

The Crossroads of Telehealth, Electronic Health Records & Health Information Exchange

Planning for Rural Communities

By

Christina Beach Thielst, FACHE
NRTRC Executive Director

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For more information visit www.nrtrc.org or contact thielsc@nrtrc.org

Recent federal actions and several emerging trends are indicative of future change for healthcare and, more specifically, telehealth. The convergence of the American Recovery and Reinvestment Act (ARRA) of 2009, Federal Communications Commission (FCC) Broadband Plan and recently passed health reform legislation – the Patient Protection and Affordable Care Act and the Reconciliation Act of 2010 -- has the potential to radically disrupt the U.S. healthcare system.

Other potential disruptors include widespread attention to the cost-benefit analysis of care processes and treatment (outcomes-based medicine), reimbursement models favoring preventive care and bundled payments, as well as provider shortages, significant payor technology investments and the emergence of the next generation of mobile devices. Also at play are an aging population, the growing popularity of medical tourism and shifting consumer expectations of healthcare.

Telehealth, the delivery of health-related services and information via telecommunications technologies, offers solutions that can facilitate the outcomes needed to respond to these changes. Currently, telehealth is most often utilized for education and administrative or operational purposes and less often to enable clinical encounters (telemedicine).

The reasons for slow adoption rates and underutilization of telemedicine are varied. Among the most significant is that the benefits of its use most often accrue to others, rather than to the provider or network of providers who assume the upfront and ongoing costs. Also frequently cited are high equipment costs, outdated regulations and reimbursement limitations. However, when it comes to the financial impact of provider-to-provider telehealth technologies, research shows that, overall, the benefits of these systems far outweigh the costs to implementⁱ.

Emerging Telehealth Opportunities

There are opportunities on the horizon that will likely improve telemedicine utilization rates. For example, ARRA allocates \$19 billion for adoption of health information technology (IT) systems and promotion of electronic health information exchange (HIE). The Health Information Technology for Economic Clinical Health (HITECH) Act also creates funding opportunities to support the advancement of health IT.

Existing telehealth networks will also benefit from ARRA and HITECH. Participating in related incentive programs, capitalizing on funding opportunities and achieving meaningful use of health IT requires hospitals and

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physicians to have broadband Internet access. However, commercial T1 lines are prohibitively expensive in rural areas. In fact, it is estimated that 93 million residents and 3,600 small physician offices in these regions don't have broadband accessⁱⁱ.

Because they can deliver more affordable equivalent access, this presents a very real opportunity for telehealth networks to expand their value to members and the community by connecting rural and remote providers to the Internet across existing infrastructures. It also presents new partnership opportunities that will enable telehealth networks to expand those infrastructures and increase connection speeds.

Further, while telehealth and health IT initiatives have historically operated on relatively separate tracks with limited crossover, their goals and activities are complimentary and truly synergistic. This is especially true of the broader systems-based approach to delivery of care.

For example, telehealth networks provide the infrastructure that enables Internet access and drives HIE in areas where commercial broadband is lacking or cost-prohibitive. Correspondingly, health IT offers enabling components for remote care and provides complimentary tools and systems, such as electronic health records (EHRs) and digital data/information sharing.

We are approaching the intersection of telehealth, EHRs and HIE. At this crossroad, we can expect to see this interdependence become more pronounced as more common ground is realized, shared visions are established and opportunities for mutual support and collaboration are identified. This will lead to converged paths, more efficient use of resources and the integration of health information and telehealth technologies.

Drivers of Change

The Office of the National Coordinator (ONC), FCC and federal reform legislation will be key drivers of radical change that ultimately leads to an alignment of telehealth and health IT. The healthcare system and stakeholder (providers, payors, employers, suppliers, consumers, etc.) response to those changes will likely result in an expansion of the role of telemedicine, remote monitoring and other telehealth applications. For example, many stakeholders will be seeking technology tools that increase efficiencies, expand access to care and reduce costs – which are some of the primary benefits of telemedicine.

In the case of ONC, which is charged with overseeing health IT funding, the agency has been focused on facilitating EHR adoption and clarifying the

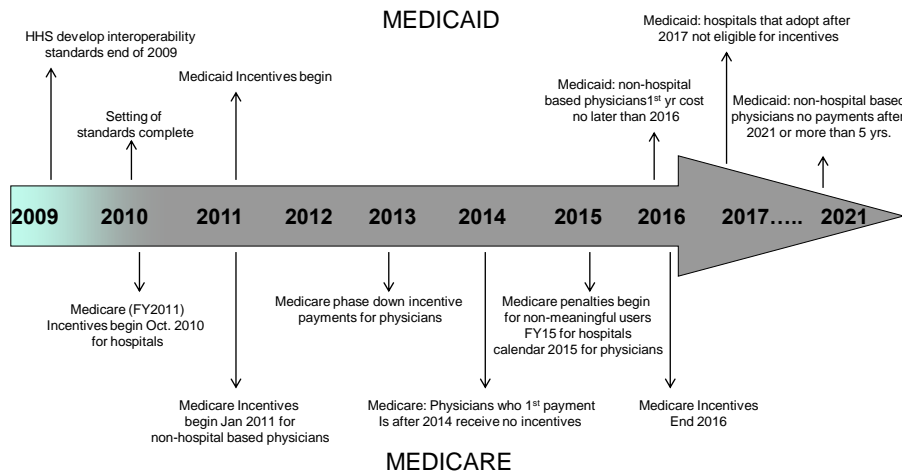


definition of meaningful use. However, as evidenced by ONC’s recent testimony at the Senate Special Committee on Agingⁱⁱⁱ, the agency’s attention will soon shift to the important role the telehealth infrastructure can play as an enabler of interoperability and HIE, especially in rural and remote communities.

At its core, meaningful use^{iv} is about improving health, transforming healthcare and:

- Improving quality, safety and efficiency
- Reducing health disparities
- Engaging patients and families in their healthcare
- Improving care coordination
- Improving population and public health
- Ensuring adequate privacy and security protections for personal health information

Medicare and Medicaid Timeline



Sources: HIMSS <http://www.himss.org/ASP/index.asp> and AHIMA <http://www.ahima.org/>

In order to reach Stage 1 and beyond, demonstrate meaningful use and ultimately avoid penalties which will be levied beginning in October 2015, hospitals, physicians and other eligible providers will need both an EHR and broadband Internet access to:

- report ambulatory quality measures to Centers for Medicare and Medicaid Services (CMS) or the States;
- check insurance eligibility electronically from public and private payors;
- submit claims electronically to public and private payors;
- provide patients with an electronic copy of their health information upon request;
- be capable of electronically exchanging key clinical information with other providers and patient-authorized entities;
- submit electronic data to immunization registries;

- electronically provide syndromic surveillance data and reportable lab results to public health agencies;
- electronically generate and transmit permissible prescriptions;
- send reminders to patients about preventive/follow-up care in the patients' preferred format; and
- provide patients with timely electronic access to their health information within 96 hours of information being available to eligible providers.

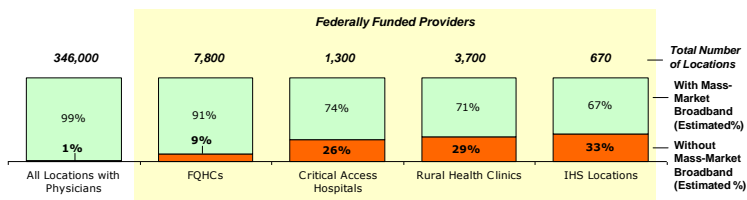
Leveraging and expanding existing telehealth network infrastructures will deliver to providers, particularly those in remote and rural areas, the affordable broadband connections they need to achieve meaningful use and avoid financial penalties.

For its part, the FCC, through its National Broadband Plan, established healthcare as a national priority and laid out its plan for driving broader adoption of and innovation in e-care technologies. The plan addresses outdated regulations and establishes funding to help providers purchase services and build out broadband networks in areas where connections are lacking or are insufficient to support video consultations and EHRs.

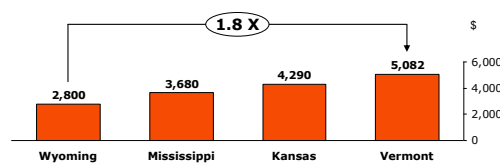
Broadband is missing or too expensive

Estimated Locations Without Mass-Market Broadband Connections

Percent of locations for each delivery setting



DS3 (45 Mbps) Urban Price Benchmarks Across the U.S.
Monthly service cost (\$)



Source: AMA, HRSA, IHS, Telegeography, USAC



The FCC has adopted a new, broader view that looks beyond the single network connectivity perspective and addresses government decisions that influence the system in which private individuals operate. The commission is looking at the whole ecosystem of networks, applications, devices and individual actions that drive value – not just the networks themselves.

In doing so, the FCC has recognized that broadband-

enabled IT solutions can only be successful if critical issues are addressed -- inadequate reimbursement, outdated regulations, insufficient data capture and utilization, deficient connectivity, etc. -- and existing barriers removed.

The FCC has also recognized the important role of mobile devices, remote monitoring and interoperability. It estimates that remote monitoring of vital signs and EHRs alone can generate savings of \$700 billion over the next 15-25 years. This includes \$200 billion from remote monitoring of congestive heart failure, diabetes, chronic obstructive pulmonary disease and chronic wound or skin ulcers^v and \$500 billion from implementation of EHRs.

Further, the FCC has stated its intention to remove barriers and transform the US healthcare system by:

- Ensuring all providers have affordable access to sufficient broadband connections
- Creating incentives for adoption of EHRs and remote monitoring technologies, including the expansion of reimbursements where outcomes are proven
- Transforming the Rural Healthcare Program by subsidizing both ongoing costs and network deployment, as well as by expanding the definition of eligible providers.
- Creating next-generation interoperability across clinical, research and administrative data
- Ensuring patients have access to and control over their health data
- Modernizing credentialing, privileging and regulatory requirements to increase access to care and enable broader health IT adoption

Funding will be closely tied to meaningful use and other outcome measures to ensure that the FCC's support goes to providers who are following the guidance of the Office of the National Coordinator for Health Information Technology. It will require participating organizations and providers to meet outcomes-based performance measures and will track and publish progress.

Finally, health reform legislation extends insurance coverage to an estimated 32 million people at a cost of \$940 billion over the next 10 years. Supporters expect it will lead to measureable improvements in the delivery of and access to care, as well as to patient outcomes and overall population health. But it will also drive the need for more efficient care processes to accommodate increased demands, particularly given current limitations in healthcare workforce resources and the push for lower costs.

Telemedicine, remote monitoring and other telehealth technologies may become attractive solutions for many providers, payers, researchers and consumers as we begin responding to these drivers of change and addressing such mandates as:

- improving care coordination;
- promoting solutions to address healthcare workforce needs;
- researching comparative effectiveness of medical treatments;
- increasing the burden of payors for managing the chronically ill;
- levying penalties against hospitals for re-admissions; and
- increasing payments to physicians who can provide high-quality care compared with costs

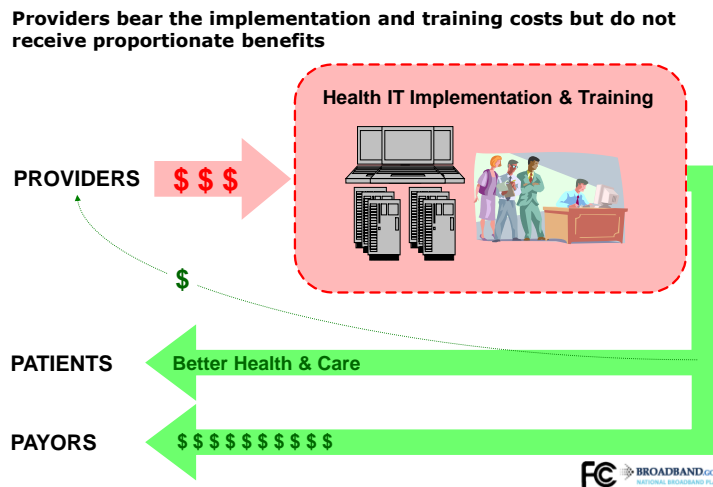
Numerous studies demonstrate that telehealth can improve efficiency and lower costs. A remote monitoring study of elders in a senior living facility revealed a 36 percent reduction in billable medical procedures, a 78 percent reduction in hospital days and a 68 percent reduction in the cost of care. Additionally, researchers found that the efficiency of caregivers increased by more than 50 percent^{vi}. Further, a Veterans Hospital System Care Coordination/Home Health program realized a 20 percent reduction in hospital admissions and a 25 percent reduction in bed days with telehealth technologies^{vii}. Finally, of the 2.2 million patients

Misaligned economic incentives

transported between emergency departments each year, real-time video consults could avoid 646,000 of these transports, resulting in total savings of \$408 million^{viii}.

It is important not to overlook the role healthcare consumers play in driving radical change that is expected to accelerate telehealth adoption. Approximately 61 percent of US adults look online for health information^{ix}, 78

percent of Baby Boomers use the web to gather health information and nearly 80 percent of healthcare consumers are interested in accessing their medical records online^x.



Clearly, consumers are turning to the Internet with rapidly increasing frequency to seek out information on symptoms, diseases and conditions, and then discussing their findings with their physician and/or other healthcare providers. As such, they are demanding broadband Internet access to help them do so more efficiently. This will lead to better health choices and enable them to better manage their healthcare dollars and find the best care at the lowest price -- even if it means traveling to other communities, states or countries.

Consumers are also demanding more affordable healthcare, as well as access to their personal health information on their home computers and/or mobile devices. A growing number also welcomes the opportunity for remote monitoring of their medical conditions and is seeking ways to participate in online self-diagnostic questionnaires. In fact, one study found that when rural home care patients had video visits exchanged for some of their in person visits, 98 percent reported satisfaction with the video supplemented care and all found the equipment easy to use.^{xi}

As a result of these shifts, we can expect to see more of a patient-physician partnership as healthcare consumers take a more active role in their healthcare decisions. They may ultimately translate into an increased demand for telehealth applications, including telemedicine, remote education and peer-support, and access to home monitoring technologies.

The Role of Telehealth

Telehealth has demonstrated its effectiveness in educating clinical staff and patients and facilitating administrative and operational functions, as well as for clinical care purposes. These activities are typically undertaken using one of three primary modes: 1) store-and-forward; 2) real-time monitoring; and 3) remote monitoring.

Each mode offers the potential for significant, measurable benefits. For example, one network has documented improvements in access to and quality of care, as well as enhanced efficiency in the delivery of healthcare, decreased costs and reduced health disparities from using store-and-forward technology alone^{xii}.

At the higher end of the spectrum, the longitudinal EHR and telemedicine network facilitated by the Louisiana Rural Health Information Exchange (LARHIX) and featuring remote consultations has shortened rural patients' wait times for access to specialists. It also drove a 93 percent decrease in duplicative testing at participating hospitals^{xiii}.

The primary benefits of telehealth are its ability to enable more cost-effective use of patient and provider resources and to increase access to both routine and specialist care. Some of the most common/popular uses^{xiv} of telehealth include:

- A specialist participating in a remote consult with a family physician to assist with a diagnosis
- A family physician facilitating a consultation with a specialist by transmitting radiology images and/or video along with patient data to a specialist for viewing
- Patients and health professionals sharing audio, video and remotely captured medical data to design or monitor treatment plans, verify prescription refills or provide advice
- Using devices to remotely collect and send data to a monitoring station for interpretation, such as telemetry devices that capture a specific vital sign (blood pressure, glucose, ECG or weight), and to supplement the use of visiting nurses
- Medical education and mentoring, such as the provision of continuing medical education credits, special medical education seminars for targeted groups, and/or interactive expert advice during a medical procedure
- Utilization of the Internet by consumers to obtain specialized health information or to access online discussion groups and peer-to-peer support.

Of the three primary modes of telehealth, the most underutilized application is telemedicine, which allows providers to remotely perform monitoring, diagnosis, triage, consultation and procedural care processes. It is highly effective, and technical advances are creating new opportunities for providers to expand remote services, such as the provision of ongoing chronic care management.

The four most common delivery models^{xv} for telemedicine are:

1. Networked programs linking tertiary care hospitals/clinics with outlying clinics and community health centers in rural or suburban areas through either hub-and-spoke or integrated networked systems.
2. Point-to-point connections using private networks that allow hospitals/clinics to deliver services directly or outsource specialty services to independent medical service providers. Or point-to-point connection between the health provider and

- patient home (including residential care, nursing homes and/or assisted living facilities) over single line phone-video systems for interactive clinical consultations.
3. Direct patient-to-monitoring-center links, which allow patients to maintain more independent lifestyles and are most often used for pacemaker, cardiac, pulmonary or fetal monitoring and related services
 4. Web-based e-health patient services, which provide direct consumer outreach and services over the Internet.

Key to the success of these models is the ability for providers to access the patient's medical record at the time of the remote encounter – just as it is with in-person care. This is made possible by the establishment of telehealth networks, which offer a link between provider EHRs and the secure movement of health-related information between doctors, hospitals and other providers when needed for care and treatment.

When telehealth networks provide the broadband to healthcare facilities, they not only offer Internet access, but more importantly create a secure network connecting providers so they can exchange information without going through the public Internet. By taking this role, telehealth networks become responsible for network management and information security.

There are currently approximately 200 telehealth networks linking more than 2,500 institutions in the US^{xvi}, all at varying degrees of maturity. That is an impressive number considering that the telehealth pioneers of the 1990s had to build their networks from scratch. To support these pioneers and the advancement of telemedicine, the Office for the Advancement of Telehealth in the Office of Health Information Technology, Health Resources and Services Administration^{xvii} began providing funding to support Telehealth Resource Centers (TRCs) through the Telehealth Resource Center Grant Program.

How many times are records not in the specialist's hands at the time of a remote consultation?

Today, five TRCs^{xviii} are available to leverage existing knowledge, share information and resources, and assist with the development of new telehealth programs. These invaluable resources also support emerging telehealth networks with readiness, technology and equipment assessments, business model development and program guidance. Other services typically include resources and assistance with clinical protocols, training, reimbursement, legal/regulatory and strategic planning.

One TRC, the Northwest Regional Telehealth Resource Center (NRTRC), leverages the collective expertise of 33 telehealth networks in Alaska, Hawaii, Idaho, Montana, Oregon, Utah, Washington, Wyoming and US-Affiliated Pacific Islands. It collaborates with other TRCs and supporting organizations to identify and design sustainable enterprise-wide solutions that contribute to improved health and a more efficient healthcare system.

The NRTRC supports physicians, hospitals, clinics and other providers as they strengthen the role and contributions of telehealth, including its ability to address interoperability with EHRs and HIEs. It is poised to also assist Regional Extension Centers (RECs), which are now being funded to support providers in the adoption of EHRs. The NRTRC facilitates collaboration and connections in an effort to eliminate gaps in service and will:

- Explore best practices of member networks that relate to patient care and improved outcomes as they work to simultaneously adopt EHRs and telehealth.
- Provide technical support services to new and existing members as they begin to:
 - Engage in EHRs (if they haven't done so already)
 - Engage in telehealth and incorporate it into their EHR, and/or
 - Participate in HIE opportunities to attain meaningful use and access incentives
- Educate stakeholders on the role of health IT and telehealth
- Address barriers, including network security, ISP contractual issues and interoperability of telehealth and health IT
- Assist participating providers as they plan for and manage the adoption of remote monitoring technologies, including the re-design of clinical workflows; revision of protocols for processing data and information; changing job roles and responsibilities; and integrating interoperable medical devices
- Create a template for rolling together EHR, HIE and telehealth so that the physician can see diagnostic images and the EHR during the telemedicine encounter.

Case Study: REACH Montana Telehealth Network

REACH (Realizing Education And Community Health) Montana Telehealth Network has evolved from facilitating tele-radiology at three remote sites into a consortium of healthcare providers at 18 sites linked by high-bandwidth telecommunications in the north central region of Montana. From its hub site at Benefis Health System in Great Falls, this telehealth network serves rural and frontier counties that are geographically large, remote and sparsely populated, providing both distance learning and medical services.

Since REACH's beginning in 1995, the federal government has helped fund the build-out of its T1 infrastructure and the current move toward fiber to create the "railroad tracks" that will carry medical data and information within the region and beyond. Because of its overlaid relationship with the Northcentral Montana Healthcare Alliance, REACH has been part of the EHR and HIE conversation since the Alliance began developing its health IT projects. It is using its hub-and-spoke network and leveraging its collaborative provider relationships to offer its existing infrastructure as a solution to integrate health IT and prepare the region for HIE to bring the patient record to providers at the time of the telemedicine encounter.

REACH views HIE as a primary function of the network. Its leaders have long believed in the need to be collaborative, if not integrated, with the health IT conversation. As the conversation has moved toward implementing EHRs and establishing a health information exchange, REACH has relied on its synergistic relationships to position the infrastructure (the railroad tracks) to

carry health information and its organizational structure to facilitate the business and governance processes. The first HIE project involves implementing an EHR at one of the small rural hospitals and connecting it to Benefis Health System.

REACH manages the relationships, network of T1 lines and deployment of hardware and software between participating sites and relies upon the Benefis IT Department to support the network technically (servers, bridges, technology, etc). As health IT matures, it envisions an expansion of the network to other rural hospitals and providers, as well as to support medical homes with remote monitoring.

In addition to demonstrating the potential of a telehealth network, REACH is an example of the role TRCs play in expanding these vital entities. REACH has benefited from the resources offered by the NRTRC, including utilizing the evaluation tool for new site selection and the reimbursement pocket guide. It has also relied upon the NRTRC to help establish connections beyond its immediate service area to foster a growing network of support.

As REACH proceeds down the path of HIE, it will rely on the NRTRC to scan the horizon, distill information, share innovative resources and make the new connections that will help the network prosper in the new healthcare delivery system.

Conclusion

We can expect telemedicine and remote monitoring to play a significant role in the healthcare delivery system of the future. Existing telehealth networks will prove to be an important resource for providers who want to enhance service offerings, improve efficiency with remote care applications and/or participate in HIE. Their involvement in HIE initiatives will lead to the next generation of interoperability and a blended vision for both health IT and telehealth. It will also lead to a transformation of the telehealth infrastructure into the highway for electronic health records and information exchange for many rural and remote areas.

TRCs like the NRTRC will leverage the depth of their resources and work in conjunction with RECs, HIEs and other supporting organizations to enhance the value telehealth programs deliver to their individual initiatives. We recommend that telehealth networks prepare now and get involved in the conversation to ensure that the initiatives covering their community or region are aware of the network's existence and capabilities.

Telehealth leaders have unique insight and are ideally positioned to influence the development of HIEs, minimize the risk of duplicative efforts and resources and increase the likelihood of success as we improve the delivery of healthcare and access to the patient's health record.

As we move away from a fee-for-service model and put more value (and reimbursement) into health promotion and prevention we can expect to see new business cases supporting telehealth applications. We also expect to see more and more small hospitals and providers

applying the telehealth technologies to help them care for their patients and compete for those willing to travel for the best care at the best price.

The Telehealth Resource Centers are supported through the Telehealth Resource Center Grant Program administered by the Office for the Advancement of Telehealth in the Office of Health Information Technology, Health Resources and Services Administration. This white paper has been made possible by grant number G22TH07767 from the Office for the Advancement of Telehealth: Health Resources Service Administration / DHHS 23.604

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