

## Teledentistry

**About Technical Assistance Briefs.** The MCH Evidence Center provides ongoing technical assistance (TA) to Title V agencies related to the emerging evidence base, strategies, and measures related to many topics interconnected with National Performance Measures and other critical topics in MCH. *Technical Assistance Briefs* are an outcome of these TA sessions that are designed to act as *conversation starters* in thinking about programs that can be developed to address issues that affect women, infants, children, adolescents, youth, families, and communities. These briefs are not meant to be comprehensive; full analyses of the NPM topic areas are provided in [Evidence Analysis Reports](#).

The Center makes these customized briefs available during TA and on the program website to identify evidence-based/informed strategies, promising practices, examples of ESMs from the field and peer-reviewed resources. Please [contact us](#) if you would like us to develop a similar report for topics that you are working on.

**Initial Query for this Brief.** Identify measures and best practices around Teledentistry.

### Evidence-Based Strategies – What Works for Health

The following programs have been identified as effective models related to teledentistry.

Title	Link	Category
Telemedicine	<a href="https://www.countyhealthrankings.org/take-action-to-improve-health/what-works-for-health/strategies/telemedicine">https://www.countyhealthrankings.org/take-action-to-improve-health/what-works-for-health/strategies/telemedicine</a>	Scientifically Supported
Allied dental professional scope of practice	<a href="https://www.countyhealthrankings.org/take-action-to-improve-health/what-works-for-health/strategies/allied-dental-professional-scope-of-practice">https://www.countyhealthrankings.org/take-action-to-improve-health/what-works-for-health/strategies/allied-dental-professional-scope-of-practice</a>	Some Evidence

### Evidence-Based Strategies – Innovation Hub

The following programs have been identified as effective models related to Teledentistry.

Title	Link	Category
Virtual Dental Home Project	<a href="https://amchp.org/wp-content/uploads/2021/05/IS-Template_VDH.pdf">https://amchp.org/wp-content/uploads/2021/05/IS-Template_VDH.pdf</a>	Promising
Integrated Services Program: Facilitating telehealth through the loan or lending of cellular technology and tablets	<a href="https://amchp.org/wp-content/uploads/2021/09/2021_Utah-Telehealth_Cutting-Edge-Practice-Handout.pdf">https://amchp.org/wp-content/uploads/2021/09/2021_Utah-Telehealth_Cutting-Edge-Practice-Handout.pdf</a>	Cutting-Edge

### Resources from the National Maternal and Child Oral Health Resource Center

**Start here:** [Title V National Performance Measure 13 \(Oral Health\): Strategies for Success, second edition](#) (strategies – including telehealth, sample ESMs, possible data sources, resources).  
[https://www.mchoralhealth.org/pdfs/NPM13\\_StrategiesForSuccess.pdf](https://www.mchoralhealth.org/pdfs/NPM13_StrategiesForSuccess.pdf)

**COVID-19 Billing and Coding Interim Guidance: Virtual Visits. Abstract:** This interim guidance provides information to help dental offices navigate issues related to coding and billing for virtual

appointments during the COVID-19 pandemic. Topics include coding; sample coding scenarios; HIPAA and telecommunications technology; virtual services during the COVID-19 pandemic; practice considerations checklist; informed consent forms: sample language for virtual services; practical tips for performing virtual evaluations; and billing: policies by payer.

[https://success.ada.org/~media/CPS/Files/COVID/ADA\\_COVID\\_Coding\\_and\\_Billing\\_Guidance.pdf](https://success.ada.org/~media/CPS/Files/COVID/ADA_COVID_Coding_and_Billing_Guidance.pdf)

***Teledentistry: How Technology Can Facilitate Access to Care.*** **Abstract:** This white paper presents information about how technology can facilitate access to oral health care. Barriers to access are described, including lack of insurance coverage, transportation difficulties, low income, and an insufficient number of dentists who participate in Medicaid. The paper provides a definition of teledentistry, and its role in filling these gaps is discussed. Challenges associated with the use of teledentistry are described, and methods are presented.

<https://www.astdd.org/docs/teledentistry-how-technology-can-facilitate-access-to-care-3-4-19.pdf>

***State Telehealth Laws and Reimbursement Policies Report.*** **Abstract:** This report offers policymakers, health advocates, and other health professionals a summary guide of telehealth-related policies, laws, and regulations for all 50 U.S. states and the District of Columbia. The report focuses primarily on Medicaid fee-for-service policies, but available information on managed care is included. Telehealth policies are organized into three categories that address Medicaid reimbursement; private payer law; and professional regulation, health, and safety.

<https://www.cchpca.org/about/projects/state-telehealth-laws-and-reimbursement-policies-report>

***Fast-Track to Teledentistry: Removing Barriers to Care While Maximizing Overall Health.***

**Abstract:** This white paper provides information on the benefits of teledentistry and how to make it more accessible. The paper discusses the impact of not receiving oral health care; new uses of and approaches to teledentistry; potential savings for states from increasing the use of teledentistry; and the promise of teledentistry. What states can do to make it easier for health systems, hospitals, and safety net clinics to adopt teledentistry initiatives is also discussed, including expanding the workforce, updating reimbursement policies, enhancing legal clarity, and making it easier for health professionals to share patient information.

[https://www.dentaquestpartnership.org/sites/default/files/DQP\\_Fast-trackToTeledentistry\\_Final.pdf](https://www.dentaquestpartnership.org/sites/default/files/DQP_Fast-trackToTeledentistry_Final.pdf)

***Improving Oral Health Using Telehealth-Connected Teams and the Virtual Dental Home System of Care: Program and Policy Considerations.*** **Abstract:** This report focuses on the potential of telehealth, combined with new preventive and behavior support science, delivery systems, payment incentives, and policy environments, to improve oral health. It reviews changes taking place in the general health and oral health care systems as well as national recommendations that have been proposed in response to these changes. The report also describes the legal and regulatory environment needed to create and use telehealth-connected teams, equipment and software requirements, and considerations for incorporating telehealth into dental practices and community-based oral health care systems. In addition, it describes the concept of disruptive innovation and the future role that telehealth may play in the delivery of oral health services.

[https://www.dentaquestpartnership.org/system/files/DQ\\_Whitepaper\\_Teledentistry%20%289.19%29.pdf](https://www.dentaquestpartnership.org/system/files/DQ_Whitepaper_Teledentistry%20%289.19%29.pdf)

***Teledentistry: Improving Oral Health Using Telehealth-Connected Teams.*** **Abstract:** This report reviews changes in general-health-care- and oral-health-care-delivery systems and national recommendations for adapting to these changes, including developing telehealth technology to deliver oral health services. The report reviews telehealth modalities and oral-health-care-delivery systems that use telehealth technologies, the legal and regulatory environment needed to create and use telehealth-connected teams, equipment and software requirements, considerations for incorporating telehealth in dental practices and community-based-oral-health-care-delivery systems, and the role of telehealth technologies in the future of oral-health-services delivery.  
[https://dental.pacific.edu/documents/departments/pcsc/DQ\\_WhitePaper\\_Telehealth\\_081816.pdf](https://dental.pacific.edu/documents/departments/pcsc/DQ_WhitePaper_Telehealth_081816.pdf)

***Nationwide Survey of Teledentistry Regulations.*** **Abstract:** This guide provides information about teledentistry regulations throughout the United States. The guide discusses the importance of teledentistry and explains how to interpret the information presented. For each state, the guide includes a teledentistry checklist that includes teledentistry regulations in several categories, allowed oral health procedures, and other requirements. Where appropriate, additional notes are included.

<http://www.nnoha.org/nnoha-content/uploads/2020/04/Teledentistry-Regulations-Guide.pdf>

***Facts About Teledentistry.*** **Abstract:** This website from the American Teledentistry Association provides information about increasing access to dental care through advocacy for and the implementation of innovative teledentistry guidelines and solutions.

<https://www.americanteledentistry.org/about/>

***Using Telemedicine to Maintain Services and Contact with Patients During the Time of COVID-19 Physical Distancing.*** **Abstract:** This guide to using teledentistry to maintain services and contact with patients during the time of COVID-19 physical distancing. Dr. Glassman pioneered the use of telehealth systems to deliver oral health care, creating a first of its kind demonstration project more than a decade ago. The six-year demonstration he directed has resulted in national attention to the idea that the oral health industry could reach many people who are not currently receiving oral health services by “bringing care to where people are” using teledentistry systems. The Virtual Dental Home model used in that demonstration is being replicated or used as a model to emulate in many states now.

<https://www.astdd.org/docs/dental-care-during-covid-19-physical-distancing-guidelines-2020-04-05.pdf>

***Case Study of 6 Teledentistry Programs: Strategies to Increase Access to General and Specialty Dental Services.*** **Abstract:** Although dental services are now increasingly provided in public health settings in rural areas, including federally qualified health centers (FQHCs), access to services in the safety net is constrained by limited resources and capacity, including a limited supply of clinical providers. The use of teledentistry as a means to improve access to oral health services in areas with inadequate availability of general and specialty dental care is emerging as a practical solution, especially for treatment planning and specialty consultations. A review of the scientific literature on teledentistry found it to be a promising and effective strategy for increasing access to services in both rural and urban areas

[https://www.chwsny.org/wp-](https://www.chwsny.org/wp-content/uploads/2016/12/OHWRC_Case_Studies_of_6_Teledentistry_Programs_2016.pdf)

[content/uploads/2016/12/OHWRC Case Studies of 6 Teledentistry Programs 2016.pdf](https://www.chwsny.org/wp-content/uploads/2016/12/OHWRC_Case_Studies_of_6_Teledentistry_Programs_2016.pdf)

**Teledentistry: How Technology Can Facilitate Access to Care.** **Abstract:** Teledentistry is the use of technology (including digital radiographs, digital photos/videos, electronic health records, the Internet, etc.) to facilitate delivery of oral healthcare and oral health education services from a provider in one location to a patient in a physically different location.<sup>2</sup> Telehealth technology has been used only in limited circumstances in dentistry, notably in California and Alaska, and is lagging behind other disciplines as it relates to state practice acts. Using a combination of electronic health records, telecommunications technology, digital videos/imaging, and the Internet, oral health providers can reach populations that do not have regular access to oral health services, effectively enhancing access to appropriate care. Teledentistry literature is still emerging to help states and other entities contemplate teledentistry initiatives.

<https://www.astdd.org/docs/teledentistry-how-technology-can-facilitate-access-to-care-3-4-19.pdf>

### **Advancement of teledentistry at the University of Rochester's Eastman Institute for Oral Health.**

**Abstract:** Dental caries is the most prevalent infectious disease among US children. National surveys have shown that poor and minority-group children are not only disproportionately affected by dental caries but also have limited access to oral health care. Following successful exploratory applications of both synchronous and asynchronous models at the Eastman Institute for Oral Health, teledentistry has been demonstrated to be a practical and cost-effective way to improve oral health care for rural and disadvantaged children. These models support the role of teledentistry in reducing the costs of and barriers to accessing oral health care, improving oral health outcomes, increasing use of oral health care resources, and leading to the establishment of a dental home for underserved children. The advancement of teledentistry underscores the need for its integration with local, regional, and national telehealth programs and the role of policy makers in establishing a balanced framework for teledentistry within the overarching health care system.

<https://www.healthaffairs.org/doi/10.1377/hlthaff.2018.05102>

### **Resources from Peer-Reviewed Literature (PUBMED) 2016-2020**

This section is meant to answer the question, “does teledentistry work as well as in-person dentistry?” Cost, payment, implementation, and COVID applicability are addressed above. “Teledentistry is defined as using telecommunication technology, electronic medical records, video, and digital images to facilitate dental services delivery for distant or isolated people or for consultations among specialists.” Also included are mobile-phone based patient education, and patient reminders that included MCH populations (Toniazzo). Reviews of literature up to 2016 are presented, plus key research published more recently. The general conclusion is that teledentistry has a positive impact and improves access. In addition, there is emerging evidence that mobile phone based reminder systems increase number of dental appointment kept.

Toniazzo MP, Nodari D, Muniz FWMG, Weidlich P. **Effect of mHealth in improving oral hygiene: A systematic review with meta-analysis.** J Clin Periodontol. 2019;46(3):297-309.  
doi:10.1111/jcpe.13083

[https://onlinelibrary.wiley.com/doi/full/10.1111/jcpe.13083?casa\\_token=EZBX2h1Vk74AAAAA%3A8kRms\\_j75KsUE7-3fGdmLhk2ZYzg0\\_IBgZzV7raAtRbEdxm2ZHGSP7-pXmVcKUEHuBIKCL7kKx3yg](https://onlinelibrary.wiley.com/doi/full/10.1111/jcpe.13083?casa_token=EZBX2h1Vk74AAAAA%3A8kRms_j75KsUE7-3fGdmLhk2ZYzg0_IBgZzV7raAtRbEdxm2ZHGSP7-pXmVcKUEHuBIKCL7kKx3yg)  
Medline-PubMed, Scopus, Embase, Google Scholar and Cochrane Library databases were used to answer the question: “What is the effectiveness of mobile applications or text messages, compared with conventional oral hygiene instructions, in improving oral health knowledge and/or reducing gingival inflammation, delivered to adolescents, adults and mothers of young children?” From 15 studies of 1402 participants. Most use text messages, 3 studies used apps. Results were significant improvement in dental plaque control and gingival bleeding for groups that received the mobile health (mHealth) strategy.

Estai M, Kanagasingam Y, Tennant M, Bunt S. **A systematic review of the research evidence for the benefits of teledentistry.** J Telemed Telecare. 2018;24(3):147-156.

doi:10.1177/1357633X16689433

[https://www.researchgate.net/profile/Mohamed\\_Estai/publication/312836443\\_A\\_systematic\\_review\\_of\\_the\\_research\\_evidence\\_for\\_the\\_benefits\\_of\\_teledentistry/links/59e06af8a6fdcca9842ec1a0/A-systematic-review-of-the-research-evidence-for-the-benefits-of-teledentistry.pdf](https://www.researchgate.net/profile/Mohamed_Estai/publication/312836443_A_systematic_review_of_the_research_evidence_for_the_benefits_of_teledentistry/links/59e06af8a6fdcca9842ec1a0/A-systematic-review-of-the-research-evidence-for-the-benefits-of-teledentistry.pdf)

Search included PUBMED, EMBASE, CINAHL through November 2016, published, peer-reviewed studies in English, that were controlled comparisons with clinical or economic outcomes of a teledentistry intervention vs traditional clinical alternatives (i.e. not comparing teledentistry to no care). They found nine articles with clinical outcomes, and two with only economic outcomes. The best studies were on pediatric dentistry, orthodontics, and oral medicine. The conclusion was that there is emerging but not conclusive evidence of the efficacy, effectiveness, and cost effectiveness of teledentistry.

Alabdullah JH, Daniel SJ. **A Systematic Review on the Validity of Teledentistry.** Telemed J E Health. 2018;24(8):639-648. doi:10.1089/tmj.2017.0132

<https://www.liebertpub.com/doi/abs/10.1089/tmj.2017.0132>

Search included Ebscohost, Pubmed, and Scopus, through June 2016, with the aim of evaluating validity of using teledentistry for examination and diagnosis. They found 14 high quality studies that compared teledentistry to a gold standard. Sensitivity ranged from 15% to 100%, specificity ranged from 68% to 100%, positive predictive value ranged from 57% to 100%, and negative predictive value ranged from 50% to 100%, and Kappa statistics ranged from 46% to 93%. Best evidence was for school-based programs, rural areas, long term care facilities, and areas with limited access to care.

AlShaya MS, Assery MK, Pani SC. **Reliability of mobile phone teledentistry in dental diagnosis and treatment planning in mixed dentition.** J Telemed Telecare. 2020;26(1-2):45-52.

doi:10.1177/1357633X18793767

<https://journals.sagepub.com/doi/abs/10.1177/1357633X18793767>

N=57 children age 6-12 years diagnosed in person by a calibrated dentist, each assessed by six teledentistry dentists. Both sensitivity and specificity were constantly above 80%, but the approach has a higher chance of false positive results than false negative results. The reliability of teledentistry in this study is greater in primary teeth than in permanent teeth.

Estai M, Kanagasingam Y, Huang B, et al. **Comparison of a Smartphone-Based Photographic Method with Face-to-Face Caries Assessment: A Mobile Teledentistry Model.** *Telemed J E Health.* 2017;23(5):435-440. doi:10.1089/tmj.2016.0122

<https://www.liebertpub.com/doi/abs/10.1089/tmj.2016.0122>

Using an android app to collect and forward smartphone camera images to a telemedicine server, 100 people were examined face to face, then their images were examined remotely. Sensitivity for caries assessment was 60-63%, and weighted kappa was an almost perfect evidence for the benefits of teledentistry. *J Telemed Telecare.* 2018;24(3):147-156. doi:10.1177/1357633X16689433

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**Teledentistry: Technical Assistance Brief**

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Access other resources at <https://www.mchevidence.org>

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