

# Telehealth: Breaking Down Barriers for More Connected Healthcare

## Executive Summary

Healthcare stakeholders have high hopes for telehealth as an essential ingredient for creating a better system of care. The future of remote care delivery depends on powerful technologies and smart networks to attain these aspirations. With rising healthcare costs and unprecedented pressures on healthcare systems to connect care across the continuum, the time is right to use telehealth to break down the barriers to make healthcare more efficient, more connected and more affordable.



## Introduction

Multiple forces are converging to drive the healthcare industry to find new ways to maximize resources and increase efficiency to achieve more effective patient care. Escalating costs, an aging population, rising chronic health conditions (which already account for 75% of the nation's healthcare costs<sup>1</sup>), a shortage of healthcare professionals and the quest to earn stimulus dollars while preparing for pending health reform are among the critical challenges facing the industry. Healthcare professionals are finally fully embracing technology to help bridge the gap between limited resources and growing demands to foster more connected, collaborative care.

Telehealth is one of the most significant components to the way care will be delivered in the future. In an effort to foster more connected and effective care, many health systems are joining healthcare information exchanges (HIEs) and telemedicine networks to extend the reach and increase the scale of the systems' services.

Telehealth can provide patients with access to a wider variety and better quality of healthcare services, particularly for the 79% of Americans who live in rural areas.<sup>2</sup> For health professionals, telehealth enables virtual consultation and collaboration with patients and other clinicians regardless of geographic location.

From a financial perspective, the Center for Information Technology Leadership estimates that widespread use of telehealth systems to promote preventive care, early intervention and effective information sharing could save the United States \$3.61 billion annually.<sup>3</sup> The report finds that the most significant savings would be from elimination of ambulance and travel expenses, especially for emergency departments, nursing homes and prisons.<sup>4</sup>

Telehealth services can be customized to support many different uses in a wide variety of settings, from individual clinics to regional hospital networks. But how should a healthcare provider evaluate its need for telehealth? What is the right way to implement telehealth services, and how important is the telecommunications network that supports these services?

This white paper examines the benefits and challenges of telehealth, presents examples of successful implementations at the state and local levels, and addresses the common issues and concerns expressed by healthcare organizations.

## Telehealth Becoming A Recognized Part of Care Delivery

The term "telehealth" encompasses various healthcare services delivered virtually via telecommunications and information technologies, including videoconferencing, remote monitoring, email and digital diagnostic instruments. The goal of telehealth technology is to create a lifelike healthcare experience, with high-definition video, high-definition audio, virtual conferencing, and devices that deliver data to providers in real time.

Telehealth helps remove geographic and socioeconomic barriers to access of services, information, specialists and educational resources for both healthcare professionals and patients. Today, healthcare providers are using telehealth for consultation, diagnosis and treatment, prescribing, monitoring, continuing health education, and more. Telehealth:

- Gives more people better access to a wider variety of care
- Promotes effective and timely primary care physician consultation with specialists

- Enables greater use of scarce clinical resources
- Promotes healthcare professional education
- Enables on-demand language translation services
- Links providers so that they can provide better disaster management

Telehealth is here to stay as a recognized part of the care delivery continuum. The technology, including high-definition videoconferencing and digital diagnostic tools, has reached maturity and become an accepted mode of operation. Programs are also in place or in development to optimize existing telecommunications networks to accommodate the needs of the healthcare industry. Moreover, new telehealth technologies are constantly emerging that will further improve healthcare delivery – examples are mobile devices used as portable video endpoints and cloud-based, telehealth scheduling applications, both of which can help to grow the use of telehealth.

## Healthcare Systems Recognize The Power of Telehealth

Healthcare organizations – from integrated delivery systems to academic medical centers to small clinics – are incorporating telehealth technologies into practice to improve patient care and manage costs. Here are a few examples of how the technology is being used today:

- A payer serving 75 million people launched a national telehealth program, establishing local telehealth clinics with high-definition videoconferencing and digital diagnostic tools in rural communities and inner cities to reach underserved communities.
- On a smaller scale, a private medical group uses videoconferencing to provide cost-effective walk-in health services at clinics in retail stores.
- A large California university uses telehealth technology to do retinal scan evaluations for thousands of low-income diabetic patients in a rural area of California.
- Tumor boards (groups of cancer specialists who collaborate to review and discuss the best treatment plans for cancer patients) are tapping more experts to review cases via videoconferencing.
- Emergency room staff at community hospitals are consulting in real time with stroke experts in established telestroke programs.
- Some hospitals are using telehealth systems to remotely, continually monitor ICU patients' vital signs by both local and off-site staff to reduce ICU staffing requirements, while providing high-quality intensive care.

Additionally, some practices opt to have psychiatrists on staff via videoconferencing. Other providers use telehealth to temporarily fill specialist positions while recruiting on-site staff. Doctors can conduct remote in-home monitoring, counseling and education of patients with chronic conditions such as diabetes.

## Federal Funding and Legislation in Support of Telehealth

The federal government is encouraging the healthcare industry to adopt healthcare technologies, including those that support telehealth services, to become more connected and efficient. Financial savings are one of the many reasons for the push. A 2010 report by the Federal Communications Commission (FCC) estimated that remote patient monitoring for heart disease, diabetes, pulmonary disease and skin disease could save \$197 billion nationwide over 25 years.<sup>5</sup> The

FCC also estimates that a combination of electronic health records and remote monitoring technology could save more than \$700 billion over 15-25 years.<sup>6</sup>

### Federal and State Funding for Telehealth

To provide impetus for innovation and adoption of available technologies, the 2009 American Recovery and Reinvestment Act (ARRA) allocated \$417 million to the FCC Rural Health Care Pilot Program (RHCPP). The RHCPP covers up to 85% of the cost of construction of broadband infrastructure for state/regional healthcare networks and for connecting these networks to national broadband networks or to the public Internet. RHCPP also helps promote telehealth access for rural areas by funding rural-urban network connections.

This funding illustrates the federal government's support of telehealth technology to address disparities in quality and accessibility of care, improve continuing medical education programs, and reduce healthcare costs. In addition, various grant programs are available through the Health Resources and Services Administration (HRSA) to support development of statewide telehealth networks.

### The National Broadband Network: Under Development

The FCC's national broadband plan, released in 2010, earmarked \$15.5 billion over 20 years from the Universal Service Fund for development of a national network. The plan is to establish this national broadband network in stages, and through coalitions of public, government and private organizations.

For example, the National Telecommunications and Information Administration's Broadband Technology Opportunities Program (BTOP) allocated \$62.2 million of ARRA funding to expand the reach of "backbone infrastructure" like Internet2, a non-profit consortium established in 1996 for the purpose of developing new networking technologies. Internet2 will support connectivity for 200,000 community anchor institutions – colleges, universities, K-12 schools, libraries, health clinics, hospitals, public safety, local governments and public media organizations.

Another key backbone network is LambdaRail, 12,000 miles of fiber optic cable used by universities and U.S. and private laboratories (NASA, U.S. Department of Energy). According to healthcare providers such as the Mayo Clinic, expansion of LambdaRail, which primarily connects researchers and gives them supercomputing ability, will promote research and dissemination of best practices to healthcare providers.

Despite some progress in national broadband development, in 2011 the American Telemedicine Association criticized the FCC for delaying distribution of funds for national broadband network development and for its management of the Rural Health Care Program – which may represent frustrating delays for healthcare organizations that are implementing telehealth but struggling with connectivity issues in their regions.

### Telehealth Legislation to Break Down Barriers

The federal government has issued legislation intended to remove some outdated barriers to telehealth services, such as restricted Medicare reimbursement, privileging and cross-state licensure practices. For example, as of July 2011, the Centers for Medicare & Medicaid Services (CMS) has simplified the process of how healthcare providers credential doctors who remotely treat patients.<sup>7</sup> In addition, CMS expanded physician reimbursement to cover smoking cessation via telemedicine for the 2012 payment rate schedule, and advocacy groups continue to push for other services to be included in reimbursement.<sup>8</sup>

### Telehealth Success: A Powerful State Network in California

States, universities and major healthcare providers nationwide are in various stages of implementing statewide telehealth networks. California was one of the first states to recognize the value of telehealth in 1996, with the passage of a law requiring that healthcare providers be reimbursed for telehealth services.

Since then, the California Telehealth Network (CTN), which is administered by the University of California, has expanded statewide, with a focus on rural areas and the 5 million Californians who live in these areas. There are currently 170 sites active on the network.

CTN has identified four network factors that have been key to its success<sup>9</sup>:

- Healthcare information traveling on the data network is prioritized over other network traffic to enable faster speeds, ensuring high-quality, smooth, two-way video
- Vendors provide VPN-level security as well as encryption of data transferred over public networks to meet healthcare security requirements
- A "flat network" that enables equal access to information for all network partners (vs. information controlled by regional hubs)
- Scalable network that allows for expansion – geographically, number of sites, bandwidth, new services, etc.

### The Proven Benefits of Telehealth

The healthcare industry and federal government believe telehealth will help to address many of healthcare's challenges. A number of studies have demonstrated the benefits that telehealth can have on business, operations and care outcomes.

#### Research Shows Improved Outcomes with Telehealth

A demonstration project by the New England Healthcare Institute (NEHI), University of Massachusetts Memorial Medical Center (UMMMC) and two Massachusetts community hospitals tested the clinical and financial benefits of tele-ICU technologies and found that mortality rates dropped and length of hospital stay decreased with use of telehealth technologies.<sup>10</sup>

#### Providers Can Cut Costs with Telehealth

A study of a rural telehealth network consisting of three hospitals, a clinic with six sites, a dental clinic and patient homes that delivered 10 different medical, dental and behavioral health services found both improved outcomes and reduced costs for crisis and dental care, as well as management of diabetes and congestive heart failure. The study projected that at a national level, for congestive heart failure alone, telehealth services could reduce the cost of hospitalization from \$8 billion to \$4.2 billion a year.<sup>11</sup>

#### Patients Value Providers with Telehealth Services

Research shows that patients with access to telehealth services have a higher opinion of the quality of the healthcare in their community, possibly due to access to specialists and/or high-profile academic institutions they would otherwise not have.<sup>12</sup> In addition, a 2008 survey of the "most wired" hospitals in the U.S. illustrates that technologically

savvy hospitals have a much higher patient satisfaction rate on a variety of services (e.g., admissions, staff care, tests, etc.) than hospitals with less sophisticated information technology (IT) priorities.<sup>13</sup>

### Telehealth Readiness and Key Barriers to Adoption

Telehealth services will likely one day be ubiquitous in various forms. But how does an organization determine if it is a candidate for new or expanded telehealth services now? A provider might implement telehealth services if it is:

- Ready to expand an existing pilot telehealth program
- Part of an integrated delivery system
- Part of a system with multiple hospitals that operate centers of excellence for specialties that significantly benefit from telehealth
- Providing services to a rural community
- Providing services to nursing homes, or assisted living centers
- Providing services to a growing senior population

Although more states and healthcare providers are establishing telehealth networks and upgrading technology, use of telehealth services is still not widespread. Key barriers to adoption include issues with speed and connectivity, limited reimbursement through Medicare and private insurers, cross-state licensure, up-front costs, resistance of healthcare professionals and patients to change, and security and privacy concerns.

### Speed and Connectivity

From a practical standpoint, the technology may exist, but it's the network that makes or breaks telehealth services, especially for "life-sized" high-definition videoconferencing used for consultation and diagnosis.

Recognizing this, federal, state and private funding is speeding up development of the backbone architecture – to create a more comprehensive national broadband system and statewide high-capacity networks. Additionally, existing telecommunications infrastructure can be leveraged with programs that prioritize telehealth traffic on the network to ensure a high quality experience.

### Reimbursement and ACO

The rules are changing around Medicare reimbursement, which will break down some of the current barriers and restrictions. Historically, under the 1997 Balanced Budget Act (BBA), only telehealth services provided to rural Health Professional Shortage Areas (defined by the federal government as having insufficient primary care) were eligible for Medicare reimbursement. This narrow definition prevented use of telemedicine in other relevant situations, such as underserved populations in urban areas or populations without access to specialists. In addition, the types of telehealth services covered typically were those that did not require the patient to be present, such as teleradiology or telepathology.

Medicare telehealth services were expanded somewhat in 2001 and in 2011. CMS issued a proposal to further expand the definition of what telehealth services may be eligible for reimbursement beginning in 2012. Services that may be added to the list of covered services include smoking cessation, critical care, rest home evaluation and management, genetic counseling, online evaluation and management, data collection, and audiology.<sup>14</sup>

As hospitals prepare to meet Medicare requirements for Accountable Care Organizations, any new technology solution implemented for the organization must enable the "meaningful use" of technology while supporting integrated, connected care across the entire system.<sup>15</sup>

### Cross-state Licensure

Differing state licensure practices have typically prevented cross-state consultations and limited healthcare professionals from working in other states where their expertise may be needed. To address this, CMS issued new telehealth rules in 2011, allowing providers like hospitals to provide medical credentials to telehealth providers via "privileging by proxy" – which means that a facility accredited by the Joint Commission can accept the privileging decisions of another accredited facility for "distant site" providers who engage in telehealth services.<sup>16</sup>

### Cost

Implementing the technology to support telehealth services and managing operations and training can seem cost-prohibitive. It is important for providers to select telehealth solutions tailored to needs and budget – from teleclinics and videoconferencing to in-home monitoring technology. Initially, federal and state funding/grants can help subsidize costs, but telehealth programs must be appropriately sized and designed to support continued financial sustainability.

### Revenue and Return on Investment

At the same time, healthcare systems are investing in building out dedicated specialties to become more competitive and better serve their communities. As they hire medical specialists and invest in advanced medical technology, health systems are looking for ways to increase their return on those investments by expanding services to new patient populations – including patients who might live in outlying areas and are unable to travel to the centers of care for specialty treatment.

### Resistance to Change

While many healthcare organizations are eager to adopt technology, there is tremendous lag in bringing together the many pieces that can enable true connectivity and continuity of care. For example, a 2008 American Hospital Association survey found that only 2% to 12% of hospitals use network-enabled monitoring devices (fixed and mobile), for just 4% to 8% of patient populations for each of six conditions examined.<sup>17</sup>

Patient acceptance of telehealth is also a key factor, and challenge, in the success of telehealth. Much of this has to do with building patient trust around privacy issues and ensuring a positive patient experience.

### Security and Privacy Concerns

Healthcare organizations are required by federal legislation to ensure the security of their data from all "reasonably anticipated threats." Specifically, the Health Insurance Portability and Accountability Act (HIPAA) Security Rule requires that healthcare organizations put in place administrative, physical and technical safeguards to ensure the confidentiality, integrity, and availability of electronic protected health information (PHI).

Healthcare organizations need to implement telehealth in a way that establishes rigorous security measures to reduce risks of telehealth data breaches – including data transmission that may be intercepted by third parties, the risk of IT support staff or other personnel becoming party to a videoconferencing session, and other privacy breaches. The temporary storage of data on telehealth devices such as digital diagnostic tools also needs to be protected adequately from potential security breaches.

### Building the Network to Support Telehealth Success

The challenges with telehealth are recognized at a national level – but they can be a tough reality for individual healthcare organizations attempting to build a telehealth initiative either alone or as part of a health information exchange (HIE) or other network.

Selecting the right technology for a telehealth initiative is a crucial part of its success, to support quality, reliability, security and adoption. The performance and quality of the hardware that makes up the interface of the telehealth system are essential to building a positive experience for patients and providers alike. However, what many healthcare organizations do not consider is that the network that powers that system can make or break the telehealth system's success.

Implementing telehealth services can be a significant investment. Successful return on that investment depends on more than simply installing high-definition videoconferencing equipment and connecting to a regional telehealth network – success also hinges on having an optimized network within an organization.

Therefore, it is essential that providers work with a telehealth partner that looks at the big picture: understanding the organization's goals, processes and technological challenges in order to design a telehealth system that meets the organization's needs.

Following are a number of areas that healthcare organizations should consider when planning the design and implementation of a telehealth system.

### Security and Privacy Considerations

A telehealth network is required by HIPAA and other state and federal regulations to meet security and privacy standards. An effective telehealth system will ensure encryption of data both in transit and at rest. With a managed telehealth system, all data is isolated so it does not "intermingle" with other data, making it inherently secure; for additional privacy and security, a telehealth system should fully delete data from the system once a session is complete.

### Technology Management

The cost and complexities of network optimization and data backup and redundancy can be cumbersome for many IT departments that choose to manage this in-house. Some healthcare systems are now turning to fully managed telehealth solutions, through which a telehealth provider can install, engineer, optimize, maintain and manage all aspects of the telehealth network. With managed solutions, a telecommunications provider typically installs a dedicated connection to fully support the bandwidth requirements of telehealth communications. This end-to-end approach to building a network supports quality telehealth services and also provides scalable, operational and administrative services. Organizations benefit by having a service-level commitment in place for high-quality, reliable telehealth.

### Networking

Many telehealth providers emphasize their high-definition equipment – but what counts is how that equipment comes together into a comprehensive solution that serves providers at every endpoint. When selecting a telehealth partner, organizations should look for one that takes a consultative approach to designing a networked system across the enterprise, with an eye for how the system can scale to accommodate new departments, users and devices over time. Furthermore, large telehealth systems must be able to handle scheduling of clinicians, patients, and telehealth systems.

### Training and Adoption

Fostering widespread usage and adoption of telehealth solutions is the next hurdle for healthcare organizations. Whether an organization is attempting to indoctrinate physicians who are technology-shy, or appeal to recent medical school grads who insist on using iPads, creating usable telehealth across your healthcare system is a challenge. A large part of your telehealth strategy must include thinking through a plan to evangelize telehealth, train users, and create flexibility in the usage of the solution.

### Conclusion

It is widely recognized that the time is right for telehealth, with rising healthcare costs and unprecedented pressures on healthcare systems to connect care across the continuum. Telehealth can enable organizations to provide far-reaching care to patients while operating more efficiently and cost-effectively, plus generate potential new sources of revenue.

As healthcare organizations begin to consider adopting telehealth or expanding an existing program, it is important to think strategically. Implementing telehealth is about more than just the best and most modern equipment. Designing a system that can work for your organization over the long term requires an experienced telehealth partner – one that understands the business challenges you face and can implement a cost-efficient, highly reliable and scalable telehealth solution that connects your organization across many different kinds of boundaries.

### AT&T Telehealth

AT&T supports healthcare organizations' telehealth initiatives with a market leading solution that combines network-based videoconferencing capabilities with digital diagnostics instruments scheduling services, and system integration. AT&T combines its extensive experience in designing robust telehealth networks with its expertise in networking to optimize organizations' networks for a seamless telehealth experience that fosters adoption, supports better patient outcomes, increases organization efficiency and protects patient privacy.

AT&T takes a consultative approach to designing telehealth solutions, working with organizations to first determine and understand business objectives and challenges. Then, AT&T can work with health systems' IT departments to implement an enterprise-wide system, or can provide a turn-key, fully-managed telehealth solution that removes the burden of maintaining equipment and networked endpoints, providing additional efficiency.

### The AT&T Difference

AT&T brings a truly cost-efficient, flexible and integrated networked solution tailored to healthcare organizations' specific needs:

- Truly vendor agnostic: Allows for seamless integration with existing systems
- Flexible and scalable: Small to large deployments and multi-functional deployments (point to point or multipoint); self-managed or vendor-managed
- Cost-effective: Flexible/customizable pricing and services reduce upfront capital costs
- Turnkey: Optional, end-to-end network solutions and connectivity
- Secure and reliable: AT&T's expertise and experience and a system supported by a reliable and highly secure digital voice and data network that reaches more than 300 million people around the world

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**Contact us to learn more about AT&T's telehealth solutions and why AT&T is the right choice to support the success of your telehealth initiative at [www.att.com/healthcare/telehealth](http://www.att.com/healthcare/telehealth).**