

# Teledentistry Trends in Pediatric Patients between 2019 and 2020

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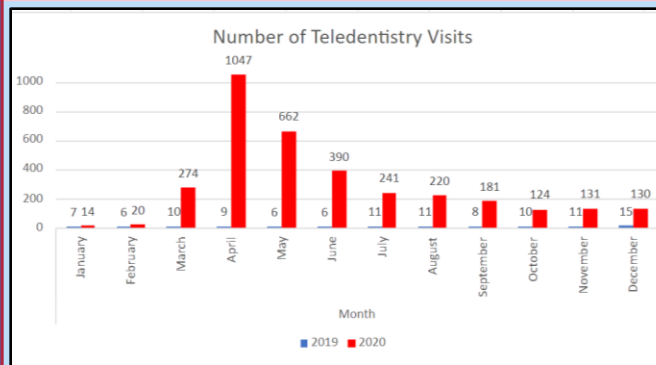
## Introduction

Telehealth is a realm of medicine that enables remote communication between clinicians and patients incorporating digital technology and clinical dentistry. With the COVID-19 pandemic, teledentistry has gained popularity due to its inherent ability to decrease transmission of disease and increase access to care amongst individuals not able to be seen in the dental office. We are interested in the Current Dental Terminology (CDT) codes used for teledentistry appointments and which populations benefited most from teledentistry. From this information we aim to investigate and analyze the trends and practices in utilization of pediatric patient teledentistry visits during 2019 and 2020.

## Methods

Data of dental providers participating in DentaQuest were obtained from CareQuest Institute for Oral Health. Patient visits in which teledentistry Current Dental Terminology (CDT) codes D9995 and D9996 were captured and stratified into the following demographic factors: age groups and gender. The descriptive statistics were calculated for the predictor and outcome variable. The outcome variable is utilization of teledentistry (yes/no) in year 2019 and 2020. Mean and Standard deviation were calculated for continuous variables. Age, count, and percentage will be reported for categorical variables. We examined which procedural codes were used most in conjunction with CDT teledentistry codes. Incidence rate ratio (IRR) and a 95% confidence interval of IRR were estimated. The IRR could be interpreted as a ratio of teledentistry visit rates in 2020 to 2019.

## Results



Variable	Units	OddsRatio	p-value
age group	Adult	Ref	
	Infant	NA	1
	Toddler	NA	0.9863
	Pre-school	1.34[0.49;3.64]	0.9868
	School age	0.88[0.44;1.74]	0.9882
	Teenage	0.24[0.08;0.77]	0.9863
Young adult	1.34[0.59;3.07]	0.9866	
Gender	Female	Ref	
	Male	0.74[0.50;1.08]	0.1247

The outcome variable is utilization of teledentistry (yes/no) in year 2019 and 2020 respectively

Variable	Units	OddsRatio	p-value
Year 2020 age group	Adult	Ref	
	Infant	3.5[1.75;7.00]	0.761672
	Toddler	3.12[2.43;4.01]	0.574182
	Pre-school	2.86[2.48;3.30]	0.089782
	School age	1.91[1.73;2.11]	<0.001
	Teenage	0.99[0.88;1.11]	0.030116
Young adult	1.6[1.38;1.85]	<0.001	
Gender	Female	Ref	
	Male	0.95[0.88;1.01]	0.137579

		Year	
		2019	2020
n		110	3434
Age(mean(SD))		42.58 (21.52)	33.80 (21.41)
Gender	Female	67	1871
	Male	43	1563
Teledentistry visit	yes	110	3434
0≤ age ≤1	Infant	0	8
2≤ age ≤3	Toddler	0	63
4≤ age ≤6	Pre-school	4	208
7≤ age ≤12	School age	9	492
13≤ age ≤17	Teenage	3	327
18≤ age ≤20	Young adult	6	188
21≤ age	Adult	88	2148

Procedure	n	Description
D9995	2416	Teledentistry Synchronous
D0140	1955	Dental Limited Exam
D9996	1206	Teledentistry Asynchronous
D0120	428	Dental Periodic Eval
D1110	319	Prophylaxis Adult
D0220	220	First PA
D0274	208	4 Bitewings
D9310	165	Dental consultation from physician
D1999	158	Unspecified preventative procedure

Overall, the rate of tele dentistry visits in 2020 was higher by 38.64% compared to 2019. Even with the decline, teledentistry was still being used more in 2020 than in 2019. There is no association between teledentistry and gender after adjusting for age group.

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## Discussion

The significant increase in tele dentistry visits in 2020 can be attributed to the COVID-19 pandemic, which forced many dental practices to close or limit their services to emergency care. The rate of teledentistry visits in 2020 was significantly higher than in 2019, with the highest increase observed in April 2020. Synchronous teledentistry was the most used method, with an evaluation limited to a specific oral health problem or complaint being the most common procedure used in conjunction with a teledentistry code. A limitation of this study is that only patients participating in DentaQuest dental insurance were recorded, where's patient's enrolled in private insurance might have better access to dentists who could potentially have the technology capabilities to implement teledentistry. Future research can potentially investigate teledentistry usage rates in different races, specialties, practice types, or patient regions. Future investigations could potentially reveal how providers are using teledentistry as an aid for periodic exams.

## Conclusions

- The majority of teledentistry visits were seen in the month of April for 2020, with a steady decline of teledentistry usage afterwards, but usage rates remained higher in 2020 than usage rates in 2019.
- School-age children had the most usage of teledentistry in the pediatric population.
- A dental limited exam was the most common procedural code used in conjunction with a teledentistry code.
- Infant and toddler age groups have an odds ratio of ~3 compared to adults when it comes to teledentistry usage