platform that dramatically expands specialists’ geographic reach to offer medical treatment and management of chronic care services outside of a hospital setting.

Increasingly consumers are becoming accustomed to the use of telecommunications for most aspects of their lives. Along with that comes the expectation that their health care needs can and should be managed through telemedicine offerings as well, for the sake of convenience and cost effectiveness. According to an article in Healthcare IT News telemedicine has seen a market growth of 237 percent within a five-year period from $4.2 billion in 2007 to more than $10 billion in 2012. The increase in cost of healthcare, aging population, and ongoing advances in technology are all driving factors contributing to market growth and it is only expected to continue.

The use of telemedicine does have some negative implications such as a loss of the “human touch” between the medical provider and the patient. Less human interaction may adversely impact homebound patients, for example, who could experience a greater sense of isolation.

Electronic platforms also increase the potential for private health information to become compromised while in transmission or in electronic storage. In addition connectivity issues can threaten to slow or interrupt the healthcare provider and patient interaction altogether.

There is also considerable cost associated with the acquisition of the necessary IT equipment, the management of these networks and the learning curve associated with those using these systems. Furthermore, these offerings are only as good as those willing to use these tools. If a physician is unwilling to buy into the technology, then there is little realization of the value for the organization.

Another consideration is patient reliance on nontraditional care models such as local retail outlets (e.g., Walgreens, CVS and Wal-Mart), for quick and convenient medical services such as vaccinations or minor ailments. This practice threatens record fragmentation and could result in potential
treatment gaps due to privacy requirements or limited capabilities of the electronic medical record software.13

The healthcare industry also faces significant hurdles in the form of reimbursement for telemedicine services. Although Medicare and Medicaid provide reimbursement for a wide range of telehealth services, the rate of reimbursement does not provide the incentive needed to broaden the scale and scope of service offerings. Additionally, only 24 states and the District of Columbia currently require private insurance companies to offer equivalent payments for telemedicine and in-person services.

Conclusion

Whether we realize it or not telehealth or telemedicine in all of its varied offerings is here, rapidly growing and increasingly making its way into our lives. As I sit here typing this article my smartphone suddenly “chirps,” drawing my attention to a text message from my doctor’s office reminding me of an upcoming appointment. From simple reminders to complicated remote physician consultations, this reflects the continuum that extends healthcare’s reach and helps providers stay connected with patients. Looking ahead, there will be growing pains as the industry attempts to harness the best technology, and balance those resources with important issues of data privacy, quality healthcare delivery services, cost containment and most importantly, sustaining the humanity in this ever-expanding world of technology.

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Reference


5 Ibid 3

6 Ibid 3

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9 Ibid 3


