

California Health Care Safety Net Institute

Telemedicine Resource Guide



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Telemedicine Resource Guide

California Health Care Safety Net Institute
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Overview

Many California safety net providers, including public hospital systems (composed of hospitals and outpatient clinics); and community health centers are investing significant resources to improve specialty care access for their patients.

The Specialty Care Access Initiative (SCAI) is a partnership established in August 2006 among the California Association of Public Hospitals and Health Systems/California Health Care Safety Net Institute (CAPH/SNI), the California Primary Care Association (CPCA), and Kaiser Permanente Community Benefit Programs. Kaiser Permanente Community Benefit Programs and the California HealthCare Foundation have also provided funding for 26 local coalitions to undertake collaborative planning aimed at expanding specialty care access to millions of California residents that depend on safety net providers for their health care.

The SCAI's goals are to:

- identify, test, document and reduce barriers to specialty care access and demand management;
- identify, test, document and implement solutions to increase access to specialty care access;
- document, disseminate and facilitate the utilization of knowledge about barriers and solutions; and
- design, sequence, and implement advocacy strategies for needed change.

As part of their activities, the SCAI partnership has undertaken several activities that would expand the knowledge and approaches to improving specialty care access. The SCAI sponsored a number of round tables and discussion papers on both established and promising practices, and development and distribution of a resource guide. Based on survey feedback from attendees of the round table sessions, CAPH/SNI chose telemedicine for their resource guide and CPCA is addressing scope of practice. This guide is intended to save valuable research hours for professionals working in safety net organizations that are considering developing services via telemedicine. We have compiled information and provided links to web sites from the many existing organizations which are leading and supporting the spread of telemedicine via advocacy, funding, training and convening stakeholders.

It is our hope that this guide will be a useful tool to assist organizations with determining if telemedicine is a smart strategy to help increase access to specialty care. For any questions or additional information, please contact Mary Gregory, Senior Program Associate, at (510) 874-7104 or mgregory@caph.org.

1) Introduction to Telemedicine

Definitions

The American Telemedicine Association uses this basic definition:

Telemedicine is the use of medical information exchanged from one site to another via electronic communications to improve patients' health status.¹

“Telehealth” is an older, broader term which encompasses services such as health education and is not limited to clinical services.

“E-health” is a broad term that encompasses telemedicine applications as well as electronic health records, remote disease monitoring, online education, and many other electronic tools for delivering services and information.²

Please note that this resource guide is limited to telemedicine services. For more information on E-health, see the eHealth Initiative web site at:

<http://www.ehealthinitiative.org/>

There are variations of the basic definition of telemedicine depending upon the organization and their function. A key fact to keep in mind while investigating telemedicine is that it is not a separate medical specialty.

Overviews

The **American Telemedicine Association (ATA)** is a national private, non-profit organization established in 1993 to advocate and be a resource for the promotion of access to medical care via telecommunications technology. The ATA website is straightforward and comprehensive. The “About Telemedicine” section has links to definitions, guidelines and technical standards, and a variety of national resources on telemedicine.

ATA has a 3 page document, “*What is Telemedicine & Telehealth?*” which provides a practical and easy to understand overview. The document can be retrieved by following this link:

http://www.americantelemed.org/files/public/abouttelemedicine/What_Is_telemedicine.pdf

The **U.S. Department of Health and Human Services Agency for Healthcare Research and Quality (AHRQ)** has a National Resource Center which has created a Health IT Adoption Toolbox, developed by the Office of Health Information Technology available on the AHRQ web site. The toolbox has 11 modules beginning with an introduction to Health IT and ending with Privacy and Security Concerns. The “Introduction to Health IT” module includes a thorough and easy to follow presentation on Telehealth 101.

Follow this link to the Health IT section on AHRQ's web site and look in the upper left hand corner to open the toolbox:

http://healthit.ahrq.gov/portal/server.pt?open=512&objID=1135&mode=2&pid=DA_986294&c

The **UC Davis Center for Health and Technology (CHT)** is a leader in the application of telecommunications and health information technology to increase the availability and improve the delivery of health care. CHT services include:

- Distance Education
- Education Courses
- Outreach Programs
- Telemedicine Program

CHT has two brief videos that demonstrate how telemedicine can be used in multiple settings as well as providing a brief overview of telemedicine. If you are very new to researching telemedicine, these videos will enhance your understanding. Click here to view them:

<http://www.ucdmc.ucdavis.edu/cht/services/telemedicine/>

The CHT web site also has five presentations on telemedicine: an overview of telehealth, a telemedicine legal overview, clinical considerations when developing a program, predictors of success, and staff roles and implementation. The videos are intended to accompany, not substitute for, the classroom based telemedicine courses offered by CHT, but do provide a thorough explanation of each topic in under an hour. To review and down load the videos, follow this link:

<http://www.ucdmc.ucdavis.edu/cht/services/education/onlinecourses.html>

The **Centers for Medicare and Medicaid Reimbursement Services (CMS)** has an overview section on telemedicine and telehealth.

<http://www.cms.hhs.gov/telemedicine/>

The **California HealthCare Foundation (CHCF)** issued a 32 page report in July 2008 examining the history, progress, and barriers to wide spread adoption of telemedicine in California. The report is a high- level summary and does not provide much detail on any of the covered topics.

<http://www.chcf.org/documents/policy/telemedicineInCA.pdf>

The **Health Resources and Service Administration (HRSA)** provides practical assistance and guidance. There are a variety of resources available on their web site.

<http://www.hrsa.gov/telehealth/>

In 1996, **The Institute of Medicine (IOM)** published *Telemedicine: A Guide to Assessing Telecommunications in Health Care*:

<http://www.nap.edu/books/0309055318/html/index.html>

2) Recent History and Milestones

The **California Telemedicine Act of 1996 (Senate Bill 1665)** is a piece of milestone legislation which is referenced in the CHCF report noted above. A few key provisions of SB 1665 were as follows:

- Included telemedicine in the practice of healthcare delivery
- Includes psychologists as telemedicine providers
- Requires third-party carriers to reimburse for telemedicine services
- All information is considered part of medical record
- Mandates Medi-Cal reimbursement of telehealth services beginning in 1998

Initiatives

Over the past several years, a number of new and large initiatives have been launched in California to advance the use of telecommunications and health care technology. These are summarized on the **California Telemedicine and eHealth Initiative (CTEC)** website. From the homepage, navigate to the “Telemedicine in California” section.

<http://www.cteconline.org/>

and in detail in the narrative section of the **California Telehealth Network (CTN) Proposal**. See Section 7 on Funding Opportunities for detailed information on CTN. This link

http://fjallfoss.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6519409722

takes you to the section in the CTN proposal describing investments in telehealth through Spring 2007 when the proposal was submitted. Key events are:

- In 1998, the **UC Davis Health System (UCDHS)** received a grant from the United States Department of Agriculture Rural Utilities Service (USDA-RUS), which provided funding for UCDHS to support 22 new end-user telehealth sites in rural northern California. In addition to delivery of clinical specialty services, the project provided primary and urgent care to schools in underserved communities and education to health care providers in geographically isolated rural communities.
- The **California Teleconnect Fund (CTF)** Program was established by the CPUC on October 25, 1996. The Commission created the CTF program to provide a 50% discount on selected telecommunications services to qualifying schools, libraries, government-owned and operated hospitals and health clinics, and community based organizations. See the CTF web site

<http://www.cpuc.ca.gov/PUC/Telco/Public+Programs/CTF/>

for information on eligibility guidelines, application forms and instructions and a list of agencies that are approved.

- Governor Schwarzenegger’s Health Information Technology Executive Order S-12-06, signed July 2006, which allocated \$240 million to achieve full information exchange between health care providers and stakeholders within ten years. Go to this web site and enter “order S-12-06” in the search field to read the complete document.

<http://www.gov.ca.gov/>

- In November 2006, Governor Schwarzenegger signed Executive Order S-23-06, which established a broadband task force to promote broadband access and usage particularly in medically underserved areas. Go to this web site and enter “order S-23-06” in the search field to read the complete document.

<http://www.gov.ca.gov/>

The task force issued its final report in January 2008. For a list of the broadband task force membership, executive summary and final report, follow this link:

<http://www.calink.ca.gov/taskforcereport/>

- In 2005, after mergers of SBC-AT&T and Verizon-MCI, the California Public Utilities Commission (CPUC) formed the **California Emerging Technology Fund (CETF)**, with \$60 million in donated seed funds from the merged entities. CETF is a non-profit organization whose mission is to close the “Digital Divide” and ensure that California is a global leader in the deployment and adoption of broadband.

<http://cetfund.org>

Telehealth-telemedicine is a major policy initiative of CETF; CETF is providing the main match to the \$22.1 million dollars from the Federal Communications Commission to CTN. Since its creation, CETF has granted over 6 million dollars to over 40 organizations.

- In November 2006, California voters passed Proposition 1D,

http://www.sos.ca.gov/elections/vig_06/general_06/pdf/proposition_1d/entire_prop1d.pdf

which provides \$200 million in bond funding to support infrastructure changes necessary to increase the medical student class size at UC’s five medical schools and to develop and expand telemedicine programs throughout the state. Prop 1D is described further in Section 8 on Funding.

The **Universal Services Administrative Company (USAC)** <http://www.usac.org/about> is an independent, not-for-profit corporation designated as the administrator of the federal Universal Service Fund (USF) by the FCC. The Universal Service Fund helps provide communities across the country with affordable telecommunications services. One of the USF programs is the Rural Health Care Program which has facilitated close to \$2 million in discounted telecommunication services in California.

CHCF's report *Telemedicine in California: Progress, Challenges & Opportunities* describes the history of development of telemedicine.

<http://www.chcf.org/documents/policy/telemedicineInCA.pdf>

3) Established and Emerging Telemedicine Services in California

There are many existing examples of both established rural telemedicine networks in California and sites that have developed limited clinical services via telemedicine. Over the past several years, California has been increasingly recognized as a telemedicine and eHealth leader. Between 1997 and 2007, CTEC invested more than \$23 million in re-granting projects to facilitate the growth of telemedicine and eHealth across the state. Funded through grants to CTEC from the California Endowment, California HealthCare Foundation, Blue Shield of California Foundation, and the federal Office for the Advancement of Telehealth, these resources have supported the development of regional eHealth networks and provided funding for technical support and training.

Currently in California, a set of regionally-based telemedicine networks provide services in more than 30 specialty areas and deliver a wide range of health education services for both rural providers and patients. The existing networks are also utilized to support regional health care provider meetings and to facilitate efforts toward development of regional health care delivery systems.

Example networks referenced in the CTN proposal to the FCC

The **Northern Sierra Telehealth Network** supports 29 rural and safety-net providers with a variety of telehealth activities.

<http://www.nsrhn.org/>

Since 1999, the network has been operated by Northern Sierra Rural Health Network (NSRHN), which is a non-profit corporation serving the nine rural counties of Nevada, Plumas, Sierra, Lassen, Modoc, Siskiyou, Trinity, Shasta and Tehama. NSRHN's members include more than 40 rural clinics, rural hospitals, public health departments and other providers. In 2008, NSRHN provided more than 2000 telemedicine consultations via video conferencing.

The **Southern Sierra Telehealth Network (SSTN)** was established and is administered by Ridgecrest Regional Hospital in Ridgecrest, California.

<http://www.rrh.org/ridgecrest/services.aspx>

SSTN presented their telemedicine work at the 2008 Annual American Telemedicine Association conference. The presentation is available by clicking here:

<http://media.americantelemed.org/conf/2008/Presentations/44.pdf>

The **Open Door Community Health Center (ODCHC)** was founded in 1971 to provide health services and preventive health education to residents of Humboldt and Del Norte Counties and to surrounding rural areas of northwestern California. ODCHC has ten clinics and one mobile dental unit. ODCHC's strategy to offer their patients timely access to specialty care was to establish the Telehealth and Visiting Specialist Center (TVSC). <http://www.opendoorhealth.com/telemedicine.php> TVSC was established in 2006 and provides specialty consults via video conferencing sessions in 10 specialty

areas, including behavioral health. The TVSC provides an average of 60-70 consults via telemedicine per month and hosts 2-3 continuing medical education presentations. The TVSC is notable in that it is not dependent upon private grants but has created a financially sustainable model by receiving an enhanced reimbursement rate through a change of scope from HRSA.

The Telehealth and Visiting Specialist Center is also described in the CHCF report on the current state of telemedicine.

<http://www.chcf.org/documents/policy/telemedicineInCA.pdf>

The **Indian Health Service (IHS)**

<http://www.oehe.ihs.gov/telemmed/pdf/CALIFORNIA%20AREA.PDF>

The **Community Clinics Health Network (CCHN)**, is a 501c3 subsidiary of the **Council of Community Clinics**.

<http://www.cchealthnetwork.com>

<http://www.ccc-sd.org/>

The development of telemedicine in California has been concentrated in rural counties where access to medical specialists is a significant challenge and patients must travel for hours. The CCHN is an interesting example of the development of telemedicine over a geographic area that has rural, suburban, and urban communities. CCHN manages a videoconferencing/telemedicine network that spans San Diego, Imperial and Riverside Counties, currently with a project extending telemedicine services to multiple remote community clinics. The CCHN videoconferencing system provides clinical and specialty care through direct telemedicine (provider to patient) and indirect telemedicine (provider to provider).

The Council of Community Clinics (CCC) located in San Diego, California, represents and supports 16 community health center corporations operating at over 95 sites. In 2004, CCC was one of the sites funded by CTEC to create the necessary infrastructure to begin providing some clinical services via telemedicine to community clinics and health centers in the rural areas of San Diego, Riverside and Imperial Counties. Five community health center organizations with 13 sites participated in the project. Together, these clinics serve over 50,000 low-income and underserved patients, almost one-half of whom are uninsured.

CCC used the funds for the purchase of telemedicine equipment such as video conferencing units, broadband connectivity between sites and to other providers, and to train clinic staff at each participating site to assume the role of “telemedicine coordinator.” The telemedicine coordinator’s role is to schedule and coordinate the visit, prepare the equipment for each patient encounter, work w/clinic staff to ensure that both patient and clinician were prepared for the encounter, and to assist with the creation and distribution of protocols and materials for the use of telemedicine services. Per Christy Rosenberg, the Director of Quality & Population Health at CCC, the “telemedicine coordinators

helped increase the service utilization by helping clinicians and patients feel comfortable with the technology.”

CCC’s grant provided them with excellent learning opportunities. One key finding was that the work to install the telecommunications infrastructure for connectivity, purchase, set up and define protocols for the equipment, and learn the billing requirements and reimbursement rules was more straightforward and doable than establishing a provider network of specialists. CCC’s experience may likely mirror that of other safety net primary care clinics—there are often insufficient specialists to see referred patients and this shortage is evident when trying to identify a panel to provide services via telemedicine. CCC surveyed their internal provider capacity and that of clinics in other regions, as a first step in the project. CCC was able to effectively leverage their existing specialist capacity, and was most successful in providing services when specialists were shared between FQHCs. CCC found that the cost of outside specialist’s time to provide services via telemedicine was as prohibitively expensive as for patients referred for in person visits.

CCC also found that when the CTEC grant funding ended, not all participating clinics continued to fund the telemedicine coordinator role, and the use of telemedicine declined when this dedicated assistance was not available. Not surprisingly, telemedicine services are a higher priority for rural clinics than those located closer to urban areas. CCC has utilized the infrastructure they created for telemedicine in other ways. They currently hold staff trainings, CME, staff and provider meetings, and offer patient health education. This has saved time and travel costs for clinic providers, staff and patients that are distributed across a large geographic area.

Emerging Networks

The **Valley Telehealth Partnership (VTP)**, spearheaded by UC Merced, is a project launched in 2008 to establish telehealth programs in six different Central Valley communities to improve local access to medical specialists. To read the press release, follow this link:

http://www.ucmerced.edu/news_articles/06052008_valley_telehealth_partnership_selects.asp

In 2007 UC Merced received nearly \$1 million from corporations and private funders to establish an eHealth network in the region that would improve healthcare access. The six initial sites are laying the foundation for what is expected to become a larger regional project using telemedicine technologies to connect patients and primary care physicians in rural and underserved communities with medical specialists whose services are often unavailable in these areas. By having invested in the infrastructure to extend opportunities for medical education throughout the Central Valley, the UC Merced School of Medicine will be well positioned to provide these services once the school opens.

The starting sites are:

- Castle Family Health Centers in Atwater
- John C. Fremont Hospital, Mariposa – Greeley Hill Clinic
- National Health Services in Oildale
- San Joaquin General Hospital in French Camp
- Sierra Kings District Hospital in Reedley
- United Health Center in Kerman

Sites have received high-resolution video equipment, and are working with advisors from UC Davis' CHT to build their individual programs. While most of the project activities thus far are planned around the sites being the recipient of services, two of the sites will also become hub sites and provide some specialty consults. As with the CCHN Network in San Diego, it is expected that identifying specialists in the near term to provide consults will be the major challenge of the project.

San Francisco General Hospital

A unique example of an emerging telemedicine program that will serve urban patients exclusively is the **University of California at San Francisco's** partnership with the **San Francisco Department of Public Health (DPH)** on multiple telemedicine Initiatives to improve patient health by providing easier access to specialty care and health education information. The initiatives are funded by Proposition 1D dollars. The DPH Clinical telemedicine Program is comprised of San Francisco General Hospital (SFGH), DPH Community Outpatient Clinics (COPC) and the member clinics of the San Francisco Community Clinic Consortium. The telemedicine programs do and will complement in-person clinical services by operating as an electronic version of the current specialty provider system. SFGH will be the Hub serving the multiple Spoke sites—SFGH primary care clinics, COPCs and Community Health Centers.

In summary, the initiatives are:

- 1) Diabetic Retinopathy Screening program. SFGH Ophthalmologists will read images submitted by primary care providers at SFGH/COPC/SF Consortium Clinics using web-based software. Funds will cover the installation of equipment at 6 sites. SFGH anticipates that sending digital images can save time and ensure that diabetic patients receive their annual retinopathy screening by including it as part of their primary care provider visit rather than needing to book a separate and lengthy appointment with ophthalmology.
- 2) SFGH provides telemedicine services via their eReferral product. eReferral is a HIPAA-compliant web-based referral system on a secure Department of Public Health Server. All referrals from PCPs to specialists are submitted via eReferral. The eReferral program is interfaced with all clinical data via the Invision "Lifelong Clinical Record." Referrals are reviewed individually by specialist providers which allows for iterative communication between PCP and specialist. PCPs also use eReferral to obtain consults from specialist providers on individual cases independent of submitting a referral.
- 3) SFGH has envisioned the creation of a UCSF/SFGH/DPH "Telemedicine Call Center" using as the model the existing infrastructure built for their Videoconference Medical Interpretation (VMI) Call Center that serves large portions of the ambulatory care venues at SFGH. VMI has been a successful example of the relatively smooth integration of real-time video technology into high-volume clinics and provider adoption has been fairly rapid and universal. VMI has realized widespread provider acceptance by keeping the "adoption threshold" extremely low. The telemedicine call center will have similar operational support available to ensure that providers can easily use the system. The call center will be piloted with one or two clinics but, if successful, will be deployed to multiple sites including 15 SF community-based clinics linked to UCSF and 12 SFGH Specialty Sites via the Call Center.

- 4) Currently, the SF Department of Public Health and UCSF are operating a Pilot telemedicine Program providing HIV specialty visits including medical consult, pharmacology, nutritional guidance and case management via remote audio/video connection from the UCSF Parnassus Campus. Medical providers and staff at Haight-Ashbury Free Clinic, Maxine Hall Health Center, South of Market Health Center and the Black Coalition on AIDS community center on are able to consult directly using real-time live video with experts in HIV care at the UCSF Parnassus Campus.

4) How/Where to start

The Southern California Telemedicine Learning Resource Center <http://telemedicine.ucsd.edu/> is holding a series of learning sessions called “Telemedicine Learning through an Interactive Network in California” or “Project T-LINC.” The January 2009 session on “Business Planning and Key Factors for Success” is included in the electronic version of this guide, courtesy of Dr. Larry Friedman and the Southern California Telemedicine Learning Center. The presentation’s learning objectives included:

- Understanding Potential Expenses
 - Fixed and Variable
- Understanding Potential Revenue Sources
 - Insurance Reimbursement
 - Contracts or Fee for Service
 - Undercompensated Care

Click here to open the [“Business Planning and Key Factors for Success”](#) presentation:

CTEC has created a 7 step “Telehealth Program Developer” to assist organizations in determining their needs, how telemedicine may be able to address some of those needs and how to create a successful telemedicine program. To view the 7 steps included in the program developer, click here for CTEC’s home page, then look under “CTEC Services”:

<http://www.cteonline.org/index.php>

The “Program Developer Overview Guide” is available at no charge from CTEC, contact their office at

<http://www.cteonline.org/index.php>

The California Primary Care Association and the California Association of Public Hospitals/California Health Care Safety Net Institute hosted a round table on telemedicine in April 2009. Christine Martin, Executive Director of CTEC presented on *Developing a Telemedicine Program*. The presentation provided a thorough overview of telemedicine and the three phases of developing a telemedicine program as defined in their Program Developer. The presentation can be viewed on the Safety Net Institute web site by following this link:

<http://www.safetynetinstitute.org/content/SpecialtyCareResources.htm>

and scrolling down to “Round Table Forum # 7: Telemedicine”

The Health Resources and Service Administration’s **Office for the Advancement of Telehealth** features a link to a comprehensive document, ***A Guide to Getting Started in Telemedicine***, which includes a detailed and technical chapter on telehealth technology. The chapter focuses on broadband interactive technologies and networks and may be useful in gaining a thorough understanding of networks and their building blocks. The chapter would be of most use to those that are either interested in or need to know about the technology details of establishing telemedicine services.

<http://telehealth.muhealth.org/general%20information/getting.started.telemedicine.pdf>

Health Care Excel is a private consultation company which provides assessments in objectively evaluated health-care quality, clinical appropriateness, and outcomes. Health Care Excel developed a toolkit in 2005 in collaboration with CMS for designing a telemedicine program in a hospital setting in their role as the Indiana Medicare Quality Improvement Organization. The toolkit covers topics such as transformation, tools, reimbursement and vendors. The toolkit includes two PowerPoint presentations; one provides an overview of telemedicine and the second is a comprehensive guide to planning for change.

http://www.hce.org/Education/Telehealth_Toolkit.html

5) Legal/Policy Issues

As previously stated in this guide, California has been a national leader in telemedicine policy. But much still remains to be done to facilitate the wider adoption of clinical services via telemedicine. CTEC led a “**Telehealth Optimization Initiative**” which was a statewide collaborative of key stakeholders in telemedicine. The “Major Findings and Recommendation Report” was released in February 2009 and is available from CTEC’s web site. Go to the home page and then click on “CTEC Telehealth Optimization Initiative.”

<http://www.cteconline.org/>

The Telehealth Optimization Initiative collaborative members developed two overarching policy recommendations which promote and support telemedicine use whenever possible in all care settings. They are:

- Telehealth and telemedicine services should be developed and implemented in every situation where patient care, access, provider availability, efficiency, or cost of service can be positively impacted.
- Telehealth and telemedicine should be a covered and reimbursable method for the delivery of services across the entire spectrum of healthcare services.

As described in Section 9 on Funding Opportunities, one of the **California Center for Connected Health (CCCH)** four goals is to

- Identify and promote practice patterns, policies, regulations, and statutory changes that will maximize the ability of telehealth to improve health outcomes and care delivery

As of the release of this guide, CCCH’s role in statewide policy has yet to be fully determined.

The **American Telemedicine Association** takes an active role in policy. The ATA’s web site has a section devoted to public policy which includes white papers, and policy updates.

<http://www.americantelemed.org/i4a/pages/index.cfm?pageID=3286>

The **Center for Telehealth and E-health Law (CTEL)** is a membership non-profit organization that provides public policy analysis on telehealth, e-health, and emerging technologies.

<http://www.ctel.org/>

CTEL changed its name from the Telehealth Law Center in 2005. The web site page noted below is CTET’s “Telecommunications Legal and Regulatory Issues” main page.

<http://www.telehealthlawcenter.org/?c=123>

CTEL also offers a “Washington Live” Brown Bag series, a list serve, and resources on a variety of key topics in telemedicine.

Regulations

The Joint Commission has standards on the provision of telemedicine services.

www.Jointcommission.org

Standard MS.13.01.01 reads, “For originating sites only: Licensed independent practitioners who are responsible for the care, treatment, and services of the [patient] via telemedicine are subject to the credentialing and privileging processes of the originating site.” For more information on Standard MS.13.01.01, go to the Joint Commission web site home page and enter MS.13.01.01 in the web site’s search field.

6) Reimbursement

One of the critical barriers to widespread adoption of telemedicine is limited reimbursement from both Federal and State Programs. The following resources contain detailed information on which telemedicine services are billable, how to bill correctly, and the requirements that must be satisfied for full reimbursement.

California Telemedicine and eHealth Center's *Telemedicine Reimbursement Handbook* is a comprehensive reference guide on Legal and Regulatory Issues, Major Payors for Reimbursement, listings of Health Professional Shortage Areas that qualify for Medicare reimbursement and a listing of CPT codes related to Medi-Cal reimbursement. The *Telemedicine Reimbursement Handbook* can be downloaded from the CTEC web site by going to the home page and then navigating to the Discovery Series section under "CTEC Services":

<http://www.cteconline.org/index.php>

CTEC also released a guide in March 2009, *FQHC Reimbursement Models* as one of their "Discovery Series" publications. The guide provides a practical explanation of reimbursement models for Federally Qualified Health Centers (FQHCs) operating under Prospective Payment Systems (PPS). Go to CTEC's home page and navigate to the Discover Series section under "CTEC Services."

<http://www.cteconline.org/index.php>

The **American Telemedicine Association** has a straightforward 6 page white paper on Medicare reimbursement including eligible medical services by CPT code, available on their web site on the "Telemedicine Reimbursement Central" page here:

<http://www.americantelemed.org/i4a/pages/index.cfm?pageid=3345>

The **Center for Telehealth and ehealth Law (CTEL)** has an overview of Medicaid reimbursement on their web site with links to the statutes and reimbursement manuals for the 27 states that provide reimbursement for some telemedicine services. *For more information on CTCL, see page 16 under Section 6 on Legal and Policy Issues.* This link takes you to the overview page.

<http://www.telehealthlawcenter.org/?c=128>

The information contained in the California reimbursement manual is summarized in CTEC's reimbursement manual. For the full 8 page California Medicaid Reimbursement Manual follow this link:

http://www.telehealthlawcenter.org/loadattachment.php?attachmentid=128_1528_264

The Medicare Benefit Policy Manual is available on the CMS web site. This link takes you to section 270 on Telehealth Services.

<http://www.cms.hhs.gov/manuals/Downloads/bp102c15.pdf>

CMS enacted payment increases for telemedicine in December 2008 effective January 2009. For the complete download, click here:

<http://www.cms.hhs.gov/Transmittals/Downloads/R419OTN.pdf>

<http://www.cms.hhs.gov/transmittals/downloads/R1026cp.pdf>

7) Funding Opportunities

There are many entities investing in the development of telemedicine, both public and private. The opportunities range from one-time infrastructure investments to foundation funding for specific projects. Although application deadlines for some grants have passed, we are including information on all significant funding sources and initiatives as they are a critical part of the landscape in the evolution of telemedicine services.

Foundations

The California Endowment

The California Endowment (TCE) is a key private funder for telemedicine. Since 1999, they have awarded over \$14 million to large and small organizations to launch telemedicine projects. The two largest investments have been to the California Health Foundation & Trust, a non-profit organization which houses CTEC. TCE provided CTEC with a \$5 million award in 1999 to increase the availability and quality of telemedicine and eHealth statewide. In 2003, TCE awarded CTEC a 5- year \$9,000,000 grant to address the delivery of healthcare services to rural and underserved communities through the development, expansion, and support of telemedicine and eHealth regional rural eHealth networks, and the provision of training and technical support for rural providers. TCE is currently only funding commissioned telemedicine initiatives.

California HealthCare Foundation

The California HealthCare Foundation (CHCF) has funded and reported on multiple telehealth and telemedicine issues and initiatives. CHCF has compiled the information on their website at

<http://www.chcf.org/topics/index.cfm?topic=CL707>

In 2005, CHCF and TCE (through CTEC) funded a pilot Diabetic Retinopathy Screening program in the Central Valley in California using EyePACS, www.eyepacs.org, a web based software program designed by the University of California School of Optometry. The pilot successfully trained community clinic staff in the central valley to take pictures of diabetic patient's retinas. The images were read by UC Berkeley Optometrists to screen patients for diabetic retinopathy, a serious condition which can cause blindness.

The pilot was deemed a success and CHCF funded a 1.8 million dollar rollout involving 47 sites in December 2007. This grant runs through December 2010. In March 2009, the "EyePACS Handbook" written in collaboration with the CHCF and the UC Berkeley Optometric Eye Center was posted to the EyePACS web site. Click here to open and download the hand book.

<https://www.eyepacs.org/relatedResources.do>

A new initiative launched in January 2009 is the 5 million seed grant to establish the **California Center for Connected Health (CCCH)** which CHCF describes as the “coordinating entity to link the many players involved and foster a vision for the future.”

CCCH’s role is envisioned to:

- Promote a shared vision for telehealth adoption and integration in the health care delivery system;
- Work to ensure that California is a national model of telehealth integration;
- Identify and promote practice patterns, policies, regulations, and statutory changes that will maximize the ability of telehealth to improve health outcomes and care delivery; and
- Manage a specialty care pilot project for UC campuses and community-based clinics to develop a sustainable model for telehealth services.

<http://www.chcf.org/topics/view.cfm?itemID=133805>

For the press release announcing CCCH, follow this link:

<http://www.chcf.org/press/view.cfm?itemID=133813>

Blue Shield of California Foundation

Effective January 2009, **Blue Shield of California Foundation (BSCF)** ceased funding Health IT. For the iHealth Beat article on the announcement, click here for the iHealthBeat homepage and then search by Blue Shield of California Foundation:

<http://www.ihealthbeat.org/>

Prior to the announcement, BSCF funded a variety of grants in the area of health and technology ranging from assisting hospitals with participation in the Institute for Health Care Improvement’s 100,000 lives campaign to fostering the adoption of electronic health records in community clinics by investing in the development of a “hub model” of support for community clinics.

Government Funding

There are multiple programs available to fund both connectivity and telemedicine equipment. This list may not be complete, and the status of some of the programs may have changed since this guide was compiled.

The **Federal Communications Commission** initiated a pilot funding program to facilitate the creation of a nationwide broadband network in November 2006. The **Rural Health Care Pilot Program** aims to deploy broadband to reach over 6,000 health centers across 42 states and 3 U.S. territories.

<http://www.fcc.gov/cgb/rural/rhcp.html#orders>

In 2006 the California Governor's office formed a consortium of stake holders to create a proposal which was submitted in May 2007 to connect 319 health care sites distributed over the entire state but concentrated in the North Coast and San Joaquin Valley. In November 2007, California's proposal was awarded up to \$22.1 million which is the second largest award in the United States.

The stated goals are to:

- 1) Create a statewide broadband network dedicated to health care, connecting public and non-profit health care providers in California's rural and urban areas, and bringing the benefits of telemedicine to the areas of California where the needs are most acute;
- 2) Link the California Telehealth Network to a nationwide backbone, creating greater access for the state's health care providers to continuing education, research, and peer to peer networking;
- 3) Leverage and build upon California's historic and recent investments in telehealth;
- 4) Utilize the California Telehealth Network for ongoing disaster preparedness training; and
- 5) Report back to the FCC on the State of California's pilot program as to lessons learned regarding access to advanced services for public and non-profit health providers, and suggested revisions to the FCC's current rural health rules

For the complete 128 page proposal, click here:

http://fjallfoss.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6519409722

For PowerPoint slides created for a webinar CTN held in June 2008, click here:

http://www.caltelehealth.org/documents/csra_062308.pdf

Some of the information provided in the presentation will be outdated, but it succinctly lays out how the program is organized, program goals and how this initiative differs from the traditional rural health care connectivity funding programs.

As of April 2009, the CTN is evaluating the bidder proposals for network services. The scope of the RFP is to develop a statewide network that will comprise over 700 health care clinics, hospitals and other eligible health care facilities throughout the state. See the CTN website at www.caltelehealth.org for updated information.

The United States Department of Agriculture's (USDA) office of Rural Development <http://www.rurdev.usda.gov/> offers a number of programs designed to increase economic opportunity and improve the quality of life in rural communities. The USDA's telecommunications program includes grant making for distance learning and telemedicine. For information on current grant opportunities (announced in January 2009), past grantees, and a 2009 toolkit, click here:

<http://www.usda.gov/rus/telecom/dlt/dlt.htm>

HRSA supports increased use of telemedicine in multiple ways, including funding a variety of grant programs in telehealth. HRSA has supported many programs in California, including the California telemedicine and e-Learning Center, one of 6 Telehealth Resource Centers in the U.S.

For information on current telemedicine grant programs, click on this link and search under “Health Information Technology”

<http://www.hrsa.gov/telehealth/default.htm>

Grants.Gov

Grants.gov was established as a governmental resource called the E-Grants Initiative, which was part of an overall effort from the President’s 2002 Fiscal year Management agenda to improve government services to the public. Grants.gov is a central storehouse for information on over 1,000 grant programs. Go to their web site <http://www.grants.gov/> to review current government grant opportunities in telemedicine, sign up to receive e-mail alerts of grant opportunities, and to search their web site for funding opportunities.

Proposition 1D

California’s Proposition 1D is the Kindergarten–University Public Education Facilities Bond Act of 2006. The \$10,416,000,000 bond has provisions for improving earthquake safety, funding vocational educational facilities in public schools, repairing and upgrading existing public college and university buildings, and to build new classrooms to accommodate the growing student enrollment in the California Community Colleges, the University of California, and the California State University.

Proposition 1D is relevant for this guide as it has provisions for a \$200 million allocation for capital improvements distributed among the five University of California Schools of Medicine to be used for “...capital improvements that expand and enhance medical education programs with an emphasis on telemedicine aimed at developing high-tech approaches to health care.” The funding is intended to enable UC to invest in new facilities and state-of-the-art equipment to develop and expand new telemedicine programs and to improve the skills of future California providers.

For a summary, analysis and text of the laws, click here to view the full 12 page document.

http://www.sos.ca.gov/elections/vig_06/general_06/pdf/proposition_1d/entire_prop1d.pdf

In addition, there is a line-item allocation of \$10 million to create a “community investment fund” to assist with the cost of equipment needed to expand telemedicine services at community health care sites that is anticipated to increase access to health services in underserved areas. A first installment of \$5 million was planned for disbursement in FY 08-09. The five medical schools were to submit a list of recommended community partners to the University of California Office of the President.

Stimulus Funding

The American Recovery Reinvestment Act of 2009 (ARRA) includes \$7 billion to invest in broadband and telehealth. The funding is concentrated into three programs:

- Broadband Technology Opportunities Program (BTOP)
- Distance Learning, Telemedicine and Broadband Program (DLTB)
- Indian Health Service

The CCCH published an Issue Brief in April 2009 which outlines the provisions of each of the programs, makes recommendations for how California can take advantage of ARRA for each program, and includes a “Telehealth Map” which illustrates the roles of the many organizations involved in Telehealth in California and how they intersect. The document is available on CCCH’s web site here:

<http://www.connectedhealthca.org/>

The California Primary Care Association and the California Association of Public Hospitals/California Health Care Safety Net Institute hosted a round table on telemedicine in April 2009. Margaret Laws, Director, Innovations for the Underserved at CHCF presented on *Opportunities in Broadband and Telehealth for California Providers*. The presentation focused on the Federal Stimulus and the California Telehealth Network and can be viewed on the Safety Net Institute web site by following this link:

<http://www.safetynetinstitute.org/content/SpecialtyCareResources.htm>

and scrolling down to “Round Table Forum # 7: Telemedicine”

8) Infrastructure

There are multiple information sources to learn what equipment is needed to establish telemedicine services, search for vendor listings by type of service, and research the vendors. In addition to learning about the various types of equipment to purchase, organizations should also assess maintenance requirements, what ongoing support they can expect from the equipment vendor, and what their organization's internal information technology staff will need to provide. If the organization has no previous experience using video conferencing equipment, they will need to have their IT staff trained if their vendor contract does not provide ongoing technical support.

HRSA's **Office for the Advancement of Telehealth** document, ***A Guide to Getting Started in Telemedicine***, was referenced earlier in the guide under Section 4. See Chapter 13, "Telehealth Technology" for detailed and technical information which be of most use to those that are either interested in or need to know about the technology details of establishing telemedicine services.

<http://telehealth.muhealth.org/general%20information/getting.started.telemedicine.pdf>

CHCF issued a report in December 2002, *Rural Health Care Delivery: Connecting Communities Through Technology*. The 37 page report states the purpose of the report "is to provide an overview of practical technology solutions for rural providers and to help them get started." The report provides an explanation of the most recent technological developments as of the issue date, how to select the correct equipment for your site, case examples of technology solutions, practical issues in getting started and appendices including resources and vendor information.

The report is available at

<http://www.chcf.org/documents/hospitals/RuralHealthCareDelivery.pdf>

ATA's Core Standards for Operations is a guide to organizations which are establishing telemedicine services to follow the requirements for ATA's best practices published in February 2008. The cost of the guide is \$60.00 for non-members.

The ATA's Marketplace page is a portal to ATA products and products and services offered by the telemedicine industry. The page is searchable by both vendor and product type.

<http://www.americantelemed.org/i4a/pages/index.cfm?pageID=3299>

The **Telemedicine Information Exchange** web site has a list of vendors that can be sorted by region, technology type and vendor.

<http://tie.telemed.org/vendors/>

CTEC published an extensive 32 page glossary of telemedicine and eHealth in 2006 including the definitions of the International Telecommunications Union (ITU) for audio quality, video conferencing and video coding equipment. This is available on line as part of their “Discovery Series” documents

<http://www.cteonline.org/>

9) Learning Opportunities

Learning Centers

In addition to the many web sites and available reports, there are two telemedicine Learning Centers in California, one in Northern California and one in Southern California. In 1999, CTEC established the **Telemedicine Learning Center (TLC)** in partnership with the University of California, Davis Medical Center (UCDMC). Its goal is to provide professional training in telemedicine protocol, implementation, and technique. The TLC North has developed a hands-on, classroom-based telemedicine and eHealth training curriculum. Information on the entire curriculum and courses is available at:

<http://www.ucdmc.ucdavis.edu/cht/services/education/curriculum.html>

One Day telemedicine Courses

<http://www.ucdmc.ucdavis.edu/cht/services/education/onedaysession.html>

Two Day telemedicine Courses

<http://www.ucdmc.ucdavis.edu/cht/services/education/twodaysession.html>

Three Day telemedicine Course

<http://www.ucdmc.ucdavis.edu/cht/services/education/threedaysession.html>

There are scholarships available to attend the courses. For information on how to apply, click here:

<http://www.ucdmc.ucdavis.edu/cht/services/education/scholarship.html>

TLC also has five presentations available on-line that were pre-recorded in 2005. Please note that the Legal Overview may be somewhat outdated. The introductory videos were referenced earlier in the guide. The topics are:

- [Telehealth Overview - by Dr. Thomas Nesbitt](#)
- [Telemedicine Legal Overview - by Anna Orłowski](#)
- [Clinical Considerations in Developing a Successful Program - by Dr. Thomas Nesbitt](#)
- [Predictors of Success - by Jana Katz](#)
- [Staff Roles and Implementation - by Kathy Chorba](#)

In 2007, CTEC awarded the University of California, San Diego School of Medicine a \$1 million grant to support the development and implementation of a **Southern California Telemedicine Learning Center**. Southern California TLC offers trainings, continuing medical education, provider consults to the medical staff caring for students in the Imperial County School District and physician trainings to clinicians in the UCSD Physician Assessment and Clinical Education Program.

The Southern California TLC offers both on-site and remote courses. For information on the curriculum and course information, click here:

<http://telemedicine.ucsd.edu/>

Conferences

ATA hosts an annual meeting and exposition. 2009 was the 14th annual event and was held April 26th-28th, 2009. To download the program, click here:

<http://www.americantelemed.org/i4a/pages/index.cfm?pageID=3486>

There are multiple certificate courses available prior to the meeting, from basic to advanced training. A listing of courses is available here:

<http://www.americantelemed.org/i4a/pages/index.cfm?pageid=3493>

The **Agency for Healthcare Research and Quality** hosts an annual conference which has included sessions on telemedicine in recent years. Check the events section on their web site for upcoming details on the 2009 annual conference and beyond.

<http://www.ahrq.gov/about/eventix.htm>

The **International Association of Science and Technology for Development (IASTED)** is a non-profit organization devoted to promoting economic and cultural advancement. IASTED holds conferences around the world on a variety of topics. In 2009, there will be a conference in the U.S. on Telehealth and Assistive Technology November 2-4. As of the date of release for this guide, the agenda is not finalized.

<http://www.iasted.org/conferences/>

CTEC has a listing of conferences relevant to telemedicine on their web site at

<http://www.cteonline.org/resources.php>

10) Organizations & List Serves

Organizations

- ATA (American telemedicine Association)
<http://www.atmeda.org/>
- Anthem Blue Cross Telemedicine Program
http://w2.anthem.com/bcc_state/tm/info/index.asp
- California Telemedicine and eHealth Center
<http://www.cteonline.org/>
- Center for Telehealth and e-Health Law
<http://www.ctel.org/>
- Health Resources and Services Administration (HRSA)
<http://www.hrsa.gov/telehealth/>
- Telemedicine Information Exchange (TIE)
<http://tie.telemed.org/default.asp>
- UC Davis, Center for Health and Technology
<http://www.ucdmc.ucdavis.edu/cht/>
- Telehealth.Net
<http://www.telehealth.net/>
- Teledermatology
CTEC's Teledermatology Practice Guide was written by Dr. Marc Goldyne at UCSF
http://www.cteonline.org/_pdf/Teledermatology-Practice-Guide.pdf
- Internet Dermatology Society
<http://telemedicine.org/>

- ATA runs nine “Special Interest Groups”, some of which sell electronic publications.

<http://www.americantelemed.org/i4a/pages/index.cfm?pageID=3305>

- Teleretinopathy
The EyePACS web site has a “Clinic Management/Clinic Resources” section.

<https://www.eyepacs.org/relatedResources.do>

and the “EyePACS Handbook”

https://www.eyepacs.org/RelatedResources/EyePACS_Handbook_FINAL_3_9_09.pdf

- Telepharmacy

<http://www.telepharmacysolutions.com/about.html>

Telemedicine in the News

There are many list serves covering telemedicine. These are links to some key sources of information:

- iHealthBeat: <http://www.ihealthbeat.org/>
- California Healthline: <http://www.californiahealthline.org/>
- Telemedicine Information Exchange (TIE) News: <http://tie.telemed.org/news/>
- Anthem Blue Cross telemedicine http://w2.anthem.com/bcc_state/tm/info/news.asp
- Federal Telemedicine News <http://www.federaltelemedicine.com/index.html>

This is a blog posted by the Bloch Consulting Group providing news briefs and information from federal agencies and Capitol Hill on government activities, legislation, and grants of interest to the telemedicine, telehealth, and health IT community.

11) Glossary of terms

Multiple organizations have posted glossaries on their web sites. We have listed some of them below. CTEC produced a reference book, *A Glossary of Telemedicine and eHealth* which is available for download from their web site. Go to CTEC's home page, then navigate to the "Discovery Series" under CTEC Services.

<http://www.cteconline.org/index.php>

AHRQ posted a glossary of Health IT terminology, of which telemedicine is a sub set, from the West Virginia State Medical Association. The glossary is archived on the web site and can be located using the search function on the AHRQ web site. Link to the Health IT page here:

<http://healthit.ahrq.gov/portal/server.pt?open=512&objID=650&PageID=0&parentname=ObjMgr&parentid=106&mode=2&dummy=>

ATA has a guide on "frequently used" terminology in telemedicine.

<http://www.americantelemed.org/files/public/abouttelemedicine/Terminology.pdf>

Telehealth.Net's glossary is available at

<http://www.telehealth.net/glossary.html>

¹ telemedicine Defined, American telemedicine Association www.americantelemed.org

² telemedicine in California: Progress, Challenges and Opportunities.