

The Utility of Teledentistry in Increasing Access to Oral Health Care Services

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March 15, 2021

American Dental Education Association Annual Session and Exhibition



Acknowledgements

The **Oral Health Workforce Research Center (OHWRC)** is supported by the Health Resources and Services Administration (HRSA) of the US Department of Health and Human Services (HHS) as part of an award totaling \$449,943 with 0% financed with nongovernmental sources. The content of this presentation are those of the authors and do not necessarily represent the official views of, nor an endorsement, by, HRSA, HHS, or the US government. For more information, please visit [HRSA.gov](https://www.hrsa.gov).

About the OHWRC

- The **Center for Health Workforce Studies (CHWS)** has more than 20 years' experience studying all aspects of the health workforce:
 - Established in 1996
 - A research center of the University at Albany School of Public Health
 - Committed to collecting and analyzing data to understand workforce dynamics and trends
 - Goal to inform public policies, the health and education sectors, and the public
 - Broad array of funders in support of health workforce research
- This study was funded under a three year cooperative agreement with the US Health Resources and Services Administration (HRSA) for the **OHWRC** based at CHWS
- The presenter has no conflicts of interest to report

Teledentistry Is An Emerging Practice That Was Especially Useful During the Shutdowns Occasioned by COVID-19

- Teledentistry is one of several tools that can effectively **increase access** to oral health services
- Teledentistry is a **mobile/portable service delivery model**
 - Is especially effective when delivering services through a comprehensive oral health care team
 - Allows dentists to triage patients to most appropriate level of care
 - Permits diagnosis, treatment planning, and pre and post operative review of cases
 - Useful for managing risk; reserves scarce assets for those most in need
 - Often used in conjunction with delivery of preventive oral health services
 - Allows for some services to be provided in place (ie, schools, nursing homes, etc.)
- Not a new tool – used by the military for many years.
- The **pandemic accelerated adoption** and interest in using the modality
 - Provided an opportunity to demonstrate on a greater scale how the modality enables access when direct care services are unavailable
- Requires broadband access, access to electronic dental records and imaging software, portable cameras and imaging technology, and sometimes video technology.

Use of Teledentistry Has the Potential to Improve Access to Oral Health Services

- **Special Characteristics of Rurality**

- Higher rates of chronic disease
- More elders
- Limited availability of health and oral health services
- Greater dependence on public health insurance
- Lack of public transportation or dependable private transportation
- Lower levels of community water fluoridation

- **Rural Populations Exhibit**

- Higher rates of oral disease
- Lower rates of service utilization EDs
- Poor oral health outcomes generally

- **Populations of Particular Concern**

- Children
- Functionally impaired elders
- Elders residing in nursing or congregate care facilities
- Migrant workers
- Special needs populations

Teledentistry Enables Patient Centered Services Coordinated by an Inclusive Oral Health Care Team

Teams rely on a variety of workforce:

- Dentists, dental hygienists, dental assistants
- Care managers, patient navigators including community health workers
- Social workers
- Information technology personnel
- Administrative and executive staff

Teledentistry is interactive—exchanges between:

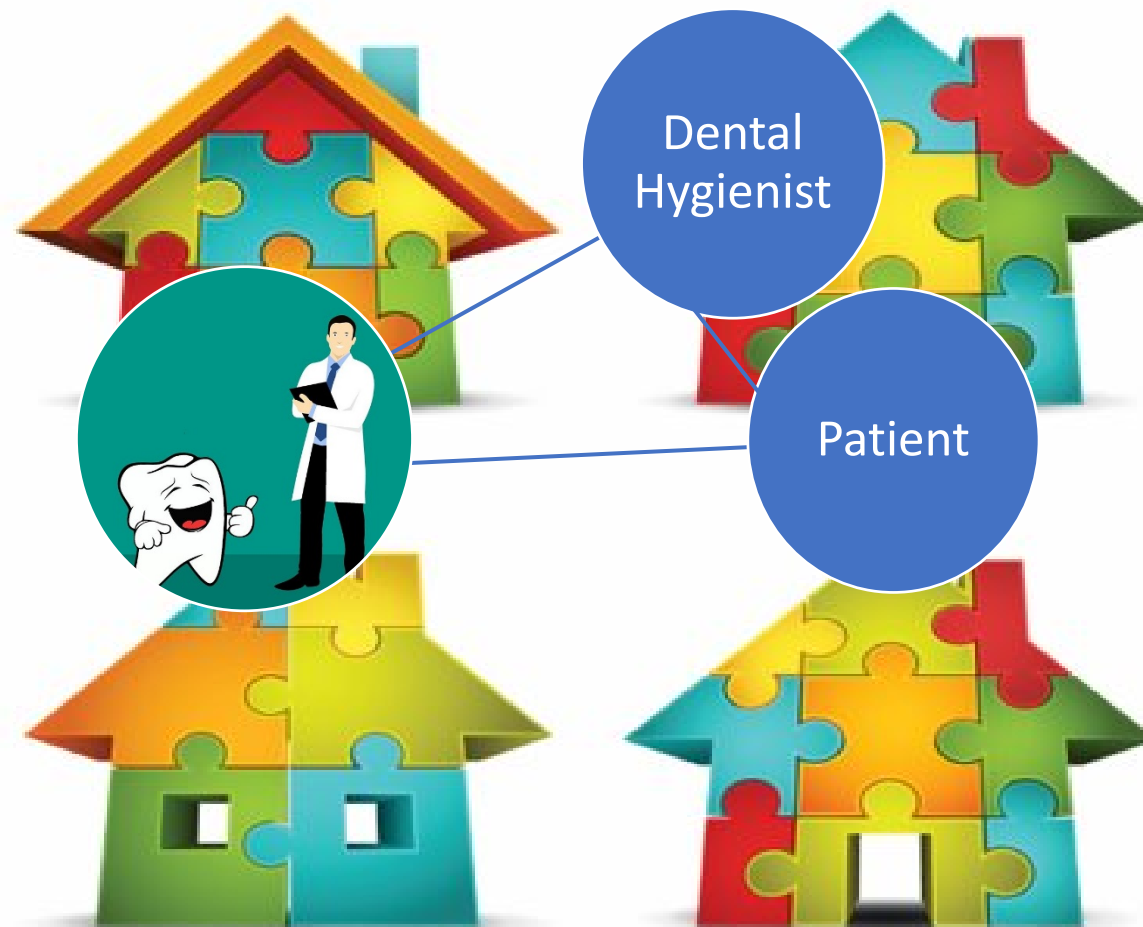
- Clinicians (dentist to dentist, dentist to dental hygienists)
- Patients and clinicians
- Clinicians and support staff (dental hygienists and social workers or care coordinators)
- Team meetings involving all stakeholders

Teledentistry Is a Term Describing the Use of Technology as a Tool to Deliver Care

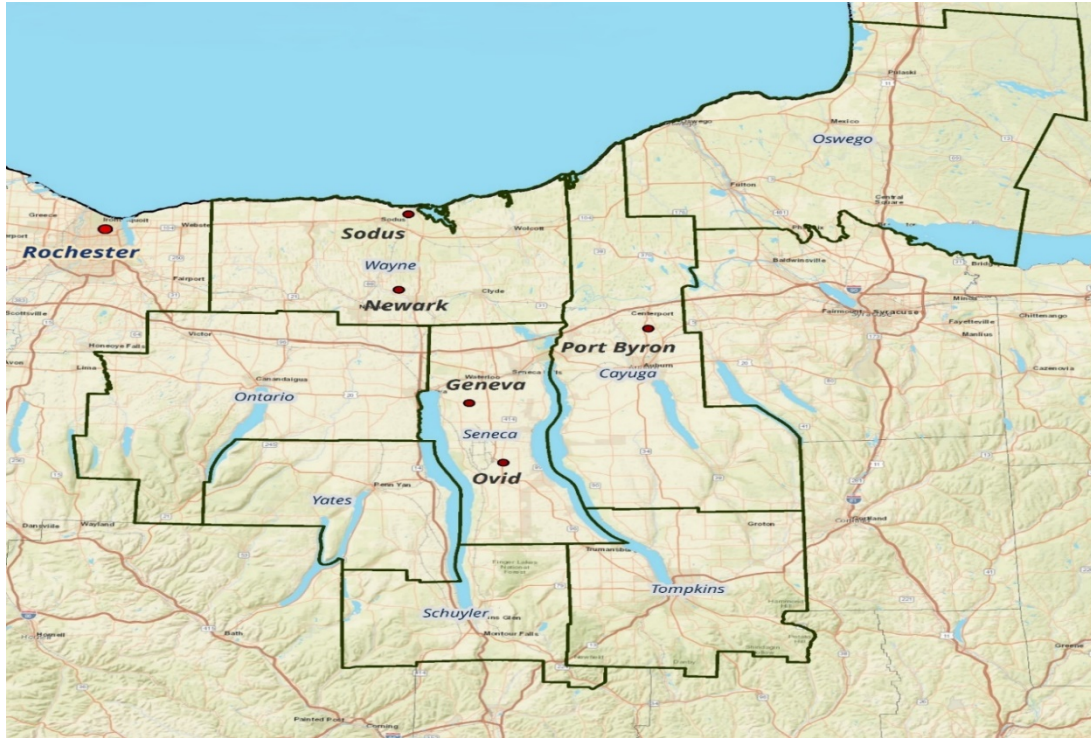
- **Synchronous** –
 - Real time
 - Telephonic or video component to interface directly with patient
- **Asynchronous** –
 - Store and forward
 - Information and imaging acquired by dental support personnel
 - Reviewed at a later time by another provider
- **Mobile technologies** –
 - Web-based applications
 - Scheduling appointments (MyDentist), imaging and consultation (Oral Eye), Dental RX
- Examples from case studies conducted in 2016 with benchmark organizations across the US

Real Time Teledentistry Is Especially Effective in Team-based Service Delivery

- Video Conferencing:
 - Allows patient and attending provider (eg, a dental hygienist) to interface in real time with consulting dentists
 - Permits immediate diagnosis and treatment planning
 - Especially useful for specialty consultations
 - Consulting dentist may have reviewed patient history and current problem prior to patient interface
 - Some use of apps with security features including Zoom, What's App, Skype, Face Time



Finger Lakes Community Health Center, Penn Yann, NY Uses Synchronous Teledentistry for Children With Extensive Decay



- 28,000 patients, approximately 9,000 are agricultural workers
- 7 dental clinics some co-located with primary care

- Started using telehealth in 2002; Teledentistry is now most common telehealth services
- Used for children in need of specialty dental services
- Each health center is equipped with a telehealth cart including portable imaging equipment – some operatories equipped with video monitors
- More than 850 children have received a synchronous Teledentistry consultation from a pediatric dentist at the Eastman Institute in Rochester, NY
- Dental hygienist is with the patient during consultation
- Records are transmitted to Rochester prior to Teledentistry encounter
- Consultation is often followed by surgical intervention in Rochester

Finger Lakes Community Health Center, Penn Yann, NY

Table 1. Characteristics of Study Subjects by Utilization of Follow-Up Oral Health Services at One of the Finger Lakes Community Health (FLCH) General Dentistry Clinics

Characteristics of study subjects	All children (n=144)		Utilization of follow-up oral health services at the FLCH				P
	n	%	Yes (n=111)		No (n=33)		
			n	%	n	%	
Gender							0.164
Girls	74	51.4%	61	55.0%	13	39.4%	
Boys	70	48.6%	50	45.1%	20	60.6%	
Age at the time of teledentistry consultation with a pediatric dental specialist (years)							0.214
Mean (range)	144	4.9 (2.0-10.0)	111	5.0 (2.0-10.0)	33	4.7 (2.0-9.0)	
Race							0.830
White	101	70.1%	77	69.4%	24	72.7%	
Other race ^a	43	29.9%	34	30.6%	9	27.3%	
Ethnicity							0.441
Hispanic	26	18.1%	22	19.8%	4	12.1%	
Other ethnicity ^b	118	81.9%	89	80.2%	29	87.9%	
Living situation							0.296
Lives in two-parent family	95	66.0%	76	68.5%	19	57.6%	
Lives with single parent, other ^c	49	34.0%	35	31.5%	14	42.4%	
Behavioral or developmental disorder^d							0.793
No	120	83.3%	93	83.8%	27	81.8%	
Yes	24	16.7%	18	16.2%	6	18.2%	

Note: Fisher Exact and Mann–Whitney U tests used to compare categorical and continuous variables, respectively.

^a Black, Asian, Native American, mixed race, other, refused;

^b Other, refused;

^c Lives with grandparent or other guardian, foster parents, unknown;

^d Attention deficit/hyperactivity disorder, autism, speech delay, developmental delay, physical disability.

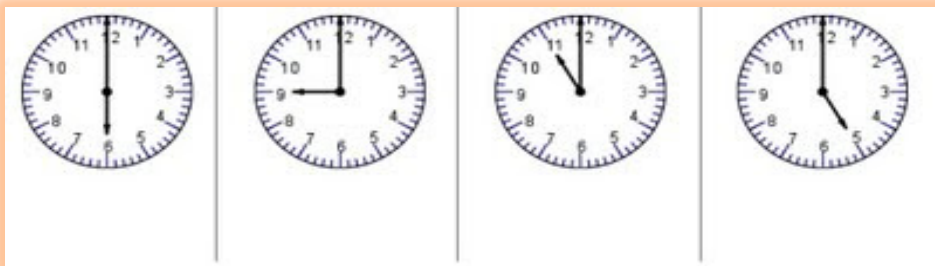
Surdu S, Langelier M. Teledentistry: Increasing Utilization of Oral Health Services for Children in Rural Areas. Journal of Telemedicine and Telecare. Under Review. August 2020

- Most children in this study of data from 2015-16 were 6 years old or younger, some with behavioral health issues
- All with extensive early childhood caries requiring quadrant or whole mouth dentistry
- 84% identified in general dentistry clinic in FQHC; 16% identified in school based program
- ¼ reside greater than 20 miles from a general dental clinic Range was 3 to 74 miles
- General dentists have indicated an inability to treat locally – health center does not offer nitrous oxide sedation
- All families assigned a CHW/ treatment coordinator to help with organizing care
- 92.5 % treatment completion rate (1 to 5 visits in Rochester)
- Most return to the general dentistry clinics for follow-up care

Store and Forward (Asynchronous) Teledentistry Is Also an Efficient Means to Engage All Members of the Clinical Team in a Patient's Care

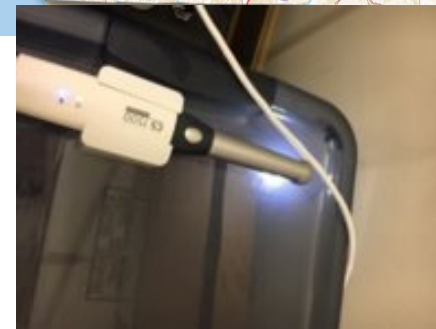


- Useful mainly in states where dental hygienists have broader scopes of practice
- Dental hygiene assessment completed and images acquired Preventive services can be provided
- Creates efficiencies for dentist – permits treatment planning for additional patients during or at end of clinical day
- Follow up services occur in community or through referrals

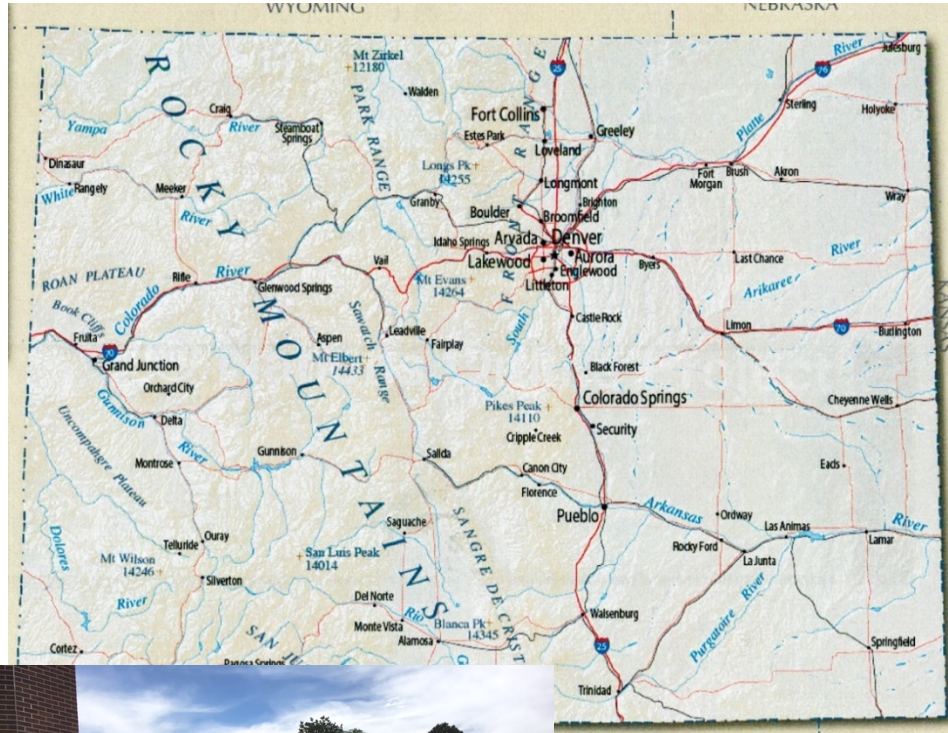


The Virtual Dental Home in Salem, Oregon Allows Children to Remain in Their Communities for Preventive Services

- Polk County Teledentistry, Salem and Independence, Oregon - A pilot project for the Oregon Health Authority
- A virtual dental home (VDH) uses expanded practice dental hygienists (EPDH) to provide children in schools with preventive oral health services
- Community initiated – public and private collaboration
- EPDH uses an intraoral camera, Nomad portable x-ray
- EPDH acquires, stores, and forwards images and DH assessment for dental treatment planning at a later time.
- Serves students from families with a primary language other than English, many live in rural areas, and some parents work in agriculture
- EPDHs provide services in schools during the school year and in a pediatrician's office during the summer
- EPDHs are now permitted to provide interim therapeutic restorations after consultation with dentist



Community Dental Health (Senior Mobile Dental) Colorado Springs, CO



- A non-profit community dental provider founded in 2006 by a dental hygienist
- Serves mainly low income seniors, “place bound” elders, and veterans
- Two fixed dental clinics – one in a senior center complex
- Mobile services in nursing homes in Colorado Springs and Pueblo, CO and several rural locations
- Uses van equipped with a Panorex to obtain x-ray images
- Dental hygienist stores and forwards assessments and images for subsequent treatment planning
- Preventive services are provided in skilled nursing facilities, assisted living homes, and other community settings

Apple Tree Dental, Mounds View, MN Uses Both Synchronous and Asynchronous Teledentistry



- A not for profit community dental provider
- 8 free standing Dental Centers throughout Minnesota including 1 at the Mayo Clinic
- Provides mobile/ portable dentistry services in 145 locations throughout the state
- Telehealth technology use includes an electronic dental record that links the dental clinics at schools, Head Start Centers, group homes, assisted living centers, nursing facilities and other community sites with dental staff at dental centers
- The organization uses both synchronous and asynchronous technology to supply Teledentistry services

Apple Tree Was a Pioneering Organization in the Use of Teledentistry

- The **Apple Tree Health Start Teledentistry Project** began in 2002-03
 - A grant provided support to provide asynchronous screenings for children in Head Start programs
- **Asynchronous screening** and assessment services provided by a dental hygienist
 - Forwards assessment and dental images using an intraoral camera for a dentist's evaluation and treatment planning
 - Increase in percent of Head Start children receiving a screening examination statewide from 73% in 2003-04 to 90% in 2006-07 and a decrease in children needing follow-up treatment from 32% to 27%.
- In subsequent years, Apple Tree Dental has used Teledentistry
 - To complete their basic screening surveys,
 - Establish meaningful use for the EHR incentive program, and
 - To manage eldercare programs and benefits
- **Continues to us both synchronous and asynchronous models**
 - In their efforts at medical-dental integration
 - During the pandemic

There Are a Number of Barriers That Have Prevented Uptake of Teledentistry

- Procedure oriented nature of dentistry
- Provider reluctance to engage with the modality
- Lack of education about modality during clinical training (increasing utilization in residency programs)
- Lack of information infrastructure in some locations
- Lack of adequate reimbursement
- Lack of supportive regulation
 - Requirements for face-to-face
 - Limitations on entity that can bill for service or on provider type

There Are a Number of Barriers That Have Prevented Uptake Of Teledentistry (con't)


- Difficult to maintain Teledentistry programs:
 - Concerns of policymakers about **effectiveness**
 - Maintenance requires blending funds from federal and state grants, senior programs, philanthropy
 - **Variation in reimbursement** policies among insurers
 - Reluctance of state Medicaid programs to fund
 - Especially important since targeted patients are underserved
 - Some limit only to real-time consultation
 - May limit reimbursement only to consulting provider

Conclusions


- Teledentistry permits
 - Early **identification and management of emergent problems**
 - **Addresses unmet need** for oral health services for populations and in communities where access is limited.
- For children, elders, and others
 - Can **mediate barriers to access** including dependence on others for appointment participation and transportation
 - Permits **management of preventive interventions in community settings**
 - Can serve as a non-threatening introduction to dentistry
 - Can reduce patients' anxiety when provided in familiar surroundings
- Patients and providers express satisfaction with services provided via Teledentistry

Questions?

- For more information, please email me at: mlangelier@Albany.edu

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