Telehealth in Connecticut

A report prepared for the Connecticut Office of Rural Health funded through the Department of Health and Human Services through the Health Resources and Services Administration's Federal Office of Rural Health Policy grant program, CFDA# 93.913.

Connecticut
State Office
of Rural Health

Health care branching
out to rural communities

December 2013

Table of Contents

Acknowledgements

The Connecticut Office of Rural Health extends appreciation to the CT-ORH Advisory Board and diverse group of health leaders for their continued pursuit of and support for the advancement of telehealth solutions as well as to the staff members of the Northeast Telehealth Resource Center for input in crafting recommendations. Funding for this initiative to support the involvement of Cross Sector Consulting, LLP and to complete the project comes from the CT State Office of Rural Health grant program through the Department of Health and Human Services through the Health Resources & Services Administration's Federal Office of Rural Health Policy grant program, CFDA#93.913.

About the Connecticut Office of Rural Health

Offices of Rural Health exist in all 50 states across the United States. The Connecticut Office of Rural Health (CT-ORH) promotes the health of persons living in rural Connecticut. The CT-ORH serves as a clearinghouse to assist in the coordination of resources and activities that promote rural health on a regional or statewide basis, and provides technical assistance to rural health providers and organizations. These strategies enhance recruitment and retention efforts for rural healthcare providers and promote state, local, regional, and federal partnerships intended to increase access to quality healthcare for residents of rural Connecticut. The CT-ORH is located on the campus of Northwestern Connecticut Community College in Winsted, CT. Visit http://www.ruralhealthct.org for additional information.

Executive Summary

PURPOSE. Telehealth refers to the remote provision of healthcare services and health education, mediated by technology. Telehealth encompasses a wide range of services such as: a) the remote provision of direct patient clinical care services or consultations between healthcare providers; b) web-based options for patient self-education and/or access to healthcare resources; c) home-based or remote monitoring services; and d) a rapidly expanding landscape of mobile health technologies and applications. The Connecticut Office of Rural Health (CT-ORH) and its Advisory Board identified telehealth as a transformative strategy to increase access to care, increase the quality of care, and lower healthcare costs in Connecticut's rural communities.

METHODS. CT-ORH commissioned a telehealth study to better understand the baseline conditions for telehealth in rural Connecticut. The project involved three forms of data collection: a survey of healthcare providers who serve rural communities in Connecticut; a high level environmental scan to document the leading telehealth innovators in Connecticut; and targeted interviews with healthcare leaders and healthcare policy makers to understand factors limiting the advancement of telehealth in Connecticut.

FINDINGS. Four major findings emerged from the study:

- Connecticut operates in a policy environment that limits widespread implementation of telehealth, particularly for poor and underserved communities. For example, Connecticut does not require insurers to pay for appropriate services delivered via telemedicine. Connecticut operates under the Medicaid State Plan which pays only for face-to-face encounters with limited exceptions.

- Healthcare providers who participated in the survey did not implement telehealth services per se other than care coordination via telephone conversations. Factors limiting adoption of telehealth innovations related to lack of reimbursement and other priority matters such as transitioning to electronic health records and/or assessing options to affiliate with a larger healthcare organization or exit the market.

- Many telehealth innovators exist in Connecticut across every level of the healthcare system – providing an excellent foundation upon which to expand telehealth models. For example, insurance companies headquartered in Connecticut operate model telehealth programs in other States and on a limited basis for their private pay customers. Select hospitals and community health centers throughout Connecticut implement nationally acclaimed telehealth models

in areas such as e-consultation for cardiology, chronic disease management, telestroke, hospital discharge planning and treatment plan adherence programs, as well as clinical training.

- Healthcare and policy leaders acknowledge Connecticut remains behind other states in terms of awareness of the potential value of telehealth; updating telehealth-related policies (e.g., reimbursement, licensing and credentialing); and promoting best practices. These same leaders recognize Connecticut must take action beyond policies that support pilot projects or targeted innovations.

RECOMMENDATIONS. The Connecticut Office of Rural Health and its Advisory Board identified four action areas to support the advancement of telehealth in Connecticut:

1. Support telehealth policy change efforts by leveraging resources available from the Northeast Telehealth Resource Center. Model telehealth policy frameworks exist that Connecticut policy makers can adapt and the Connecticut Office of Rural Health will support. Healthcare leaders and stakeholders hope to introduce several policy changes in the 2014 legislative session. Topics under discussion include health insurance coverage of medical advice, diagnosis, care or treatment provided through telemedicine; telemedicine to avert unnecessary use of hospital emergency departments; and Medicaid coverage of home telemonitoring services.

2. Support activities that educate decision-makers and stakeholders on the benefits of telehealth. Over the past 20 years, over 10,000 peer review papers have been published supporting the clinical effectiveness and cost savings of telehealth. Telehealth leaders in Connecticut can organize low-cost approaches that facilitate access to relevant information such as increasing usage of the Northeast Telehealth Resource Center's website page for Connecticut and sharing information through listservs, among others. Visit: http://netrc.org/connecticut/

3. Support telehealth leaders and champions in Connecticut through virtual networks, by encouraging affiliations with affinity groups such as the American Telemedicine Association or the International Society for Telemedicine and eHealth, and by increasing awareness of and participation in telehealth events occurring within the northeast region of the country.

4. Support the advancement of innovative telehealth models serving residents of rural Connecticut by convening partners, providing targeted technical assistance and/or seed funding for telehealth innovation.

Background

PURPOSE

The Connecticut Office of Rural Health (CT-ORH) and its Board of Advisors identified telehealth as a transformative strategy to increase access to care, increase the quality of care, and lower healthcare costs in Connecticut's rural communities. CT-ORH commissioned a telehealth study to better understand the baseline conditions for telehealth in Connecticut.

RURAL CONNECTICUT

Sixty-one (of 169) towns in Connecticut meet the definition of rural as adopted by the CT-ORH Advisory Board.[1] Rural towns exist in all eight Connecticut counties. Litchfield, Windham, and New London counties contain the most rural towns. Rural areas contain approximately 310,000 residents. [See Appendix for map of rural towns.]

Residents of rural towns in Connecticut face the same unmet needs and health disparities as their urban counterparts.[i] For example, the leading causes of death include: heart disease, stroke, cancer, diabetes, and chronic lower respiratory disease. The prevalence rates of modifiable risk factors such as obesity, high blood pressure, high cholesterol, alcohol consumption, and tobacco use in rural populations resemble statewide rates. In rural areas, poor access to health care, transportation, and unemployment compound these factors.[ii] Clinical and preventive health services tend to concentrate in the towns in which acute care hospitals operate. Access to health screening, oral health, mental health, and specialty services remains an ongoing challenge for rural residents.[iii]

TELEHEALTH

Definition. Telehealth refers to the remote provision of healthcare services and health education, mediated by technology. Telehealth encompasses a wide range of services such as: a) the remote provision of direct patient clinical care services or consultations between healthcare providers; b) web-based options for patient self-education and/or access to healthcare resources; c) home-based or remote monitoring services; and d) a rapidly expanding landscape of mobile health technologies and applications.

Technology. Telehealth uses two primary methods to transmit images, data and sound: 1) *real-time transmission* wherein the consulting health care professional participates in the examination of the patient while simultaneously collecting and transmitting diagnostic information; or 2) *store*

[1] The Connecticut Office of Rural Health (CT-ORH) definition of rural was adopted by the CT-ORH Advisory Board in June 2004. Using the most current (2010) U.S. Census data, all towns in Litchfield and Windham counties with a population of less than 15,000 and Connecticut towns with a population of less than 7,000 are designated rural for the purposes of the CT-ORH. CT-ORH identifies 61 rural towns. See www.ruralhealthct.org for a town by county list.

and forward transmission wherein the consulting health care professional reviews data asynchronous with its collection. Each approach requires medical devices that connect to these methods of transmission and allow effective clinical examination and evaluation of the patient for diagnosis. Telehealth responsibilities overlap across clinical care, technology support and administration, and require coordination across (approved) originating sites as well as distant site practitioners. Implementation of home monitoring may require increased patient education as well.

Applications. Telehealth applications reach across numerous settings including correctional facilities, school-based health clinics, health providers in rural settings, and multiple industry settings ranging from industrial drilling and mining sites to all facets of the shipping industry. Mobile health units now represent a critical component of disaster relief efforts and emerging health care delivery solutions for developing countries.

Market. Industry experts believe the small-to-moderate sized telemedicine patient monitoring market grew from $4.2 billion in 2007 to more than $10 billion in 2012, representing a 237 percent growth within a five-year period. Several trends continue to shape the growth of telehealth: a shift from fee-for-service to pay for performance; a priority to increase patient involvement in the care process (i.e., patient-centered care); an emphasis on treating high-cost chronic disease conditions and preventing hospital re-admissions – particularly among the aging population; transition to electronic health records; and technology innovations particularly as it relates to wireless communications.

The United States and Switzerland continue to lead the worldwide telemedicine market. Unlike the market for hospital systems, the highly competitive telemedicine market contains fragmented vendors and many privately held companies. This creates uncertainty around the compatibility of medical devices, applications – including privacy, security, and integrity of information export to electronic health records. High visibility companies include AMD, Philips, Second Opinion Telemedicine, Bosch and LifeWatch.

Research. Over 10,000 peer review papers have been published over the past 20 years supporting the clinical effectiveness and cost savings of telemedicine. Several industry associations anchor the field and publish journals that document advancements in telemedicine. These include the American Telemedicine Association, the International Society for Telemedicine and eHealth or the National Library of Medicine. *Telemedicine and e-Health* represents the leading international peer-reviewed journal covering the full spectrum of advances and clinical applications of telemedicine and management of electronic health records. The American Telemedicine Association contributes frequent publications that compare states as well as showcase evidence-based models.

Methodology

LEADERSHIP

The CT-ORH planned initially to establish a telehealth advisory group that would provide input about the methodology; facilitate access to data sources and/or telehealth leaders; interpret findings; and assist in forming recommendations for next steps. Additionally, the in-person meetings were intended to build the professional networks among health care leaders and professionals in telehealth. Advisory group members were expected to commit roughly six to 12 hours of time over a four-month period. Specifically, advisory group members would attend no more than two (2) in-person meetings, to participate in teleconferences as needed; to review draft documents; and to engage colleagues knowledgeable in telehealth.

CT-ORH staff members identified a list of potential candidates from diverse organizations and issued letters of invitation. Advisory group members and/or their executive staff received follow-up e-mails and telephone calls. Only one candidate committed to participating on the advisory group. The CT-ORH leaders decided to forego the establishment of an advisory group in an effort to keep the project on schedule. CT-ORH engaged the CT-ORH Board of Advisors as warranted. [See Appendix for a summary of the approach to forming an advisory group.]

DATA COLLECTION

The project involved three forms of data collection: a survey of healthcare providers who serve rural communities in Connecticut; a high level environmental scan to document the leading telehealth innovators in Connecticut; and targeted interviews with healthcare leaders and healthcare policy makers to understand factors limiting the advancement of telehealth in Connecticut.

Provider Survey. CT-ORH identified telehealth survey methods from other states such as Minnesota, Maryland and North Carolina[iv] as models to understand telehealth survey offerings in Connecticut. CT-ORH project staff developed a brief telephone interview survey format using existing survey tools from these states. Project staff contacted a sample of 40 (of 125) health providers located in and/or who served patients living in rural towns in Connecticut. Brief telephone interviews were conducted with 24 (of 40) providers.

Environmental Scan. CT-ORH project staff conducted a high level literature review and produced an annotated bibliography of relevant articles to advance telehealth programs. [See Appendix for select references.] Additionally, project staff conducted extensive research across a variety of sources including the Connecticut Office of Legislative Research; health care provider websites

and blogs, websites of national telehealth resource centers and sites related to national telehealth conferences; telehealth funders; and telehealth equipment providers, among others.

Interviews. CT-ORH project staff secured input via e-mail exchange or brief interviews with 15 telehealth leaders or policy makers. The content of interviews varied based on the role of the individual (e.g., administrator, clinical services, information technology) and covered topics such as: use of telemedicine (and partners); services and procedures provided; technology infrastructure and capacity; staff training; financing; challenges and barriers; outcomes; and future plans.

Findings

LEADERSHIP

The CT-ORH leaders decided to forego the establishment of an advisory group after the majority of candidates could not participate due to schedule conflicts or competing responsibilities, particularly given the rapidly changing fiscal climate in the state. These individuals, however, committed to participating in brief interviews and facilitating access to other relevant parties for additional information.

Several advisory group candidates felt strongly that the healthcare administrators or chief financial officers (not medical or clinical staff) would prove more valuable in advancing telehealth initiatives. These individuals could drive complex system change in the context of cost savings and return on investment associated with launching new telehealth services (e.g., equipment, agreements, licensing & credentialing, protocols, training, database modifications, billing modifications).

POLICY

The federal government, via Medicare and Medicaid, supports telehealth services and emerging innovations. The Medicare program reimburses a range of telemedicine and telehealth services from approved originating sites (e.g., hospitals, physician offices, community mental health centers, nursing homes). The Centers on Medicare and Medicaid Services (CMS) set guidance for covered services and provider payment rates. In general CMS allows states to: a) roll telemedicine/telehealth costs into provider payment rates; b) pay distant and originating site providers separately; or c) claim telemedicine/telehealth costs as administrative costs associated with the technical nature of the service (i.e., technical support, transmission, equipment).

Medicaid telemedicine rules and provider payment rates differ across states. According to the American Telemedicine Association, 19 states require private insurers to cover and reimburse for

telemedicine comparable to that of in-person services, with another 10 states considering legislation. Forty-four (44) states reimburse for telehealth-provided services under their Medicaid plans.

A 2012 Office of Legislative Research report titled, "*Telemedicine and Telehealth*" outlines the policy landscape in Connecticut.[v]

> PA 12-109 allows Connecticut's Department of Social Services (DSS) commissioner to establish a Medicaid telemedicine demonstration program at federally qualified health centers. These centers provide "safety-net" services in underserved urban and rural communities. Their primary purpose is to expand access for uninsured and underserved populations who experience financial, geographic, or cultural barriers to care. The report indicated that DSS had no immediate plans to develop such a program.
>
> PA 96-148 requires physicians from other states performing diagnostic or treatment services for state residents through electronic communications or interstate commerce on a regular, ongoing, or contractual basis to be licensed in Connecticut. Treatment services include primary diagnosis of pathology specimens, slides, or images (CGS 20-9).

Telehealth policy discussions by leaders in Connecticut remain fragmented and occur primarily, if at all, in the context of implementing other major reform initiatives with supplemental funding streams. Rapid changes to the healthcare landscape due to the Affordable Care Act and the combination of budget issues facing the State resulted in little to no advancement for telehealth in Connecticut.

Recent policy movement in the area of telehealth includes:

- Opportunities to introduce innovative telemedicine approaches and link them to health care reform initiatives through the Connecticut Department of Social Service's State Innovation Model.
- A legislative effort (Senate Bill 858) to require health insurance coverage of medical advice, diagnosis, care or treatment provided through telemedicine if such advice, diagnosis, care or treatment is covered when provided through in-person consultation. This effort stalled in 2013.

Reports by the American Telemedicine Association compare states in their implementation of state Medicaid best practice across areas such as school-based telehealth, remote patient monitoring and home video visits, store-and-forward telemedicine, and telemental and behavioral

health.[vi] *Connecticut compares unfavorably to other states in telehealth policies*. On the national level, the American Telemedicine Association and numerous other stakeholders continue to assist in the advancement of legislation that allows healthcare providers to treat Medicare patients in other states via telemedicine without needing different licenses in each state (TELEmedicine for MEDicare Act, or HR 3077). The act seeks to update antiquated system of licensure laws that hinders the practice of medicine across state lines and to expand medical access and choice for America's seniors and the disabled.

PRACTICE – EARLY TELEHEALTH ADAPTORS IN CONNECTICUT

Initially, the CT-ORH set out to develop a comprehensive inventory of telemedicine and telehealth approaches in Connecticut. As the process unfolded, it became clear that pockets of early adopters and innovators exist in Connecticut. This section illustrates some of these efforts. The information does not provide an exhaustive inventory of efforts underway. Rather it illustrates the building blocks available in Connecticut in response to committed providers and short-term funding sources (e.g., foundation funding, federal grant, direct investments by health care providers).

Small Rural Health Providers. Brief interviews were conducted with 24 rural health care providers to determine their current use of telehealth models or applications. All respondent sites operated with five or less physicians in the group. None (0) of the respondents reported involvement of their practice with any formal telehealth initiative, albeit many of them indicated that they consult regularly with their patients via phone. The majority of respondents expressed interest in telemedicine and acknowledged that their attention centered on other priorities such as implementing electronic medical record systems; deciding whether to affiliate with a larger network, remain independent, or possibly exit the market; and caring for their patients.

Payers. Typically, private payers follow the lead of the Centers for Medicare and Medicaid Services in terms of paying for new procedures or new ways of delivering care. Telehealth may represent an exception as private payers seek out effective ways to improve health outcomes, reduce costs, and promote healthy lifestyles. From online video conferencing with a doctor to remote monitoring and alerts to patients with chronic conditions such as heart disease and diabetes, private payers now leverage technology innovations to better manage the health of their members. Many of these private payers, with headquarters in Connecticut, support telehealth efforts, albeit many not available yet in Connecticut. For example:

- Aetna now combines its work life platform Aetna Resources For Living with the Consult A Doctor™ 24/7 telemedicine service to provide employees with easier access to resources that help improve overall health, work/life balance and workplace productivity. Consult A Doctor Plus™ is a unique, on-demand

solution that also allows employers to better manage health care costs by providing members with the help and support they need – where, when and how they need it. Consult A Doctor Plus (CADR+) enables consumers to contact physicians, either by phone or email, for specific questions they may have. This product provides members with a variety of benefits.[2]

- Cigna, with the assistance of MDLIVE, a developer of telehealth technology and services, will offer eligible health plan members round-the-clock online video consultations with internal medicine, family practice and pediatric doctors. Under this initiative, eligible Cigna customers will be able to choose an appointment time or request to speak to an available healthcare professional on demand – with a reported average response time of 11 minutes – for non-emergency medical issues such as cold and flu, rashes, sinus issues and headaches.

Hospitals. Several hospitals offer telehealth services as part of a regional emergency response approach or as part of an effort to improve the triple aim of healthcare. For example,

- Yale-New Haven established Connecticut's first stroke telemedicine program. The Yale-New Haven TeleStroke Program utilizes high-speed network videoconferencing and image-sharing technology to rapidly assess and consult with community hospitals on treatment options for acute stroke victims. The TeleStroke Network allows subscribing hospitals (such as Lawrence and Memorial and Sharon) to provide expert acute stroke care for patients without transferring the patient to YNHH for diagnosis. Yale-New Haven Stroke Center is a state-designated primary stroke center, and a nationally-designated primary stroke center through The Joint Commission.

- Patients who present with stroke-like symptoms at Windham Hospital, a 130-bed acute care facility, see healthcare professionals face-to-face and virtually through the TeleNeuro Program. An emergency department physician evaluates the patients and will order blood work and a CT scan. While awaiting those results, a neurologist located in Miami, Florida, facilitates further testing with the patient using a high-def camera remotely connecting the patient with telehealth neurologist who work for NeuroCall, an organization of board certified, specialty trained neurologists. The TeleNeuro Program serves patients for concerns other

[2] Services include: confidential 24/7 telephonic consultation and prescription-writing; access to Aetna Resources for Living work life resources and to support patient advocacy bill review/mediation; access to online wellness tools and health records; and legal and financial consulting.

than strokes and results from an affiliation between Windham Hospital and the Hartford HealthCare's Telehealth Network.

- Griffin Hospital, a 160-bed acute care community hospital in Derby, Connecticut, serving more than 107,000 residents in Connecticut's Lower Naugatuck Valley, serves as a field test site for Vree Health's TransitionAdvantage platform, designed to help patients hospitalized for heart attacks, heart failure or pneumonia to adhere to a hospital's recommended post-discharge care plan. The technology platform links to the provider's electronic medical record and creates an electronic patient profile (EPP), which the transition liaisons use to help the patient internalize behaviors that are positive and behaviors that are detrimental. Highly trained liaisons manage high risk patients and use digital tools. Liaisons serve as daily health coaches, getting patients to self-commit to health management goals. Patients enjoy access to a 24/7 hotline and receive encouragement to complete daily "health checks" via phone, computer or mobile device. The Merck subsidiary contracts with Frontier Medicine Better Health Partnership, a Montana-based partnership encompassing all of Montana's hospitals, and Griffin Hospital to field test this model. CMS funds this $10.5 million project.

- Charlotte Hungerford Hospital now offers access to a new Philips Medication Dispenser designed to assist all people who rely on their medications to keep them healthy, but have complex medication schedules that as they age can lead to mistakes like missing doses, taking incorrect amounts, or taking medicines at the wrong times. This state-of-the-art dispenser, comes programmed just for the individual and allows the individual to hear about their medications and take them all at the press of a button. In case they miss a dose, the dispenser is connected to a telephone line, so the dispenser can contact a caregiver or family member.

The potential impact of these programs on health outcomes and cost savings proves significant. For example, a recent study of the Partners HealthCare program out of the Center for Connected Health reported that patients with cardiac disease enrolled in telehealth and telemonitoring programs produced net savings over a seven year period of approximately $10 million for 1,265 patients (net savings per patient of $8,155).[vii]

Veterans Affairs Healthcare System. The VA healthcare system holds the benefit of global thinking as members of the armed forces and civilian personnel get deployed throughout the world. In 2011, the Service Members Telemedicine & E-Health Portability Act, or H.R. 1832, allows the Department of Defense to enable credentialed healthcare professionals to treat veterans

across state lines without the need for additional licenses. A subsequent effort, the Veterans E-Health and Telemedicine Support Act, or H.R. 2001, seeks this same exemption for Department of Veterans Affairs healthcare providers.

In Connecticut, a Case Management & Telehealth program uses an interdisciplinary team approach that involves Home Telehealth, Clinical Store & Forward, and Clinical Video Telehealth. The service provides proactive, high quality, timely care with a focus on health management. Specially trained case managers (registered nurses, social workers) lead care coordination across the continuum of care for patients identified as high risk, high cost, or at high risk for decline. Case managers coordinate services as appropriate with VA and non-VA providers, Patient Care Coordinators (PCC), Surgical Case Coordinators, Telehealth Care Coordinators to support Home Telehealth program. Telehealth Clinical Technicians support all telehealth services at both the West Haven and Newington campuses and all six community based outpatient clinics in Connecticut.

As of 2010, over 300,000 patients in the Veterans Affairs Hospital Administration system (national) participated in its Care Coordination/Home Telehealth Program. The program provides biometric information to remote monitoring care coordinators for individuals with conditions such as heart failure, diabetes and Post Traumatic Stress Disorder (PTSD). The VHA reports annual costs per patient of $1,600 attributable to reducing service redundancies and to improving service quality and health outcomes that lead to reduced health care costs.[viii] The VHA reported cumulative net benefits of $3 billion since the program's inception in 1990.

Community Health Centers. The Community Health Center, Inc. (CHC) represents one of Connecticut's leading innovators of telemedicine and telehealth. Efforts include:

- Project ECHO (Extension for Community Healthcare Outcomes) Coaching International, allows quality improvement coaches employed by Connecticut health centers to join via videoconferencing with a team of expert faculty from the Community Health Center and in England. Coaches present challenging problems they are facing in their own practices to the expert team who will offer advice and recommendations. Quality improvement coaches are healthcare professionals who have received specialized training in tools and techniques to improve the way healthcare is delivered. That includes skills related to scheduling and coordinating care, managing test results, and helping patients with their care.

- The launch of telehealth program linking health care clinicians in Connecticut and Arizona with one of the nation's leading chronic pain management facilities. Weekly telemedicine consultations are designed to improve management for

patients suffering from chronic pain. CHC partners with Integrated Pain Center of Arizona and leverages their expertise in providing evidence-based, holistic, patient-centered treatment for chronic pain. Project ECHO for Chronic Pain Management could decrease utilization of specialty referral services, surgery, imaging and other laboratory services, excessive or inappropriate medication prescribing, and emergency room visits for pain complaints, among others. Grants from the Pfizer Foundation, the Mayday Fund, the Cox Foundation, and The Wallace Research Foundation fund the project which builds on the success of an earlier Project ECHO telehealth program for Hepatitis C and HIV.

- An electronic consultation model for specialty services (eConsults) allows all new, adult non-urgent referrals (cardiology) at participating centers to participate in a virtual consult with in-person appointments following when advised. eConsults improves communication between Primary Care Providers and specialists regarding their patients, reduces unnecessary appointments or referrals to specialist, and decreases delays for patients who require a face-to-face consult with a specialist. Preliminary results show significant impact of the eConsult model on increasing access and efficiency as well as improving patient satisfaction. The Connecticut Health Foundation funded this effort.

- The Community Health Center offers a remote retinal screening specialty consultation service for the diabetic population. This program produced compelling results and awaits changes in reimbursement to scale up the model. CHC funded the start-up process with philanthropic support.

Home Health Providers. Home health providers, in part with support of Medicare reimbursement and a continuous influx of new products and applications, represent an area of immense opportunity. Examples include:

- In 2010, Visiting Nurse & Hospice of Fairfield County (formerly Nursing & Home Care and Mid-Fairfield Hospice) began offering home telehealth in response to the healthcare needs of many in the community. The system allows seniors to communicate with health professionals without having to leave their homes. The system offers an in-home, interactive computer system with an audio/video interchange that allows nurses and patients to interact in real-time. The system supplements regular home nursing visits and directly addresses many problems seniors pinpoint as their top concerns, such as improving the quality of overall health, saving money and avoiding trips to the emergency room, or hospital stays.

- VNA Community Healthcare's home health services monitor cardiac patients on a daily basis using a cardiac telemonitoring device. The device allows home health care nurses to "keep in touch" with cardiac patients' vital signs and symptoms through a home phone line. With in-home telemonitoring, patients receive a three-minute checkup every day in the comfort of their own homes through a device that records and reports vital signs. This information is transmitted to specially trained cardiac nurses for review.

- Willcare owns and operates Medicare-certified home health agencies and licensed home care agencies in New York, Ohio and Connecticut. Willcare Telehealth program enables agency staff to monitor a patient's vital signs on a daily basis through the use of a sophisticated, hospital-grade home monitor, which functions through voice prompts. Vital signs are transmitted daily to a central station, where they are reviewed by an RN. The monitor enables the RN to detect subtle changes in the patient's condition and allows for early intervention. Home Telehealth reduces: hospitalizations by as much as 90%; length of hospital stay by as much as 80%; and emergency room visits by as much as 80%. The monitor increases patient compliance and improves ADLs, and can monitor weight, pulse, blood pressure, glucose, temperature and oxygen saturations. Questions regarding the patient's medical condition are pre-programmed and individually tracked to identify possible changes, and nurses monitor the vital signs seven days a week. Anything outside of the designated parameters are addressed immediately and then communicated to the physician. Willcare offers Medpartner, a system that reinforces compliance of the medication regimen prescribed by the physician. Through the use of voice commands and light cues, Medpartner reminds the patient when it is time to take their medication, the number of pills to take and the appropriate bottle. A daily record is sent to Willcare for review.

Medical Schools. Medical schools and institutions of higher education located in Connecticut use telehealth infrastructure for teaching and clinical training purposes. These resources can play a role, particularly as it relates to healthcare workforce training.

FUNDING

The data collection activities did not explicitly document telehealth funding sources. The organizations offering telehealth services confirmed that the majority of their telehealth services were funded internally or through grants from pubic and/or philanthropic entities. Telehealth innovators identified resource and reimbursement constraints as a major, limiting factor for telehealth services in Connecticut.

Discussion

Compared to rapid policy advancement in other states across the nation and within the New England Region, *Connecticut remains woefully behind* in an area that could prove significant to achieve the triple aims of healthcare and even serve as an "export" industry as the medical schools and research universities continue to expand diagnostic and clinical treatment protocols.

Barriers. The health provider feedback and input from healthcare leaders is consistent with the barriers or challenges to telehealth cited in the literature:

- Financing and reimbursement rates that either prove highly selective or remain at levels that limit scalability of applications.
- Complex regulations that cut across industries (e.g., insurance, healthcare), settings (e.g., hospitals, providers), and geographic boundaries (e.g., national providers, national payers).
- Complexity of licensure and accreditation processes.
- Resistance to transformative change that involves culture, technology, financial incentives, and management of provider and patient expectations (e.g., security, privacy, malpractice).
- Technology infrastructure capacity for broadband connectivity and in support of store and forward capacity.
- Start-up costs involved in training, technology, and medical devices – above and beyond any issues related to reimbursement for services.
- Appropriate deployment of telemedicine models that reach specific populations capable of using the model and involving motivated partners and payers to support these models.

Connecticut remains behind the implementation curve as a result of multiple barriers related to mismatches between outdated policies and advances in healthcare.

Benefits. Numerous studies document the benefits and cost effectiveness of telehealth. Telehealth has been shown to:

- Increase patient access to specialists and improve the delivery of treatment as well as the benefits of reduced travel.

- More effective monitoring of patients' health and more timely intervention and care, particular as electronic medical records link to monitoring devices and applications.
- More efficient use of clinical care team resources as well as workforce improvements such as reduced travel costs and time.
- Increase efficiencies by transferring patients at the appropriate time after a specialist's recommendation.
- Increase revenues to health care networks and accountable care organizations deploying population-based health care approaches in the context of accountable care.

Connecticut contains the building blocks for quickly and effectively scaling up telehealth efforts as illustrated by the diversity of projects and sponsoring organizations referenced in the prior section. However, policy and funding barriers limit the extent to which individuals in Connecticut can benefit from telehealth solutions.

Telehealth Champions. The CT-ORH leaders identified several individual telehealth champions in Connecticut. *At present, no cohesive statewide group of telehealth champions exist to drive telehealth education and policy reform efforts*. Other telehealth partnerships or collaborative efforts exist internationally and nationally, in other states and across multi-state regions. For example:

- The American Telemedicine Association (ATA), a leading international resource and advocate, promotes the use of advanced remote medical technologies to improve quality, access, equity and affordability of healthcare throughout the world. Membership in the association includes individuals, healthcare institutions, companies, and other organizations with an interest in telemedicine. Opportunities exist to access the latest in research, protocols, best practices, policies, and learning communities, among others. Visit: http://americantelemed.org
- The Northeast Telehealth Resource Center offers as a core service support to build and maintain State Telehealth User Forums (STUFs) to create more favorable policy environments for telehealth through collaboration. Visit: http://netrc.org/services
- The New England Rural Health RoundTable (NERHRT), a nonprofit membership-driven organization established in 1997 with funding from the National Rural Health Association (NRHA), serves six New England States

including Connecticut. The organization amplifies policy and leadership voices across a variety of issues that affect telehealth.

- In 2012, over 40 primary care facilities affiliated with hospitals in several counties and tribal areas in Vermont, launched a telemedicine network that facilities video conference consultations, digital data sharing, professional development and clinical training, among others. Other networks such as ConnectNH (New Hampshire) mobilize and leverage telehealth resources to advance healthcare improvements.

- The Community Health Center's Weitzman Center for Innovation, the first community-based research center established by a federally-qualified health center network, sponsors an annual Weitzman Symposium at Wesleyan University. The symposium brings together leaders who share innovations in community health and primary care. Telehealth innovations emerge more frequently at these proceedings and set the stage for broader policy discussions. These symposiums and networks offer local incubators for innovation and translational practices. Visit: http://chc1.com/Transformational/PresPubs.html

Recommendations

The Connecticut Office of Rural Health and its Advisory Board identified four action areas to support the advancement of telehealth in Connecticut:

1. Support telehealth policy change efforts by leveraging resources available from the Northeast Telehealth Resource Center. Model telehealth policy frameworks exist that Connecticut policy makers can adapt and the Connecticut Office of Rural Health will support.

2. Support activities that educate decision-makers and stakeholders on the benefits of telehealth. Over the past 20 years, over 10,000 peer review papers have been published supporting the clinical effectiveness and cost savings of telehealth. Telehealth leaders in Connecticut can organize low-cost approaches that facilitate access to relevant information such as increasing usage of the Northeast Telehealth Resource Center's website page for Connecticut and sharing information through listservs, among others. Visit: http://netrc.org/connecticut/

3. Support telehealth leaders and champions in Connecticut through virtual networks, by encouraging affiliations with affinity groups such as the American Telemedicine Association or the International Society for Telemedicine and eHealth, and by increasing awareness of and participation in telehealth events occurring within the northeast region of the country.

4. Support the advancement of innovative telehealth models serving residents of rural Connecticut by convening partners, providing targeted technical assistance and/or seed funding for telehealth innovation.

Addendum *(included in the May 2014 printing of the report)*

The 2014 Connecticut Legislative Session introduced several bills related to or referencing telehealth services that were not yet formally introduced prior to the initial printing of this report:

- S.B. No. 202, "An Act Concerning Health Insurance Coverage for Telemedicine Services" which would require health insurance coverage of medical advice, diagnosis, care or treatment provided through telemedicine if such advice, diagnosis, care or treatment is covered when provided through in-person consultation. If enacted, the changes would become effective January 1, 2015.

- H.B. No. 5378, "An Act Implementing the Recommendations of the Legislative Program Review and Investigations Committee Concerning Medicaid-funded Emergency Department Visits" which includes several references to telemedicine and attempts to avert unnecessary use of hospital emergency departments and telehealth services. If enacted, the changes would become effective July 1, 2014.

- H.B. No. 5445, "An Act Concerning Medicaid Coverage of Telemonitoring Services" which will allow Medicaid coverage of home telemonitoring services. If enacted, the changes would become effective July 1, 2014.

For additional information on the status of these legislative changes, visit www.cga.ct.gov

Appendices

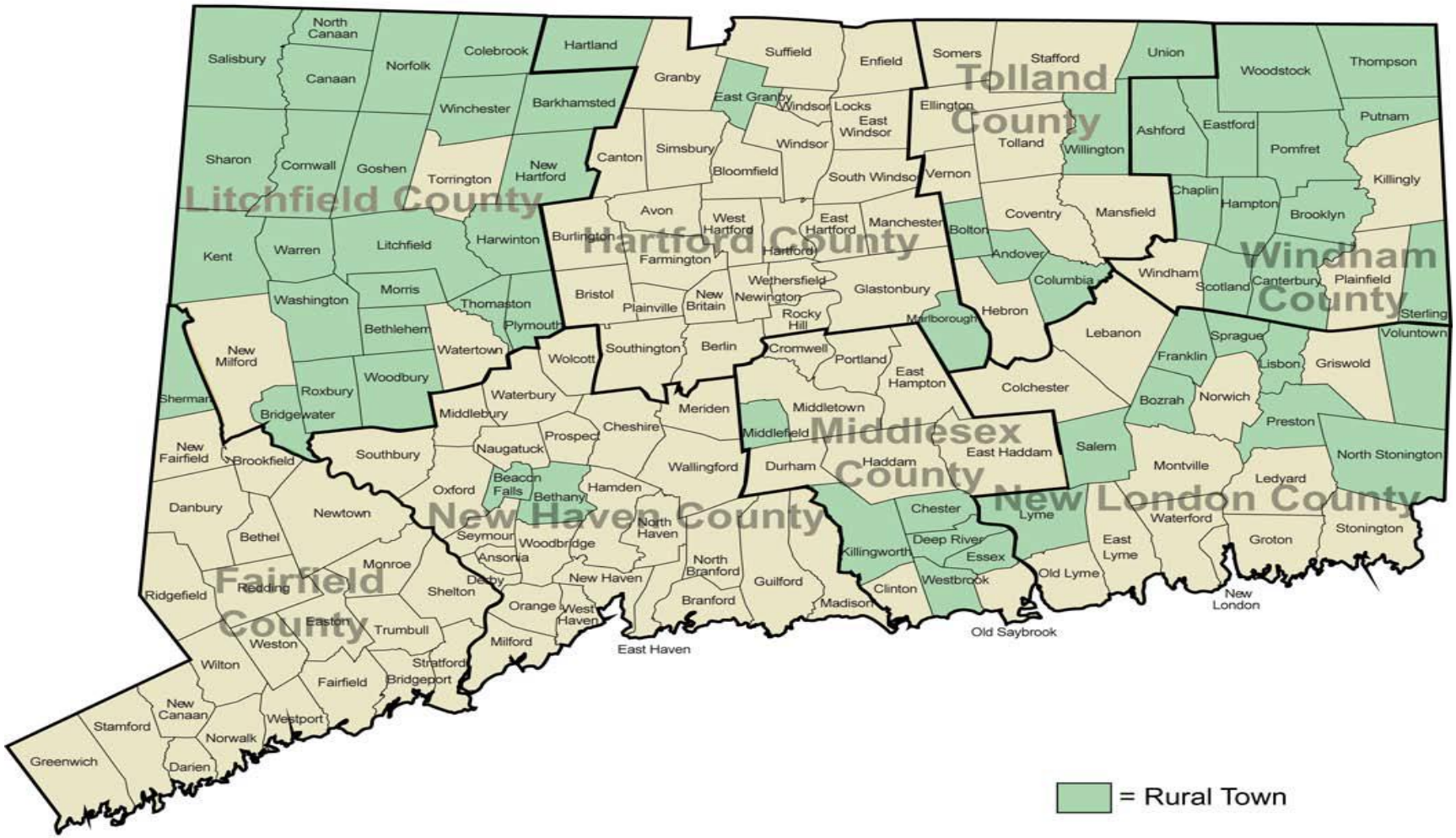
Map of rural towns in Connecticut

Advisory group process

Annotated Bibliography (selected)

End notes

Map of Rural Towns in Connecticut



Advisory Group Process

CT-ORH staff members identified a pool of approximately 20 individuals to serve in an advisory capacity for the project. A sub group of participants were identified to provide a more interactive role in the process and meet in-person. The in-person meetings were intended to build the professional networks among health care leaders and professionals in telehealth; to facilitate access to telehealth information and experts; and to provide input in interpreting findings and shaping recommendations.

A subgroup representing the core "suppliers" and "users" of telehealth were invited to an initial meeting scheduled for May 14, 2013. Chief Executive Officers, Clinical Vice Presidents, or similar individuals received a letter explaining the project. These letters were preceded by e-mails and telephone calls to administrative staff who were briefed on the project for the express purpose of increasing participation in the process. Organizations from which core group representatives were targeted included:

- Community Health Center, Inc.
- Community Health Network of Connecticut
- Connecticut Hospital Association
- Day Kimball Healthcare
- Hartford Health Care
- Sharon Hospital
- UConn Health Center
- Yale New Haven Healthcare

The remainder of the pool contained additional key informants that could provide insights about opportunities and barriers related to policy, reimbursement, technology, and training, among others. This group included representatives from:

- Anthem BCBS
- Connecticut Community Care, Inc. (Medicare)
- Connecticut Long Term Care Partnership
- Department of Public Health
- Department of Social Services (Medicaid)
- Department of Veterans Affairs
- Office of Healthcare Access
- Physician Groups serving rural areas
- VNA Northwest
- Western Connecticut Health Network

The initial advisory group meeting was canceled due to schedule conflicts. Many of the participants represented partners who could not step away from their clinical or executive responsibilities, particularly given the rapidly changing fiscal climate in the state. These individuals, however, committed to participating in brief interviews and facilitating access to other relevant parties for additional information.

Annotated Bibliography – A Sample of References

Bashshur, Rashid L., and Gary W. Shannon. ***National Telemedicine Initiatives: Essential to Healthcare Reform*****. N.p.: Telemedicine and eHealth, 2009. Accessed June 13, 2013. DOI:10.1089/tmj.2009.9960.**

This report presents an analysis of the problems in the current healthcare system in the US and the potential role of telemedicine in addressing and alleviating them. This reports provides an assessment of the current performance of the healthcare system, the previous attempts to reform and why they were not successful, and the role that telemedicine could serve.

Burgiss, Samuel G. ***Telehealth Technical Assistance Manual: A Document to Assist in the Planning of Telehealth and Telemedicine Projects for Rural Community and Migrant Health Centers and Other Health Care Organizations*****. N.p.: National Rural Health Association, 2006. Accessed June 13, 2013. http://199.237.254.34/pubs/pdf/Telehealth.pdf.**

The National Rural Health Association (NRHA) has provided the seven steps to creating a successful telehealth program. The seven steps of telehealth planning for program success include: "evaluate needs, develop care services plan, develop business plan, plan technology, train personnel, test care and technology plans, and evaluate outcomes." This report goes into detail each of the steps to promote effectiveness in a new rural telehealth program.

Cason, Jana, and Sharon Ringwalt. "Overview of States' Use of Telehealth For the Delivery of Early Intervention (IDEA Part C) Services." ***International Journal of Telerehabilitation*** **4, no. 2 (Fall 2012).**

This summarizes a report sent by the "National Early Childhood Technical Assistance Center (NECTAC) to IDEA Part C coordinators across the country, to assess their utilization of telehealth within states' IDEA Part C programs. Reimbursement for provider type and services and barriers to implement a telehealth service delivery model were identified." This report includes the results from representatives from 26 states, including telehealth early intervention providers, barriers to telehealth implementation and reimbursement for telehealth for early intervention (EI). The key points made in this report are: "many states are incorporating telehealth within their EI and IDEA programs to overcome personnel shortages, specialists are using telehealth within their IDEA Part C programs to deliver habilitation services and specialty consultations and policy development, education of stakeholders, research, utilization of secure and private delivery platforms and advocacy are important strategies to support widespread adoption of telehealth."

Darkins, Adam, Patricia Ryan, Rita Kobb, Linda Foster, Ellen Edmonson, Bonnie Wakefield, and Ann E. Lancaster. "Care Coordination/ Home Telehealth: The Systematic Implementation of Health Informatics, Home Telehealth, and Disease Management to Support the Care of Veteran Patients with Chronic Conditions." *Telemedicine and e-Health* 14, no. 10 (December 2008). Accessed June 13, 2013. doi:10.1089/tmj.2008.0021.

This report describes the program designed by the Veterans Health Administration (VHA) between July 2003 and December 2007, to implement a national home telehealth program, Care Coordination/ Home Telehealth (CCHT). Its purpose was to avoid long-term institutional care for veterans with chronic conditions. This report focuses on the materials and methods used, the results, and a brief discussion/conclusion overviewing its success.

Davidson, Charles M., and Michael J. Santorellil. *The Impact of Broadband on Telemedicine*. New York, NY: n.p., 2009. Accessed June 13, 2013. http://www.nyls.edu/user_files/ 1/3/4/30/83/ BroadbandandTelemedicine.pdf.

This report discusses the relationship between telemedicine and broadband. It defines and describes telemedicine and how it is important in our current healthcare system, and it describes the key impacts on telemedicine. The survey discusses how broadband plays a role in the current telemedicine sectors, both private and public, while looking at federal and state level/ university efforts. The report also includes recommendations for future policy making regarding the government, telemedicine and broadband.

Department of Health and Human Services. *Pandemic and All-Hazard Preparedness Act: Telehealth Report to Congress*. N.p.: Department of Health and Human Services, 2009.

This report is an evaluation of issues that apply to the proper utilization and creation of an Inventory for Telehealth in public health emergencies and disaster medical responses. This report is a reflection of the current status of United Sates Telehealth asset implementation during public health emergencies and disaster medical responses. This report includes sections that discuss the definition of telehealth, telehealth for public health emergencies and disaster medical responses, reducing legal barriers, expanding, interconnecting and coordinating telehealth networks and improving coordination at the federal level.

Department of Health and Human Services: Centers for Medicare and Medicaid Services, and Medicare Learning Network. *Telehealth Services: Rural Health Fact Sheet Series*. N.p.: n.p., 2012.

This fact sheet provides information, for the calendar year 2013, about Medicare telehealth services. Including: "originating sites, distant site practitioners, telehealth services, billing and payment for professional services furnished via telehealth, billing and payment for the originating site facility fee and resources." The report discusses each Medicare service in depth to help future telehealth programs succeed. This report also includes resources for "telehealth services, health professional shortage areas, all available MLN products, provider-specific Medicare information and Medicare information beneficiaries," as well as helpful websites and regional office rural health coordinators.

Doty, Carlton A. *Delivering Care Anytime, Anywhere: Telehealth Alters the Medical Ecosystem*. N.p.: California HealthCare Foundation, 2008.

This report "examines the current state of telehealth use, with particular focus on applications that deliver health care services directly to consumers (patients) at a distance, on demand, and via any electronic means". This report interviewed health insurers, health care providers, technology vendors and others, providing the current state of telehealth in California, and the examples that are in practice today. The report also includes the future of telehealth, the positive signs of technology adoption in the healthy systems, and persistent obstacles that have been consistent across stakeholders.

Hall, Mardell, Payson Hall, Christine Martine, and Irene Alvarez. *Telemedicine Reimbursement: A National Scan of Current Policies and Emerging Initiatives*. N.p.: California Telemedicine and eHealth Center, 2009. Accessed June 13, 2013. http://www.caltrc.org/sites/main/files/file-attachments/ctec-national-scan.pdf.

This report is a broad overview of the reimbursement polices across the country. CTEC wanted to develop an understanding of telemedicine reimbursement across the country through interviews and Internet research. They found that few states have a single organization that is actively aware of all telemedicine activity and reimbursement policies across the state. This report includes lessons from the interviews and Internet research, key findings, the status of telemedicine reimbursement currently, emerging incentives, and conclusions to promote better reimbursement policies.

Health Planning and Systems Development Section, Division of Health Care Services, Alaska Department of Health and Social Services. *Report on Telehealth and Health Information Technology Programs and Initiatives in Alaska*. N.p.: Department of Health and Social Services, 2011.

This report highlights "various telehealth and health information technology (HIT) projects being implemented across the state of Alaska. A synopsis of each program is provided, as well as contact information." This report includes in state initiatives, including: Alaska Community Health Integrated Network, Alaska eHealth Network, Alaska EHR Alliance, Alaska Psychiatric Institute Telebehavioral Health Care Services, Alaska Regional Extension Center, Alaska Rural Telehealth Network, Eastern Aleutian Tribes, Medicaid Management Information System (MMIS) Design Development Implementation (DDI) Replacement Project, Providence Health and Services Community Connect, Southeast Alaska Regional Health Consortium Telebehavioral Health Program." As well as federal Initiatives including: "Alaska Federal Health Care Access Network, Federal Communications Commission Pilot Project, Health Information Security and Privacy Collaboration, Tri-State Child Health Improvement Consortium, United States Department of Agriculture Community Connect Program, and Universal Services Company/Universal Services Fund". This report also includes upcoming challenges and opportunities for telehealth in Alaska.

Leach, William D., Center for Collaborative Policy, and California State University, Sacramento. *If You Bill It, They Will Come: A Literature Review on Clinical Outcomes, Cost-Effectiveness, and Reimbursement for Telemedicine*. N.p.: California Telemedicine and eHealth Center, 2009. Accessed June 13, 2013. http://www.caltrc.org/sites/main/files/file-attachments/literature-review.pdf.

This report provides a qualitative meta-review of 21 literature reviews on the clinical and cost-effectiveness of telemedicine. The reviews examine published research on issues relevant to telemedicine reimbursement, specifically focusing on three-primary research areas: clinical efficacy, cost-effectiveness and obstacles to demand and diffusion. This report identifies strategy options for optimizing the use of telemedicine and offers recommendations for future research efforts. Key elements of this report include: "limited evidence of the relative efficacy/ cost-effectiveness of telemedicine has not yet been materialized and telemedicine should be reimbursed to ensure quality and satisfaction from care providers, payer organizations, health plan consumers and insurers."

Legislative Commission on Rural Resources, and Senate and Assembly Health and Insurance Committees. *Telemedicine and Telehealth: Putting the Pieces Together*. N.p.: Legislative Commission on Rural Resources, 2012.

This report summarizes and provides recommendations based from a roundtable discussion, with experts representing all facets of the health care field, about the State of New York's telemedicine system. The goal was to identify barriers to the implementation of a statewide telehealth network, while also highlighting successes and working models to grow from. This report examines highlights from the roundtable discussion and provides recommendations for legislative and other action. This report includes recent MRT efforts, existing statewide programs and successes as well as problems and barriers faced.

Martin, Christine. *The CTEC Telehealth Program Developer Kit: A Roadmap for Successful Telehealth Program Development*. N.p.: California Telemedicine and eHealth Center, 2012.

This report provides a step-by-step approach to telehealth development and implementation that was first used by California's largest telehealth provider, the California Department of Corrections. The approach developed has been adapted for different uses of telemedicine, both large and small facilities. This report includes the best practices and resource materials to offer a process customized to the telehealth environment. The steps to design a telehealth system are: "assess and define, develop and plan, and implement and monitor." The report goes into detail how to implement each of the steps to ensure success in each new program. This report includes checklists, assessments and different tools to benefit future telehealth systems.

Martin, Christine, and Vanessa McLaughlin. ***Marketing Fundamentals for Telehealth Programs: Program Guide*****. N.p.: California Telemedicine and eHealth Center, 2009.**

This report helps in the development of a telehealth program's marketing component. This report discusses market analysis, including: "assess the market for telehealth services, develop a market description, identify key customers, analyze a customer need, assess organizational readiness, identify and analyze competing programs and determine service changes." It also discusses program promotion, including: "identifying marketing goals and identifying marketing strategies and activities." The report includes tools and templates to help further the promotion of marketing in telehealth programs.

Matusitz, Jonathan, and Gerald-Mark Breen. ***Telemedicine: Its Effects on Health Communication*****. N.p.: Health Communication, 2007. Accessed June 13, 2013. http://www.uapd.com/wp-content/uploads/Telemedicine-Its-Effects-on-Health-Communication.pdf.**

This report analyzes telemedicine and its effect on health communications. "The main effect is that telemedicine has the capacity to substantially transform health care in both positive and negative ways and to radically modify personal face-to-face communication (Turner, 2003)." This report discusses key areas including e-health services and clinical encounters. This report also describes the past and current applications of telehealth and it includes a "better understanding of unique needs, resources, problems and opportunities" specified to telemedicine services.

Meyer, Brett C., and Larry S. Friedman. "Telemedicine: Closing in on Distance Medicine." ***San Diego County Medical Society*****, July 1, 2010. Accessed June 13, 2013. http://www.sdcms.org/publications/telemedicine-closing-distance-medicine.**

This article is about the potential advances that telemedicine could serve to decrease the geographic barrier that is current in today's healthcare system. The article discusses the STRokE DOC (Stroke Team Remove Evaluation using a Digital Observation Camera) experiment conducted by the UC San Diego Health System. The article also discussed the challenges faced with telemedicine, and the workable model implemented by the UC San Diego Health System, the "spoke and play".

National Broadband Plan. ***National Broadband Plan: America's Plan*****. N.p.: Federal Communications Commission, 2010.**

The National Broadband Plan: America's Plan, was the first plan developed by Broadband to outline their future goals, chapter 10 focused on Health Care. This chapter discussed why Broadband should have a relationship with the current health care system, it provided recommendations to implement Broadband, the promise of health IT and the role of Broadband, maximizing health IT utilization, unlocking health data, and closing the gap between health and broadband connectivity.

NORC at the University of Chicago, comp. ***Health IT and Health Disparities: Patient Provider Telehealth Network- using telehealth to improve chronic disease management.*** **N.p., 2012. Accessed June 13, 2013. http://www.healthit.gov/sites/default/files/pdf/RCCHCandPHS_CaseStudy.pdf.**

This report summarizes how members of the North Carolina- based Patient Provider Telehealth Network used a "telehealth remote monitoring system to monitor key health indicators for rural, high-risk patients throughout the state. Members leverage their electronic health records (EHRs) to share data collected through remote monitoring devices with patient's providers." The target population were "uninsured or underinsured high-risk individuals with diabetes, cardiovascular disease and hypertension". This report illustrated how the use of telehealth for monitoring patients with chronic conditions was successful for the patients, stakeholders, and providers. It also includes the barriers with technology, and key findings as they relate to replication.**NORC at University of Chicago.** ***Health IT and Health Disparities: Georgia Health Information Technology Regional Extension Center- helping eligible providers reach Meaningful Use*****. N.p.: NORC at the University of Chicago, 2012.**

This report provides information for potential telehealth providers in the state of Georgia. This report's target population were all eligible providers in Georgia, with a particular focus on rural and minority provides. The key take-aways from this report are: "group purchasing plans and lab hubs are centralized strategies that can help lower costs of EHR implementation, although outside of the scope of Meaningful Use, telemedicine can be extremely helpful and especially for rural providers, PHRs and EHRs can support patient engagement which is a key component of Meaningful Use and conflicting priorities for national programs may work against the goals of supporting minority and rural providers." This report includes potential benefits from using telehealth, the impact and consequences, the barriers of using technology and the policy and organizational factors for replication.

Pruitt, Sherilyn. ***Office for the Advancement of Telehealth: Grantee Profiles FY 2010-2011*****. N.p.: Office for the Advancement of Telehealth, 2010.**

This report identifies the grant projects administered by the Office for the Advancement of Telehealth (OAT) from October 1, 2010 through September 30, 2011. During this time, OAT administered "36 telehealth/telemedicine projects, totaling more than $10.3 million in funds awarded." This report discusses the "OAT grantee organizations, the types of grants, the components of each project, the major services served, the sources of reimbursement, the program settings, technology and transmission, homeland security, the demographics of the population served, patient encounters and project descriptions by state."

Shimizu, Wayne, Charlotte Chorneau, and Sacramento Center for Collaborative Policy. ***Telehealth Optimization Initiative Summary of Focus Group Methodology and Responses*****. N.p.: California Telemedicine and eHealth Center, 2009.**

This report discusses a focus group that provided research into the "broad views and opinions of telehealth experts and interested organizations about needs, concerns, and barriers to telemedicine expansion in California." The key elements of focus were "identify and prioritize the issues, challenges, and opportunities in telehealth reimbursement, gather information about other telemedicine initiatives collect suggestions on ways to improve telehealth and telemedicine policies and this report describes the project background, the data collection process and a summary of the responses from the telemedicine stakeholders." The report identifies the comments and feedback from each stakeholder, sharing their different problems facing the current telehealth system.

Telemedicine Recommendations: A Report Prepared for the Maryland Quality and Cost Council**. N.p.: Maryland Health Care Commission, 2011.**

This report describes the recommendations to promote telemedicine in Maryland. The recommendations are: "State-regulated payers should reimburse for telemedicine services, establish a centralized network built on existing industry standards, implement changes in licensure, credentialing, and privileging of providers to facilitate the adoption of telemedicine." This report includes appendixes for "telemedicine licensure overview by state, select state telemedicine initiatives, environmental scan of telemedicine initiatives, clinical scenarios from the clinical advisory group, statewide telemedicine network architecture, core technology standards and a Maryland Broadband cooperative network in 2011."

Texas Statewide Health Coordinating Council. *The State of TeleMedicine and TeleHealth in Texas: A Special Report of the Texas Statewide Health Coordinating Council and Recommendations for Ensuring a Strong Telemedicine/Telehealth System in Texas*. N.p.: The State of Telemedicine and Telehealth in Texas, 2002.

This report is an overview of the status of telemedicine and telehealth (TMTH) in Texas. This report includes an inventory of TMTH projects, results of a survey of private and public TMTH projects in Texas, the distribution of health professionals throughout the state and where TMTH can provide solutions, licensing and scope of practice, and recommendations. Broad recommendations include: "designate a single agency or body to serve as the authority and coordinator for TMTH information and projects within the state, develop and encourage interagency collaboration and develop and encourage international, border, and interstate TMTH initiatives and information exchange."

University of Hawaii at Manoa, John A. Burns School of Medicine. *Final Report By the University of Hawaii at Manoa, The John A. Burns School of Medicine on the Current Practices of Hawaii Telemedicine System for 2010*. N.p.: University of Hawaii at Manoa, 2009.

This report discusses the availability to further implementation of telemedicine systems to benefit Hawaii's citizens. This report includes: overview of telehealth initiatives in Hawaii, the current state of telehealth in Hawaii, the desired state and telehealth benefits including health information technologies and supporting infrastructure, key stakeholder, assumptions and challenges (including organizational and human factors, social values and leadership, policy and regulatory factors, business climate, technology and technical infrastructure and evaluation), and critical issues to be addressed via recommendations for the advancement of telehealth in Hawaii including: "pass statues that explicitly prohibit malpractice insurance carriers from excluding telehealth coverage or assessing extra fees for telehealth inclusion, the Hawaii State Legislative Reference Bureau should review all existing statues and administrative rules relating to telehealth, focusing on inconsistencies or conflicts in the existing statues and an analysis of existing statutes as they may relate or impact telehealth and form a Clinical Informatics Task Force to examine issues with respect to electronic medical/health records (EMRs/EHRs)."

Witacre, Brian E., Pamela S. Hartman, and Sarah W. Boggs T. *The Economic Impact of Telemedicine Capability in a Rural Hospital*. N.p.: National Center for Rural Health Works, 2007.

This paper explains the most common forms of telemedicine used in rural areas today, and their importance on the local economy. This report describes the various forms and benefits of telemedicine, estimating the economic impact of telemedicine in a rural community by using data from Oklahoma, and it discusses issues that have to be considered when using telemedicine in rural communities.

Endnotes

[i] Source: http://www.ct.gov/dph/lib/dph/aids_and_chronic/ctg/ct__ctg_narrative.pdf

[ii] Rural Community Health in Connecticut: Challenges and Opportunities. June 2006. Connecticut Office of Rural Health.

[iii] Connecticut Transformation Grant county coalitions each completed a needs assessment. For an example of the needs assessment report in Litchfield, visit: http://educationconnection.org/uploads/files/whats_new_ctgexecutive.pdf

[iv]For more information about survey resources please visit: http://www.mti.umn.edu/Minnesota%20Telehealth%20Inventory%20Report%202007.pdf for information about survey efforts in Minnesota; http://www.mdruralhealth.org/Telehealth_Survey.pdf for survey efforts in Maryland; and https://www.surveymonkey.com/s/KVCMH5J for efforts in North Carolina.

[v] Telemedicine and Telehealth. Susan Price and Kevin McCarthy. 2012. http://www.cga.ct.gov/102/rpt/2012-R-0296.htm

[vi] The American Telemedicine Association issued a series of State Medicaid Best Practice publications that included: Remote Patient Monitoring and Home Video Visits (July 2013); School-Based Telehealth (July 2013); Store-and-Forward Telemedicine (July 2013); and Telemental and Behavioral Health (August 2013).

[vii] Broderick, A., (2013). *Partners HealthCare: Connecting Heart Failure Patients to Providers Through Remote Monitoring*. Case Studies in Telehealth and Adoption; The Commonwealth Fund.

[viii] Broderick, A., (2013). *The Veterans Health Administration: Taking Home Telehealth to Scale Nationally*. Case Studies in Telehealth and Adoption; The Commonwealth Fund.

Connecticut
State Office
of Rural Health

Health care branching
out to rural communities