

## ABSTRACT

**OBJECTIVE:** This study aimed to examine the trends of teledentistry use to meet emergent patient needs during the COVID-19 pandemic.

**METHODS:** Researchers at the Oral Health Workforce Research Center (OHWRRC) conducted an environmental scan of literature and of state and federal regulations (including those affecting provision of teledentistry) to describe the immediate and long-term impacts of the COVID-19 pandemic on the dental delivery system. Researchers also conducted a survey of consumers of oral health services in conjunction with the American Association of Medical Colleges (AAMC) through the Consumer Survey of Health Care Access fielded in June 2020, December 2020, June 2021, and December 2021, which contained a module of questions describing personal use of any telehealth/teledentistry service for the first time during the pandemic. Researchers assessed 2019 and 2020 Uniform Data System data, and data from the American Dental Association's Health Policy Institute's Economic Impact of COVID-19 on Dental Practices Tracking Poll.

**RESULTS:** Dental practice were more often using virtual technology to reach patients during the COVID-19 pandemic than in the year prior. Trends in teledentistry use were highest during the earliest months of 2020 when the pandemic was initially identified. Data from the AAMC Consumer Survey of Health Care Access showed that in June 2020, 78.4% of responding consumers who had ever used any teledentistry modality reported using it for the first time during the pandemic. The April 20, 2020 wave of the ADA HPI showed that 25% of respondents reported using some form of virtual technology to reach a dental provider. UDS data showed that the number of dental visits via teledentistry increased by 55 times when compared to pre-pandemic rates of usage.

**CONCLUSION:** Teledentistry has the potential to improve access to care for populations, particularly for consultation, monitoring, and pre- and post-operative care. The pandemic provided an opportunity to demonstrate that widespread adoption of teledentistry is possible and practical and should continue beyond the pandemic.

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## INTRODUCTION

- Teledentistry refers to a variety of technologies and modalities used to deliver diagnostic, consultative, therapeutic, and palliative oral health services, oral health education, and pre-operative and post-surgical care<sup>1</sup>
- Teledentistry facilitates patient-provider consultation and includes synchronous interactions (teleconferencing) and asynchronous transfers (chart, images, store and forward)<sup>1</sup>
- Teledentistry modalities used include telephonic consultation, video conferencing, email, and web-based applications
- In early 2020 when shelter in place orders were occurring, access to dental care became a problem in many states
- At the start of the pandemic, teledentistry—which had been available for nearly 3 decades—was identified as an effective technology to bridge gaps in access to care
- Research Objective:** This study examines the trends in teledentistry use to meet emergent needs during the COVID-19 pandemic.

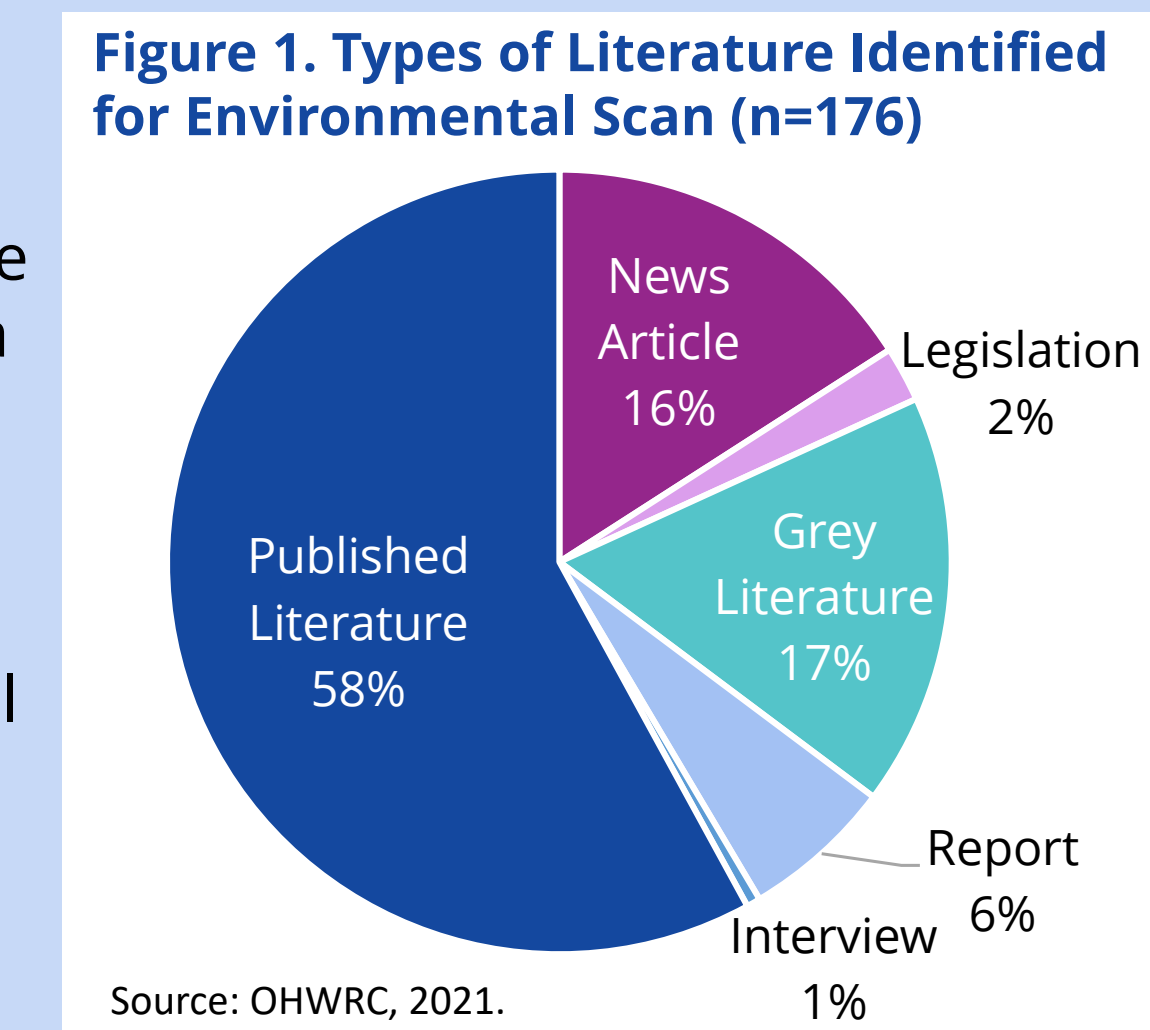
## METHODS

- In this mixed methods study, researchers used qualitative (environmental scan of relevant literature) and quantitative (secondary data analysis) data to describe immediate and long-term impacts of the COVID-19 pandemic on the use of teledentistry to address patient needs
- Examined trends in teledentistry from 4 perspectives: environmental factors that enabled use, providers uptake of teledentistry, consumers' needs and use, and safety-net services
- Environmental Scan:** Beginning in August 2020, researchers conducted a literature review to identify peer reviewed studies and other literature discussing the impact of the pandemic on dentistry. Qualitative analysis of literature was conducted using Dedoose, a cross-platform web-based application for analyzing quantitative and mixed-methods research.<sup>2</sup> A total of 176 resources were identified and coded by topical area
- Provider Perspective:** Secondary data from the American Dental Association's Health Policy Institute's (ADA HPI) Economic Impact of COVID-19 on Dental Practices survey was reviewed to identify provider perspectives. Three waves from this survey included questions about teledentistry (tracking poll data from 4/20/2020, 7/13/2020, and 2/15/2021)
- Consumer Perspective:** Researchers analyzed surveys of consumers of oral health services in collaboration with the American Association of Medical Colleges (AAMC) through their Consumer Survey of Health Care Access fielded in June 2020, December 2020, June 2021, and December 2021
- Safety-Net Perspective:** Researchers examined Uniform Data System (UDS) data of health center grantees and look-alikes offering safety net perspectives (2019 and 2020 data). Researchers assessed data from the UDS which provide consistent information about over 1,400 health centers and approximately 13,000 service delivery sites across the United States, DC, and territories. In 2018, health centers served over 28 million patients<sup>3</sup>
- The literature was consolidated and analyzed using a web-based software program, Dedoose, for qualitative analysis. Descriptive analyses was conducted using SAS v.9.4

## RESULTS

### Environmental Scan Perspective

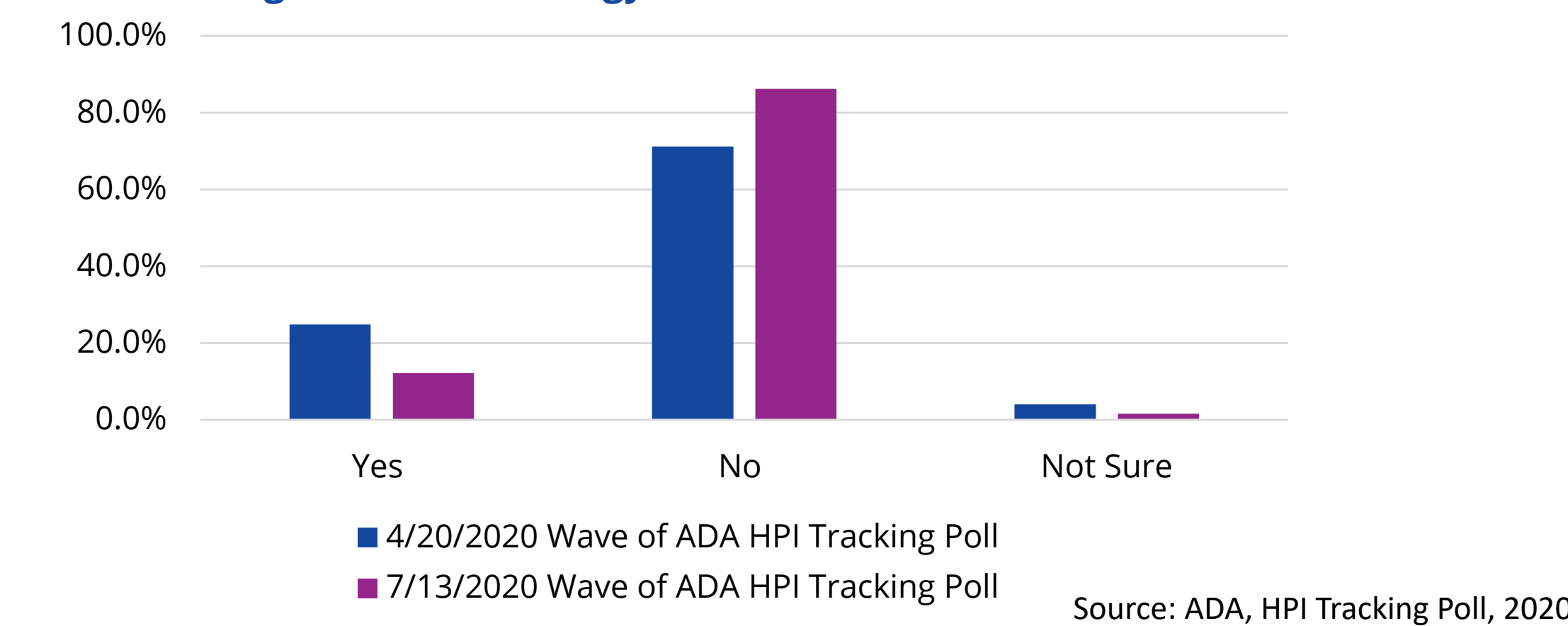
- Teledentistry was an emerging modality in dentistry but, prior to COVID-19, uptake had been confined to public health settings, mobile and portable dental programs, and to use as a teaching tool in dental education
- The literature review suggested that uptake of teledentistry as a modality for consulting with patients increased exponentially during critical months of the pandemic
- In April 2020, use of teledentistry was about 60 times greater than pre-pandemic levels. While usage of teledentistry modalities decreased once dental offices began reopening, use of teledentistry remained 12.7 times higher in the last week of August 2020, when dental practices were mostly open, than at the same time in 2019<sup>4</sup>



### Provider Perspective

- Virtual technology/telecommunication use was higher in practices with DSO affiliation than within those that were not affiliated with a DSO<sup>5</sup>
- Large group (10+) practices also reported higher technology/telecommunication use than solo dentists and practices with 2-9 dentists<sup>5</sup>

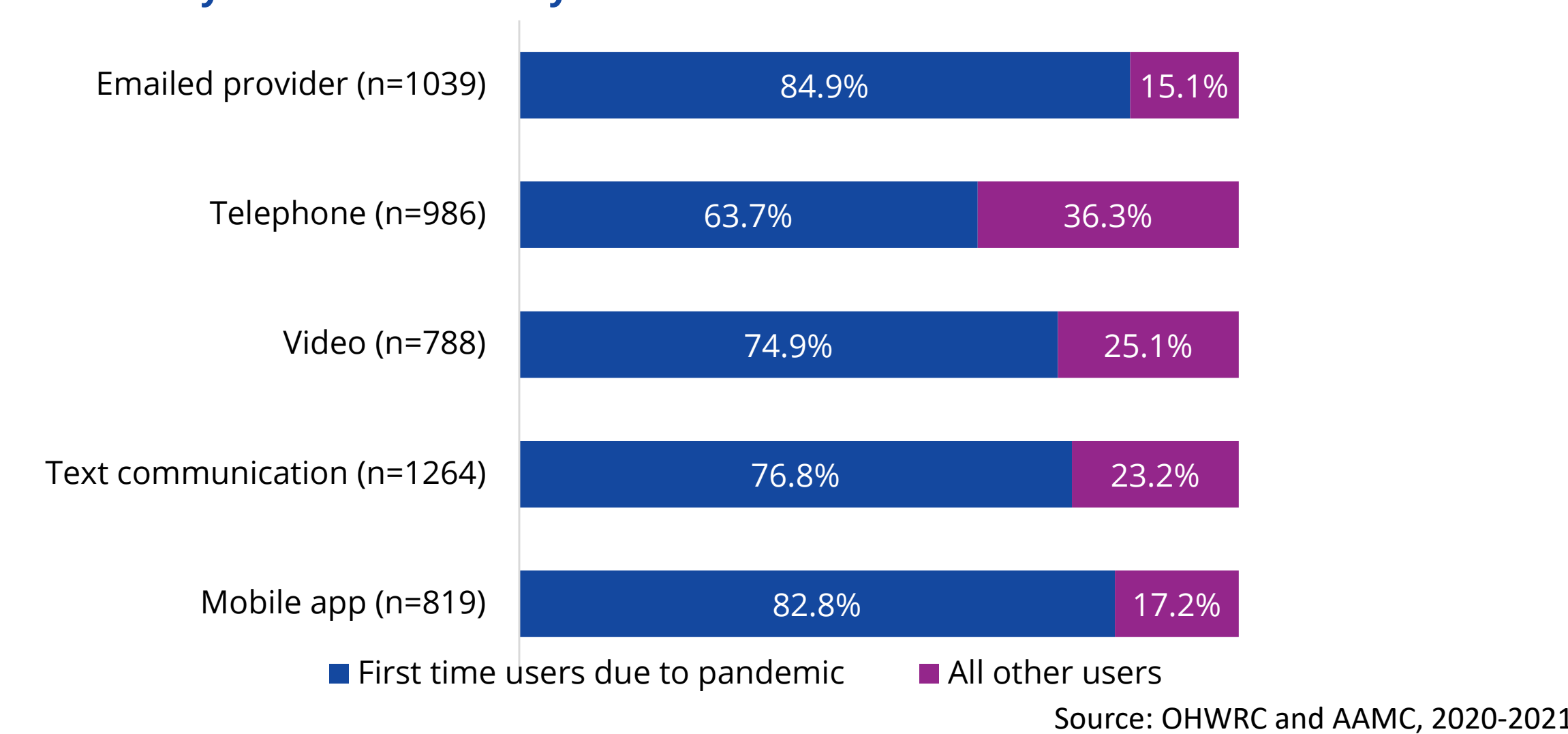
**Figure 2. Practices Using Virtual Technology/Telecommunications**



### Consumer Perspective

- For first time users, email was the most used modality, followed by mobile apps, text communication, video, and telephone

**Figure 3. Teledentistry Modalities Use by Both First Time Users Due to COVID-19 and Others Who Had Already Used Teledentistry Prior to COVID-19**



## RESULTS (cont.)

### Safety-Net Perspective

- The greatest percentage change in the number of dental visits via teledentistry at FQHCs was reported in the Midwest, followed by the Northeast, South, and Western region. Nationwide, the number of dental visits via teledentistry at FQHCs was 55 times greater than during the pre-pandemic months
- The proportion of FQHCs offering health services via teledentistry increased from 35.1% in 2019 to 96.0% in 2020, representing a 174% increase

**Figure 4. Number of Dental Visits Via Teledentistry at FQHCs With Dentist and/or Dental Hygienist FTEs by Region and Nationwide, 2019-2020<sup>3</sup>**

Region	2019	2020	% Change 2019-2020
Midwest	9	20,325	225,733.3%
Northeast	117	54,209	46,232.5%
South	501	31,397	6,166.9%
West	4,228	164,037	3,779.8%
Nationwide	4,855	269,968	5,460.6%

**Figure 5. Number and Proportion of FQHCs Offering Oral Health Services Via Teledentistry by Region and Nationwide, 2019-2020<sup>3</sup>**

Region	2019	2019, %	2020	2020, %	% Change 2019-2020
Midwest	79	32.1	242	98.8	207.8%
Northeast	49	23.3	204	97.1	316.7%
South	150	39.0	362	93.1	138.7%
West	142	40.0	336	97.7	144.3%
Nationwide	420	35.1	1,144	96.0	174.4%

Source: UDS Data, 2019 and 2020.

## CONCLUSIONS

- While teledentistry is unlikely to replace in person visits to an oral health provider for services, the modality has demonstrated promising impacts on access to care particularly for consultation, monitoring, screening, triaging and pre- and post-operative care
- Experience with teledentistry during the pandemic allowed for providers and patients to understand the utility of these teledentistry modalities for improving capacity to meet the needs of patients
- Expanded and continued use of teledentistry beyond the pandemic requires overcoming barriers such as how state dental practice acts classify telehealth services, reimbursement by insurers, clarity and regulation around data security, and inequities around accessing technology, especially in vulnerable populations<sup>6</sup>

## REFERENCES/ACKNOWLEDGMENTS

- DentaQuest. 2022. Teledentistry. Oral Health Resources DentaQuest. Retrieved from <https://dentaquest.com/oral-health-resources/teledentistry/>
  - Dedoose. 2022. Retrieved from <https://www.dedoose.com/>
  - Health Resources and Services Administration. (2021). Uniform Data System Reporting Instructions for 2020 Health Center Data. Retrieved from <https://bphc.hrsa.gov/sites/default/files/bphc/datareporting/pdf/2020-uds-manual.pdf>
  - Choi S, Simon L, Basu S, Barrow J. Changes in dental care use patterns due to COVID-19 among insured patients in the United States. *JADA*. 2021;152(12):1033-1043. Doi: 10.1016/j.adaj.2021.07.002.
  - American Dental Association. 2020. Economic Impact of COVID-19 on Dental Practices. Health Policy Institute, American Dental Association. Retrieved from <https://www.ada.org/resources/research/health-policy-institute/impact-of-covid-19/private-practice-results>
  - McLeod C, Apostolon D, Tranby EP, Mathews R. November 2020. Provider Teledentistry Use Gains Traction During COVID-19. DentaQuest Partnership for Oral Health Advancement. Boston, MA. Doi: 10.35565/DQP.2020.2020.
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