Teledentistry

Post-COVID-19 Use for Safe, Efficient and Evidence-Based Care
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Introduction

Teledentistry is a problem-based solution for today’s dental practice. Due to COVID-19, one of the long-term changes in dental practice includes use of teledentistry to assess the need for oral care and follow-up on care delivered. During the period of March–May 2020, U.S. dental offices followed recommendations by the American Dental Association (ADA) to limit in-office care to the provision of emergency or urgent care in order to mitigate risks due to COVID-19.¹

In response to the pandemic, dental offices began implementing lasting changes in the use of enhanced infection control²⁻⁴ and teledentistry. As of May 19, 2020, a 34-state survey of DentaQuest providers reported that four of 10 practices were using teledentistry or planned to use teledentistry in the near future.⁵
Recommendations for adoption of teledentistry to reduce prolonged patient contact and aerosols were made by ADA\(^2\) and the Occupational Safety and Health Administration (OSHA).\(^3\) These were reinforced in an interim guidance from the Centers for Disease Control and Prevention (CDC).\(^2-4\)

When used to assess emergency care patients during this time, teledentistry was adopted by many practices to augment care as a safer option than in-office care or to reduce any risks. In fact, more than three-quarters of providers in a previously referenced survey screened patients for COVID-19 symptoms with teledentistry; 51% reported that they either agreed or strongly agreed that telehealth tools are more important than before for screening and evaluating patients.\(^5\)

Teledentistry can also be used to integrate with individual office workflows. Another long-term change expected by 71% of providers is the way in which front-desk and clinical staff traditionally perform their jobs.\(^5\) These functions may include, but are not limited to, virtual front- and back-office operations, patient education, and culturally and linguistically appropriate oral care education.\(^6-8\)

This white paper discusses the background and evidence supporting the continued and ongoing use of teledentistry by distinguishing its past use as a virtual dental home for public health purposes\(^9-10\) and by discussing the current and future use of teledentistry in private practice dentistry, based on adaptable pilot projects drawing from evidence with use in specific procedures.\(^11\)

**THE TAKEAWAY**

A teledentistry platform such as MouthWatch TeleDent\(^TM\) is a problem-based solution for improving dental practice efficiency and to weather uncertainties. During the pandemic and after, or with other chemical, biological, environmental disruptions, teledentistry can mitigate the impact of uncertainties.
Battle-Tested ROI

From its beginning, teledentistry’s purpose was to provide the coordination and continuity of care. What is the origin of teledentistry? Beginning in 1994, the Department of Defense (DoD) established teledentistry to ensure that remote consultations with specialists could occur for current and future deployments within three armed services, specifically, the U.S. Army, Navy and Air Force.

The project, named Total Dental Access (TDA), enabled referring dentists from the U.S armed forces to consult on the status of a patient, with the goal of ensuring coordinated care with specialists across various bases, access to quality care and to set up a cost-effective telemedicine system.

Continuing education and dentist-laboratory communications were added functionalities within this system that used a desktop computer, modem, intraoral camera and scanner, as well as additional peripheral hardware and telecommunications software.

At that time, an economic evaluation proved that the return on investment (ROI) resulted in cost-savings within just one year for current deployments and within six months for future deployments of military personnel.

**DEFINITION:**
Teledentistry refers to the use of telehealth systems and methodologies in dentistry. Telehealth refers to a broad variety of technologies and tactics to deliver virtual medical, health and education services. Telehealth is not a specific service, but rather a collection of procedures to enhance care and education delivery.17

**THE TAKEAWAY**
Even in its infancy, the efficacy and ROI of teledentistry was proven.13
Successful Civilian Service

By the mid to late 2000s, limited use of teledentistry included the virtual dental home, with teledentistry as a process for ensuring access to care for vulnerable patients within public health settings.

This included a component with expanded duties for allied dental personnel with remote supervision for caries control, such as placement of fluoride varnish and interim dental restorations for underserved children in remote settings.

This research, funded by the California Medicaid program and analyzed by Glassman\textsuperscript{13}, established the efficacy of the virtual dental home, as a successful oral health delivery model, specifically for disabled, elderly and low-income children.

Despite its validation as a viable means of improving oral outcomes, more rapid adoption of teledentistry by private practice dental offices did not occur until the COVID-19 pandemic, according to DentaQuest. During March to May 2020, teledentistry use increased to more than 20% among dentists surveyed.\textsuperscript{5}

Prior to 2020, the author surmises that teledentistry adoption was slower, associated incorrectly with expanded dental functions by auxiliary dental personnel, including placement of interim dental restorations, duties not universally accepted by many state regulators.

Expanded dental auxiliary functions continue to be hotly debated among and between various dental providers, affecting early acceptance of teledentistry by private practitioners with the ongoing controversy about which oral care procedures can be performed by allied dental personnel.

THE TAKEAWAY

With over 50 sites evaluated in the research funded by the California Medicaid Program, a model for teledentistry with improved oral health outcomes has the potential to become a sustainable and scalable model for delivering dental care.\textsuperscript{14}
Positive Policy Changes

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**Live Video (Synchronous)**
Best described as a two-way interaction between patient and dentist, using audiovisual technology.

**Store and Forward (Asynchronous)**
Recorded health information, such as radiographs, photos, video, digital impressions or photomicrographs that is transmitted through a secure electronic communications system. The practitioner then uses the information to evaluate the patient’s condition or render a service outside of a real-time or live interaction.

**Remote Patient Monitoring**
Personal health and medical information is collected from an individual in one location then transmitted electronically to a provider in a different location for use in care. This could be used in a nursing home setting or in an educational program.

**Mobile Health**
Health care and public health practice and education supported by mobile communication devices, such as cell phones, tablet computers or personal digital assistants. Patients can access teledentistry by a smartphone app, and could include apps that monitor patient brushing or other home care.\textsuperscript{16,17}
Today, the ADA, Department of Defense and other federal agencies recommend teledentistry. Along with the ADA coding guidance released after COVID-19\(^\text{18}\), the CDC, and OSHA encourage the use of teledentistry. This guidance is summarized in the table below:

<table>
<thead>
<tr>
<th>Organization and Document</th>
<th>Recognition or Recommendation</th>
<th>Language</th>
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<tbody>
<tr>
<td><strong>ADA recognition: Coding and Billing Guidance on Teledentistry During COVID-19</strong></td>
<td>Synchronous and asynchronous use of teledentistry</td>
<td>“Teledentistry coding and payor reimbursement issues.”(^\text{19})</td>
</tr>
<tr>
<td><strong>CDC: Framework for Health Care Systems Providing Non-COVID-19 Clinical Care During the COVID-19 Pandemic</strong></td>
<td>Use telehealth for patients</td>
<td>“Optimize telehealth services, when available and appropriate, to minimize the need for in-person services.”(^\text{20})</td>
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<tr>
<td><strong>CDC Interim Guidance for Dental Settings, rev. August 28, 2020.</strong></td>
<td>Use teledentistry where possible. Treat one patient at a time.</td>
<td>“Use teledentistry as an alternative to in-office care. Wherever possible, treat one patient, until they are complete, and minimize providing care to more than one patient at a time.”(^\text{24})</td>
</tr>
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<td><strong>CDC: Strategies to Optimize PPE</strong></td>
<td></td>
<td>“...telemedicine can screen and manage patients with suspected COVID-19 without the need for face-to-face visits. Promoting the use of these technologies and referral networks can help triage patients to the appropriate level of care, potentially reducing the influx of patients to health care facilities and reserving PPE for when it is needed.”(^\text{21})</td>
</tr>
<tr>
<td><strong>OSHA: Advisory: Dentistry Workers and Employees, May 2020.</strong></td>
<td>Risk for exposure from aerosol generating dental procedures is extremely high</td>
<td>“Conduct telephone triage to identify whether dental issues for which patients seek care are urgent or emergent. If the emergency dental care is medically necessary, complete a systematic assessment at the time of check-in to determine whether a patient should be considered as suspected or confirmed COVID-19 case.”(^\text{23})</td>
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Current Uses for Teledentistry for Safety and Efficiency

Following nearly three decades of research and pilot projects for delivery of oral care, COVID-19 helped facilitate the rapid adoption of teledentistry tools. Now, it is more largely accepted as a method to support dental care. It can also be used to augment in-office care more safely and efficiently and to follow-up with patients after in-office care, especially after surgical procedures. Safety is a key reason to use teledentistry during prolonged, close contact that is a risk factor for acquiring/transmitting SARS-CoV-2, the virus that causes COVID-19.

Eliminating Aerosol Risk

- Using teledentistry mitigates the risk of aerosols from patients and any aerosol generating dental procedures.  
- ADA has developed a COVID-19 Hazard Assessment tool for the office, and this offers considerations and a checklist when implementing hazard assessments in dental settings.  
- The National Institute of Occupational Health and Safety (NIOSH) of CDC assesses the efficacy of controls for reducing risks. Note that use of personal protective equipment is important, but not as effective as using administrative controls (changing the way people work).  
- Teledentistry is ranked at the very top of the NIOSH Hierarchy of Controls (Elimination or Substitution). Please refer to the chart below.

Hierarchy of Controls

Implementing a teledentistry platform such as MouthWatch TeleDent is the only way to deliver oral care with zero risk of exposure to aerosols.
Improving Practice Efficiency

Teledentistry is important as a way to increase practice efficiency as well as increasing patient volume and revenue. As of June 15, 2020, 48% of dental offices were open for business, with lower patient volume than pre-COVID-19. Not only is teledentistry becoming integrated into in-office care for the screening of emergencies, teledentistry ensures efficient in-office care, with virtual front- and back-office processes, minimizing time in the office, and ensuring continuity of care after in-office care without using PPE that is in short supply.

This includes scheduling, virtual check-ins and checkouts, screening and updating medical histories, and virtual consultations with patients; teledentistry can streamline virtual coordinated consultation among multiple providers.

Improved practice efficiency is the key to survival in the “new normal” of dentistry.

Projections for the rest of 2020 predict declines in dental office revenues of around one third through the end of the year. The immediate future is slightly better; for 2021, declines of 0-20% are projected.

Teledentistry can help ensure higher patient volumes even with enhanced infection control procedures. There is no doubt that teledentistry can efficiently deliver health records, improve communication between dental provider and patient, as well as among multiple providers to patient, and supply enhanced educational opportunities. Despite this, state regulations vary, with some only allowing telehealth services with temporary authorization through Federal public health emergency provisions, governor’s executive orders or other state regulatory processes.

Although there have been some productive discussions on granting permanent authorization for telehealth services in recent months, check with your local state department of health and board of dentistry to determine your state’s requirements for teledentistry. ADA has a list of insurers that cover teledentistry as a separate service in addition to the service delivered.

Evidence exists for the effectiveness of virtual office visits for oral medicine, diagnostics, implantology, orthodontics and caries management.

There are many examples of teledentistry as an adjunct for specific dental procedures. Pilot programs have been implemented in a variety of settings including public health, dental education, nursing and hospital care, as has e-triage from diagnosis to medical providers and other dental specialties. The challenge is implementing these successful pilots. What’s more, interoperability standards to use teledentistry to access electronic medical and dental records can ease utilization of teledentistry. Use of teledentistry for medical management of caries, with products that can reverse early enamel decay, is reported.

Perhaps most importantly during pandemic times, if a patient or dental team member find themselves with a positive COVID-19 test or exposure, necessitating self-monitoring and quarantine for 10 days, then teledentistry will allow for both risk mitigation and continuity of care.
Increased Clinician and Patient Acceptance

There is growing evidence that both consumers and health providers are accepting use of telehealth. As in dentistry, telehealth in medicine rapidly expanded from March to May 2020, from 11 percent to 46 percent of consumers accessing telehealth services.

For example, use by medical providers expanded by an estimated 50-75%, more than dental providers who were only about 40%. Fifty-seven percent of medical providers viewed telehealth more favorably than they did prior to COVID-19, with 64% of respondents more comfortable using it.35

Meanwhile, many dental insurers have expanded coverage of oral services, some with specific reimbursement for teledentistry and the appropriate oral service provided.18 While use, payor reimbursement and Federal HIPAA regulations were temporarily relaxed during the lock-down phase, services “such as oral screenings, assessments, problem-focused evaluations or re-evaluations via teledentistry can help to limit in-person visits, determine when dental procedures can be deferred and avoid unnecessary trips to hospital emergency departments.”36

In late July 2020, telehealth waivers or exemptions were extended for this pandemic emergency to telehealth. Proper clinical and regulatory guidance can aid beneficiaries in supplying consumer protections and ensuring proper limits on use of telehealth.35-37

Even when the pandemic runs its course, emergency care in hospitals should exclude most dental emergencies; urgent care and after-hours care can be easily provided with teledentistry to avoid unnecessary hospital visits. One key lesson learned during this pandemic is the efficiency of using teledentistry for managing dental emergencies. Assessing dental emergencies on teledentistry, the digital transformation of dentistry via the adoption of telehealth, is one positive outcome of dentistry’s response to COVID-19.

The Takeaway

Consumers may prefer on-demand virtual urgent care as well as expanded access to routine and elective care beyond normal business operations. A teledentistry platform such as MouthWatch TeleDent™ can meet this demand.
To realize the $250 billion dollar a year opportunity for telehealth services nationwide, a McKinsey report on telehealth calls for a “broader set of providers, step-change improvements in information exchange and broadening access and integration of technology.”

Another finding that should come as no surprise: “Younger dentists under 35 are more likely to use teledentistry, while older practitioners lag in uptake.”

Teledentistry will continue to be a problem-based solution to increase patient volume and increase practice efficiency during and post pandemic. It can also be used in other emergency situations, such as post-hurricane disruptions, wildfires, power outages, local chemical spills or other natural and man-made disasters.

The Takeaway

Building the capacity of the dental workforce to meet the public demand for virtual oral care must begin in dental school and in residency training.
Re-Working the Dental Workflow Within Each Practice

Incorporation of teledentistry into the workflow, based on patient flow analysis, is an individual practice-based decision that is essential to successful adoption. Use of patient flow analysis templates and tools may aid in assessing each individual practice workflow with a body of science from our other health care systems.

This can help in assessing where and when teledentistry is best used as a solution to where time and personnel can be saved, another use of teledentistry as a problem-based solution.

Patient flow analysis is another evidenced-based practice studied in medical outpatient clinics, which can easily be applied to dentistry, to streamline workflow, and assess where teledentistry can be used to reduce time for intake and patient processing.\textsuperscript{38}

Broad-scale implementation of teledentistry by private practice dentists in clinical procedures, such as caries management, implantology, oral cancer diagnosis, tobacco cessation, diabetes control, hypertension control, etc. for which evidence of effectiveness exists, remains an area of strong potential.\textsuperscript{11, 24, 27-33}
Like the adoption of glove use in the early days of the HIV/AIDS epidemic, there is a rapid uptake by the dental profession of teledentistry. In addition to ongoing policy research on expanded clinical use of teledentistry, the following steps should be followed to build an air-tight case for the adoption of teledentistry as the new standard of care:

**Enhance**

Interoperability standards with existing medical and dental electronic records to increase utility of teledentistry in reducing risks. Preliminary research indicates that innovations such as virtual reality equipment, with a no-touch process, could be used to advance teledentistry. Seamless integration with virtual payment platforms and insurance payor systems could enhance utility in dental practice.

**Assess**

The time needed by practices to assess their own workflow, incorporate teledentistry, and use teledentistry processes routinely. While an initial learning curve for teledentistry may slow down workflow, over time, like any other new process, teledentistry is expected to save time as a virtual front and back office function, as well as patient care.

**Utilize**

Predictive analytics in teledentistry to measure time and quality of the patient experience, including use of the patient portal for patient satisfaction surveys to adjust and ensure greater efficiencies in workflow over time for individual practices.

**Create**

User sharing network platforms between providers to advance implementation of key clinical processes with evidence for implementation. In 2017, a qualitative review showed that teledentistry is a viable option for remote screening, diagnosis, consultation, treatment planning and mentoring. It is even more so in this pandemic.

**Develop**

A model policy for payors on teledentistry with the National Association of Dental Plans (NADP) and the National Academy for State Health Policy, and develop a comprehensive policy research agenda including economic evaluation, including ROI, of current teledentistry platforms.

**Research**

Comparisons of teledentistry delivered services with in-office delivery of care for health education and outcomes. This includes videos and smartphone apps, as well as other educational programs. Examples include finding and using culturally and linguistically appropriate home-care education and other health education. This includes motivational interviewing, diabetes control and oral health outcomes such as tooth loss, new caries incidence or increases in pocket depths. Policy research comparing services delivered via teledentistry in state by state comparisons can be considered.

**Determine**

The efficacy of teledentistry in studies of delivery of medical management of dental caries to arrest or reverse early non-cavitated lesions, compared to in-office care.
REFERENCES


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is an internationally recognized dentist, author and pandemic disease expert. Retired from the U.S. Public Health Service after 20 years, Dr. Scarlett has provided expert guidance on infectious and chronic diseases for the Secretary and Surgeon General of the Department of Health and Human Services, the Centers for Disease Control and Prevention (CDC), the World Health Organization, the U.S. Department of State, global ministries of health, international dental schools and consumer health companies. First author of CDC’s original infection control guidance for dentistry and a practicing dentist, Dr. Scarlett provides consultation and support to expand evidence-based dental practice and innovation.