

TELEDENTISTRY OVERVIEW: UNITED STATES OF AMERICA

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Abstract

This paper describes current teledentistry practices in the United States of America. The health landscape of the country is reviewed and the emerging need for remote health services discussed. The origins, current guidelines, legal issues, and financial arrangements for teledentistry are described. Specific attention is paid to emerging teledentistry programmes throughout the country, including a case study of a successful and expanding teledentistry programme in the state of Oregon. Although the literature has long touted the health and economic benefits associated with teledentistry, it has become clear that this technology has generally outpaced policymaking and regulatory agencies. This paper attempts to contextualise and review leading developments in teledentistry to aid in the dissemination of otherwise fragmented efforts and experiences.

Keywords: teledentistry; telemedicine; United States of America

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Introduction

The United States of America (USA) is unique among developed countries as it does not have universal healthcare coverage. Clinical oral healthcare is predominantly provided by a private-practice dental workforce, and public oral healthcare is limited to private practices willing to accept public insurance or clinics specifically set up for public dentistry. The federal government exerts regulatory power in public health through the Department of Health and Human Services (DHHS) and funds two national public health plans: Medicare (elderly and disabled) and Medicaid (low-income population with eligibility requirements varying by state). Although both of these public health plans are federally funded, only Medicaid receives additional, variable funding from each state. This gives each state the authority to address their own specific health concerns. Furthermore, state governments often pass on some decision-making authority to local governments at county, city, and town levels. This allows communities to allocate public health resources and make decisions specific to their needs as long as they stay within the regulatory scaffolding laid out by both the state and federal government. Therefore, no two states or communities are the same.

While both public and private health insurance plans are available in the U.S., general health plans do not include dental benefits. Individuals must purchase separate, private dental insurance plans through their employer or via federal and state-run Internet marketplaces unless they are eligible

for public dental plans funded individually by each state under their Medicaid insurance plans. Medicare does not include dental coverage. At the end of 2016, it was estimated that 77%, or 249.1 million Americans had dental benefits, about two-thirds of which were private dental benefits. 83.9 million Americans received public dental benefits, while an estimated 74 million had no dental coverage at all. Four times the number of Americans lack dental insurance compared to medical insurance.¹ States have a federal mandate to provide children eligible for Medicaid – but not adults – with comprehensive dental care. Although the majority of states fund some public dental benefits for adults, coverage may vary from only emergency dental treatment to comprehensive dental benefits.

There are profound oral health disparities within segments of the population; these disparities exist across racial and ethnic groups, vary by socioeconomic status, gender, age and geographic location. People living in rural or underserved areas are among the most in need of oral healthcare, and often face the most barriers to care. Common barriers to oral healthcare include economic factors such as unemployment, the ability to obtain and keep dental insurance, cost of treatment, transportation barriers, education level, and lack of oral healthcare providers in some communities. These individuals tend to seek medical or dental treatment on an emergency basis and suffer unnecessarily from higher rates of dental diseases and overall poorer health outcomes.

According to the American Dental Association, the aggregate number of dentists in the U.S. appears to be generally sufficient to meet the demands of the population for dental care, but due to the variation in distribution of dentists across the U.S., rural areas have fewer than 1% of active dentists.² The Surgeon General's report estimated in 2000 that about 25 million people resided in these rural areas. To tackle the inadequate distribution of providers in general medicine, telemedicine has used teleconsultation services to address shortages of both general or specialty providers in underserved communities. This has been very successful in the U.S., bringing patient-centred services to communities in need, while also demanding a teamwork-approach from clinical providers and community staff to deliver effective care. With demands on providers to keep up with the rapidly changing medical and dental knowledge, the ability to collaborate and promote peer to peer distance learning is crucial in the ability for patients in underserved areas to be managed with the most up to date guidelines.³

Current teledentistry practices

Teledentistry in the USA began as a military project in 1994, focusing on improving the oral health of troops and their dependents around the world. The project concluded that teledentistry decreased overall costs, was expandable to remote and rural areas, and offered better care for patients than the traditional referral process.⁴ Over the last decade, the conclusions of the military project have been demonstrated through the successful expansion and implementation of teledentistry pilot projects and services to remote and rural areas across the USA.

The majority of teledentistry services provided are within the public health arena targeting access to care barriers for people residing in underserved communities. Efforts are focused on risk assessment, early detection for intervention, facilitating timely treatment of oral diseases, improving oral health education, and bringing coordinated quality oral healthcare to patients within their home communities.⁵ Due to the interactive and tactile nature of dentistry, the success of a teledentistry programme is highly dependent on a team-based approach for delivery of care.

The care team usually consists of a dental hygienist and dental assistant at a community location, and a dentist or specialist off-site at another location. Furthermore, the dental care team is dependent upon a broader support team consisting of community healthcare workers, social workers, ICT experts, patient navigators, and care management services which often handle the logistical barriers faced by patients.⁵ Both a store-and-forward teledentistry model and real-time model are used in the U.S., however, which model is used hinges on the scope of practice for dental hygienists of that state as well as the reimbursement structure. Some states require a dental visit prior to provision of any services in the community by dental hygienists or assistants; thus a real-time consultation model allows the dentist to authorise services prior to delivery while the patient is present at the

community site. The store-and forward method is most effective in states that allow dental hygienists to provide preventive services without prior authorisation from a dentist. In some states, dental hygienists are permitted to place cavity-liners and bases, place and remove temporary restorations, place and remove temporary crowns, and place and finish amalgam and composite restorations, while in other states, some or all of these restorative duties may be outside the scope of practice for dental hygienists.⁶

California was a pioneer state in teledentistry. In 2010, Dr Paul Glassman created the Virtual Dental Home (VDH) to use telehealth technology in the delivery of oral healthcare to schools and long- term care facilities.⁷ The VDH uses the store-and-forward method by providing a secure cloud-based dental software where community dental hygienists and assistants can upload patient records for a dentist or specialist to view at a later time. After a six year study with more than 3000 patients, the VDH model of care delivered more preventative care with interventions at less cost per patient than California's current Medicaid system.⁷ This is significant, as a major barrier to implementation of teledentistry services nationwide is the lack of support from insurers and state Medicaid programmes to fund teledentistry programmes. Several states have used California's VDH model to launch their own teledentistry programmes, including Oregon, Ohio, Arizona, Minnesota, Alaska, and Hawaii.⁸

Teledentistry guidelines and legal issues

In January 2018, the American Dental Association (ADA) developed two current dental terminology (CDT) codes for reporting dental services and procedures to dental benefit plans: D9995 (synchronous "real-time" encounters) and D9996 (asynchronous "store-and-forward" encounters) teledentistry.⁹ Establishment of these nationally recognised codes marks a key transition in the practice of teledentistry across the USA, as services can now become reportable to insurers – and potentially reimbursable. Prior to these CDT codes, most projects had no mechanism for recognition of potentially reimbursable teledentistry encounters. This reflects a growing interest in the field of teledentistry from dental professionals and public health departments nationwide.

These codes introduce teledentistry among the existing oral health benefit codes, which include all procedures performed in dentistry reported to insurers. Although this is a necessary step towards progress, services are not reimbursable until each state defines and implements their own rules governing teledentistry. These include who can perform teledentistry services, accountability and scope of practice of dental professionals participating in teledentistry, licensure requirements, privacy, consent, liability, reimbursement, and all regulations governing the implementation of teledentistry services. Currently, each state is at various stages of defining and implementing laws pertaining to teledentistry, and many seem to be adopting a

definition closely aligned with already established telemedicine laws. Lastly, it is unclear how each state will allow the application of teledentistry codes in the realms of general dentistry, oral and maxillofacial surgery, orthodontics, endodontics, oral medicine, etc.

Along with the absence of a universal healthcare system, there is no national licensure for medical and dental providers. Thus, the reach of an individual dentist is limited to the state in which they maintain licensure; but even within states, there is concern that electronic patient information may be intercepted despite maximum efforts to maintain security.¹⁰ Federal mandates that require meaningful use of electronic health records have increased the extent of communication infrastructure and the proliferation of capable technology able to connect telehealth systems and providers. Secure transmission of health information is required, and allows for improved communication between providers and patients.⁵

Financial Arrangements

Teledentistry has the potential to be a cost-effective oral healthcare delivery model for both patients and providers; however, finding sustainable funding to provide the services has been challenging. Reimbursement for telehealth services varies between private insurance providers and public benefit plans. Each insurer has specific reimbursement rules, and these rules require expansion to cover telehealth services.¹¹ With the recent establishment of specific teledentistry CDT codes defined by the ADA, dental providers now have the opportunity to submit to insurance plans for reimbursement. For example, the state of Georgia has found significant cost savings from offering diagnostic and treatment intervention teledentistry services to school children compared to traditional dental visits - but this programme is not yet self-sustaining and relies on public health funding.¹² Similarly, the Nationwide Children's Hospital in Ohio received funding from grant money to create a teledentistry programme to aid with education, emergency care, and outreach.¹³ These programmes may become self-sustaining with the implementation of these CDT codes.

Medicare remains one of the most restrictive insurers in terms of telehealth reimbursement rules, severely limiting telemedicine services targeted at seniors and offering no dental benefits. Medicaid plans are generally more liberal in reimbursing for telehealth services, and in some states have rules now allowing for reimbursement of teledentistry services.¹⁴ For example, In 2017, in Hawaii the governor signed a law requiring reimbursement to dentists performing teledentistry services at the same rate as a face-to-face visit, as the state conducted a large pilot project to address one of the highest caries rates in the nation compounded by lack of water fluoridation.⁸ Similar reimbursement legislation in the state of Minnesota has allowed a non-profit dental practice to use teledentistry to reach the 62% of patients eligible for Medicaid but who are turned away by providers unable to see new patients.¹⁵ So far, these projects are consistently

demonstrating that teledentistry is an effective way to bring dental care to underserved populations.⁷

Upcoming policies for states will likely be influenced by existing telemedicine policies. As of October 2018, 49 state public health policies offer reimbursement for live video encounters while 11 states provide reimbursement for store-and-forward. The following states have policies allowing public health insurance reimbursement (Medicaid) for teledentistry: Arizona, California, Georgia, Minnesota (for children, pregnant women, and limited adult benefits), New York, North Carolina (synchronous only), Tennessee, and Washington.¹⁴ Several more states are expected to join this list in 2019. This is a constantly changing policy landscape that will likely be reflected in dental policies in the United States in the coming years.¹⁶

Successes and failures

In a report highlighting six case studies throughout the USA, participants commented on the efficacy of teledentistry for patients, specifically on the advantages for triaging patients to the most appropriate level of care.⁵ The report described outcomes including shorter wait times and more effective, timely treatment. Patients reported teledentistry as a convenient model to access care and were often able to remain in their local communities for basic oral health services, care management and treatment. This conserved scarce dental resources in underserved communities for the patients in need of more extensive treatment. For children and the elderly, teledentistry services are especially useful, as they are dependent on transportation by others. Care can be delivered in nursing homes or schools, where children demonstrate less dental anxiety and more cooperation in a familiar setting.⁵

Telehealth has made general and specialty care accessible, and has even brought healthcare directly to patients via mobile apps or websites. Teledentistry apps exist within the USA allowing patients to find a dentist to virtually diagnose or comment on their dental condition. Similar apps exist in orthodontics, patients can upload images and dental records to clear aligners and retainers made for a virtually established orthodontic treatment plan. Despite this growth, dentists and specialists are still largely unaware of teledentistry. Those already participating in teledentistry have expressed concern for its inadequate funding and reimbursement for services.⁵ Other immediate challenges facing the field include inter-state licensure, jurisdiction and malpractice, technological infrastructure, software compatibility, security, and ethical matters.¹⁷ Establishing a teledentistry programme has costs that accrue at both hub and spoke locations, and until both dentists and dental hygienists (or similar providers) are recognised as official "telehealth providers" by state laws, teledentistry programmes will continue to struggle financially.

Future

Implementing a teledentistry programme requires extensive planning and collaboration between all participants as every

detail of the care delivery process, from consents to actual treatment needs to be carefully considered. There currently are no formal training programmes to aid dentists, allied dental healthcare workers, and community staff on how to build a teledentistry programme. Dental hygienists, therapists, and assistants are used as the primary intermediaries between dentists and patients in the USA teledentistry model. Although these mid-level providers can pursue additional training to increase their scope of practice and level of supervision (direct or indirect), regulations vary by state and procedure. Agreement on utilisation of mid-level providers remains controversial as each state works towards defining rules to govern teledentistry.

Recognising the impact on future generations, dental schools are already weaving teledentistry into their curriculum – the largest dental school in the U.S., New York University (NYU) has developed a teledentistry curriculum for pre-doctoral students.¹⁸ In addition to a promising strategy for public dental health access in underserved communities, teledentistry has been touted as financially advantageous for the private practitioner serving a greater area in their community without needing to add more chairs. Technology is not a major factor in limiting the growth of teledentistry; rather, technology has outpaced policy makers and the near future is centred around legislative issues. The landscape of teledentistry will continue to change, and major changes are on the horizon as new laws and policies are implemented.

Case study

In 2015, the first teledentistry programme in Oregon was launched as a state-approved pilot project focused on further training for expanded permit dental hygienists (EPDH) in

collaboration with Oregon Health & Science University. The project was based in elementary schools and low-income child care programmes in Polk County, a rural area containing many low-income children with significant barriers to obtaining dental care. Capitol Dental, a group dental practice in Oregon that manages oral health services for some of the state’s Medicaid-eligible population, spearheaded this programme. They joined local, regional, and state authorities to build a teledentistry programme aimed at improving the oral health of children through early prevention and management of dental diseases at community sites. Capitol Dental’s previous extensive outreach efforts facilitated early community acceptance and involvement in building the teledentistry programme. As part of the teledentistry project, Capitol Dental planned to train EPDHs working at community sites to place interim therapeutic restorations (ITR) under indirect supervision of a coordinating teledentist. Since 2015, Capitol Dental has expanded their teledentistry programme outside of the state pilot project, offering teledentistry services to community sites such as Women, Infants, and Children (WIC), community health centres, an obstetrician’s office, rehabilitation centres, and mobile dental vans. Capitol Dental is focusing expansion on “co-locations,” promoting a team-based approach to healthcare in accordance with the state mandate for increased coordination of care.

Capitol Dental’s teledentistry programme uses the store and forward concept. The community teledental team is comprised of an EPDH, a dental assistant, and a portable dental operator at each community site. (Figure 1) Before a patient is seen by the team, community leaders have already initiated the treatment consent process and have helped to

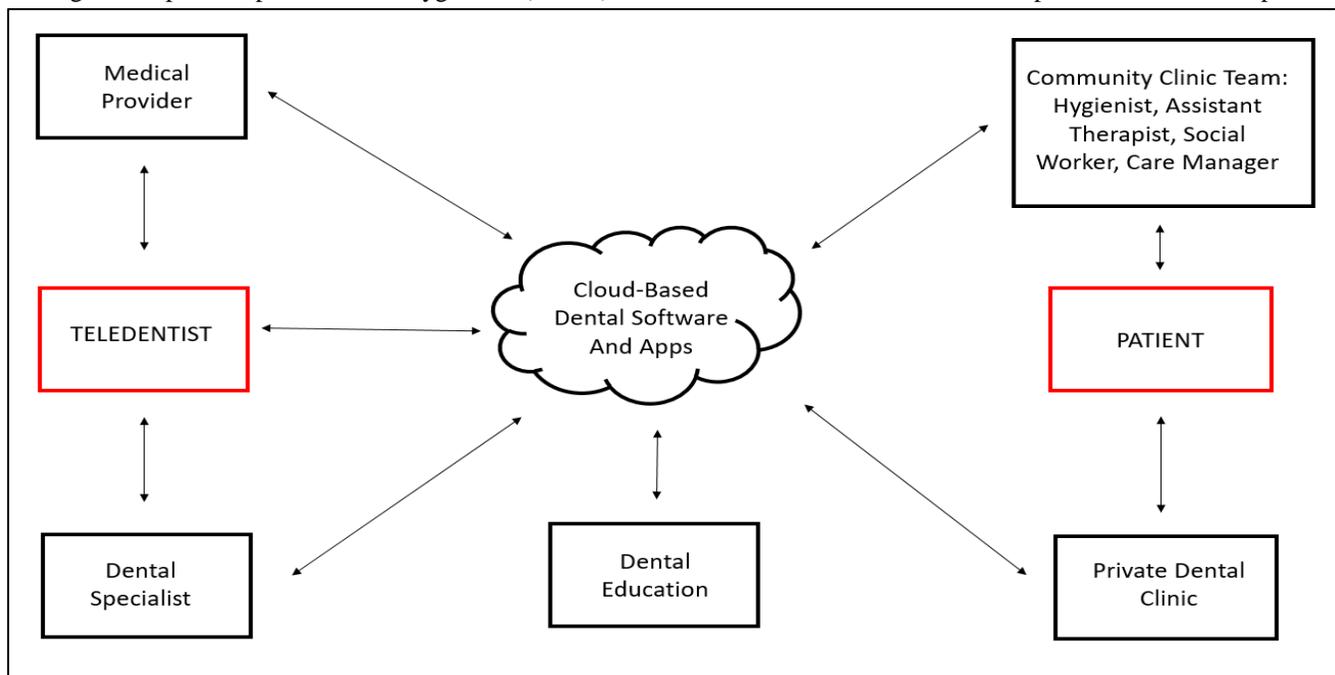


Figure 1. A diagram representing Oregon’s teledentistry communication model.

collect health and nutrition history for each patient. For dental examinations, the community dental team gathers the following information: medical and dental health history, chief complaint, nutritional and daily hygiene habits, last dental visit, current dental home, and insurance information. They subsequently complete a series of intraoral pictures following a template, with careful attention to visualise all the surfaces of each tooth and surrounding soft tissues. They perform a thorough head and neck exam and take radiographs with a Nomad portable x-ray machine. Using a laptop, the community dental team enters all health information, records existing restorations, probable areas of decay, and detailed tactile descriptors to supplement the teledentist’s diagnostic capability. Thorough documentation of social history and patient behaviour notes are provided to the teledentist for each patient, allowing the dentist to gauge if a patient is fit for treatment in a community setting.

The teledentist reviews the data for each patient within two days of acquisition and decides whether the patient may continue receiving care at the community dental site, if they need a referral to a dentist, or a combination of both. The teledentist completes the virtual dental examination and creates a treatment plan for each patient. Decisions are team-based and often involve close communication between the community dental team and teledentist to ensure all aspects of a patient’s medical, dental, behavioural, and social history are accounted for. A community care coordinator or social worker can assist with appointment scheduling, transportation, finding a dentist, etc. For every patient, the teledentist provides the community dental team with a detailed note and a summary of treatment decisions, recommendations, and proposed recall schedule as well as recall location to pass onto the patient or parent/guardian. The community dental team contacts the patient or parent/guardian to discuss these recommendations, discuss consents, referrals, and proposed treatment and documents this conversation in patient’s chart. A follow-up letter with the summary of treatment decisions is also sent home with the patient. In the event that urgent dental care is needed, the teledentist is notified immediately for review of the chart, usually by phone, and the teledental team coordinates with local dentists to have the patient evaluated. Since Capitol Dental has several regular dental clinics throughout the counties in their teledentistry network, they have the ability to triage teledentistry patients into nearby clinics in a timely manner.

Conclusion

Teledentistry in the USA is experiencing a phase of expansion and implementation, especially in the realm of public health, as state Medicaid programs approve reimbursement for teledentistry services. This expansion is driven in part by the focus on dental and medical collaboration in community health centres. Improving

technology and public awareness will promote teledentistry through increased utilization of mid-level providers, effective triage for dental and specialty care, and a focus on containing healthcare costs.

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Conflict of interest. Dr. Katelyn Nichols is employed by a USA-based company as a teledentist.

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