

Specific Aims

- To determine the characteristics of teledentistry visits completed during the COVID-19 pandemic, the patients who participated in these visits, along with the types of treatment received subsequent to the teledentistry visits
- To examine the benefits of teledentistry visits on access to care
- To examine the limitations and barriers to participating in teledentistry visits

Introduction

Telehealth and Teledentistry

- Telehealth is the remote delivery of health care through a variety of telecommunication tools including smartphones and mobile devices, with or without video connection.¹
- Over the years, teledentistry has proven to be beneficial for dental screening, making diagnosis, providing consultation, and proposing treatment plans.
- Current dental research has demonstrated that teledentistry has the potential to be cost-effective and increase access to oral health care, especially to underserved children.² Parents were also shown to be satisfied with teledentistry services and perceived it to be significantly more convenient.³

COVID-19 Pandemic

- On March 10, 2020, Governor Charlie Baker declared a state of emergency in the Commonwealth of MA due to COVID-19 and many dental offices were ordered to be shut down.³ Hospitals and dental offices were tasked to provide diagnosis and care while minimizing exposure to acutely ill patients.⁴
- The BCH Department of Dentistry became an epicenter of emergency dental care for the New England region, and started telehealth visits in April 2020 to meet patient needs.

Methods

We conducted a retrospective cohort study on patients ages 0-5 years (early childhood caries cohort) who completed initial teledentistry visits at BCH between March 2020 and March 2022. We reviewed the hospital electronic medical and dental records (Powerchart and Dentrix). The completed teledentistry visits were retrieved from a Dentrix report and identified through the Codes on Dental Procedures and Nomenclature (CDT) D9995 code, representing a synchronous teledentistry visit. For each patient, we examined parent-obtained intraoral photographs, patient demographic factors (age, sex, gender, dental insurance, state of residence, race, dental home), medical histories, diagnosis, and visit details for each subject. 1527 total teledentistry visits were completed over the study period. Out of these visits, 1258 visits accounted for patients' first teledentistry visit.

Inclusion Criteria

- Patients who had a teledentistry visit (D9995 code billed) between March 2020 to March 2022.
- Patients under 6 years old.

Exclusion Criteria

- Any patients whose initial teledentistry visit occurred prior to March 2020 or after March 2022

Results

a. Patient Demographics N (%)		b. Teledentistry Visit Details N (%)	
Age		Established BCH Patient	
0 – 11 months	14 (1.1)	Yes	841 (66.7)
12 – 23 months	94 (7.5)	No	419 (33.3)
24 – 35 months	180 (14.3)	Established Dental BCH Patient	
36 – 47 months	278 (22.1)	Yes	151 (12.0)
48 – 59 months	353 (28)	No	1109 (88.0)
60 – 71 months	341 (27.1)	Referral Type	
Sex		Outside General Dentist	199 (15.8)
Male	678 (53.8)	Outside Pediatric Dentist	488 (38.7)
Female	582 (46.2)	BCH PCP	33 (2.6)
Location		BH Specialist	5 (0.3)
In-State	1198 (95.1)	Outside PCP	90 (7.1)
Out-of-State	62 (4.9)	No Referral	445 (35.3)
Language		Referral Reason	
English	1178 (93.5)	Caries	123 (13.4)
Spanish	41 (3.3)	Trauma	12 (1.3)
Haitian Creole	1 (0.1)	Evaluation/Exam	77 (8.3)
Portuguese	14 (1.1)	Seeking Treatment	163 (17.7)
Chinese	1 (0.1)	Sedation/OR Clearance	403 (43.8)
Vietnamese	3 (0.2)	New Patient	69 (7.5)
Other	14 (1.17)	Behavior	63 (6.8)
Unspecified	8 (0.6)	Covid Restrictions	2 (0.2)
Insurance		Medical Reasons	8 (0.9)
MassHealth	722 (57.3)	Photos Provided	
Out-of-State Medicaid	21 (1.7)	Yes	981 (77.9)
Private Insurance	499 (39.6)	No	279 (22.1)
Self Pay	14 (1.1)	X-Ray Provided	
International	1 (0.1)	Yes	274 (21.7)
Other	3 (0.2)	No	986 (78.3)
Medical History		Provided X-Rays' Diagnostic Quality	
Healthy/Non-contributory	924 (73.3)	Yes	191 (68.2)
Special Healthcare Needs (SHCN)	336 (26.7)	No	10 (3.6)
		Somewhat	31 (11.1)
		Outdated	48 (17.1)

Table 1. (a) Patient Demographics and (b) Teledentistry Visit Details Table.

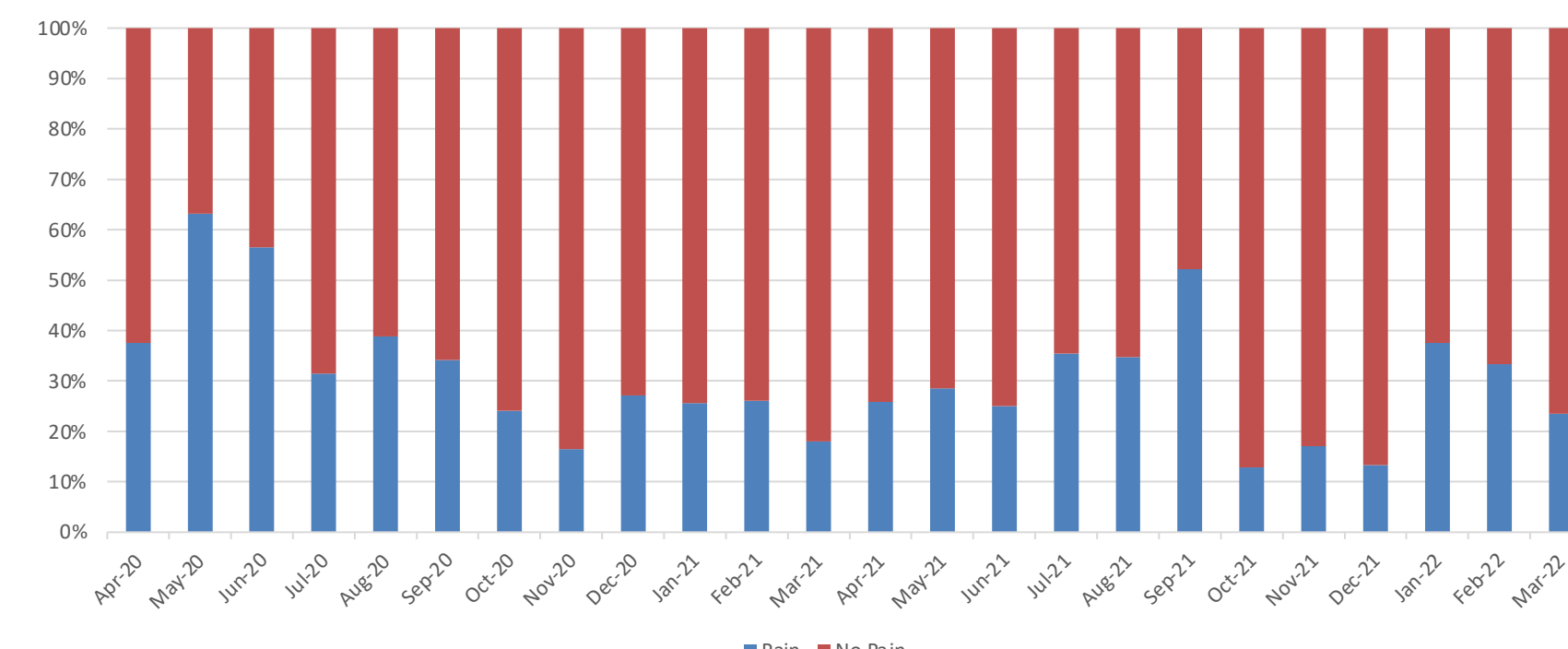


Figure 2. Reported Pain During Initial Teledentistry Visit. While pain was more highly reported proportionally in the beginning months and around September 2021, during the middle of the study period (October 2020 – June 2021), there was a rise in the number of patients presenting without pain.

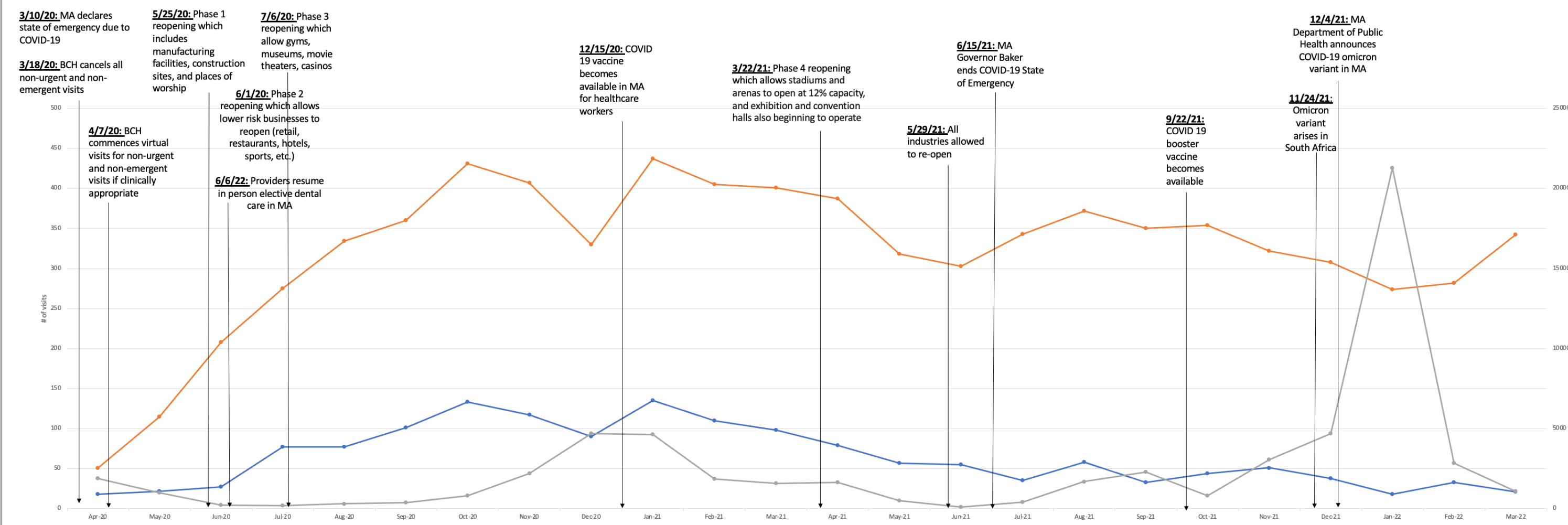


Figure 4. Teledentistry and Total Visits for Ages 0-6 and MA COVID-19 Cases Trendline. Teledentistry visits increased from March 2020 until January 2021 and subsequently declined. As Boston reopened through phases, more dental and teledentistry visits occurred. As the COVID-19 vaccine became available, teledentistry visits declined.

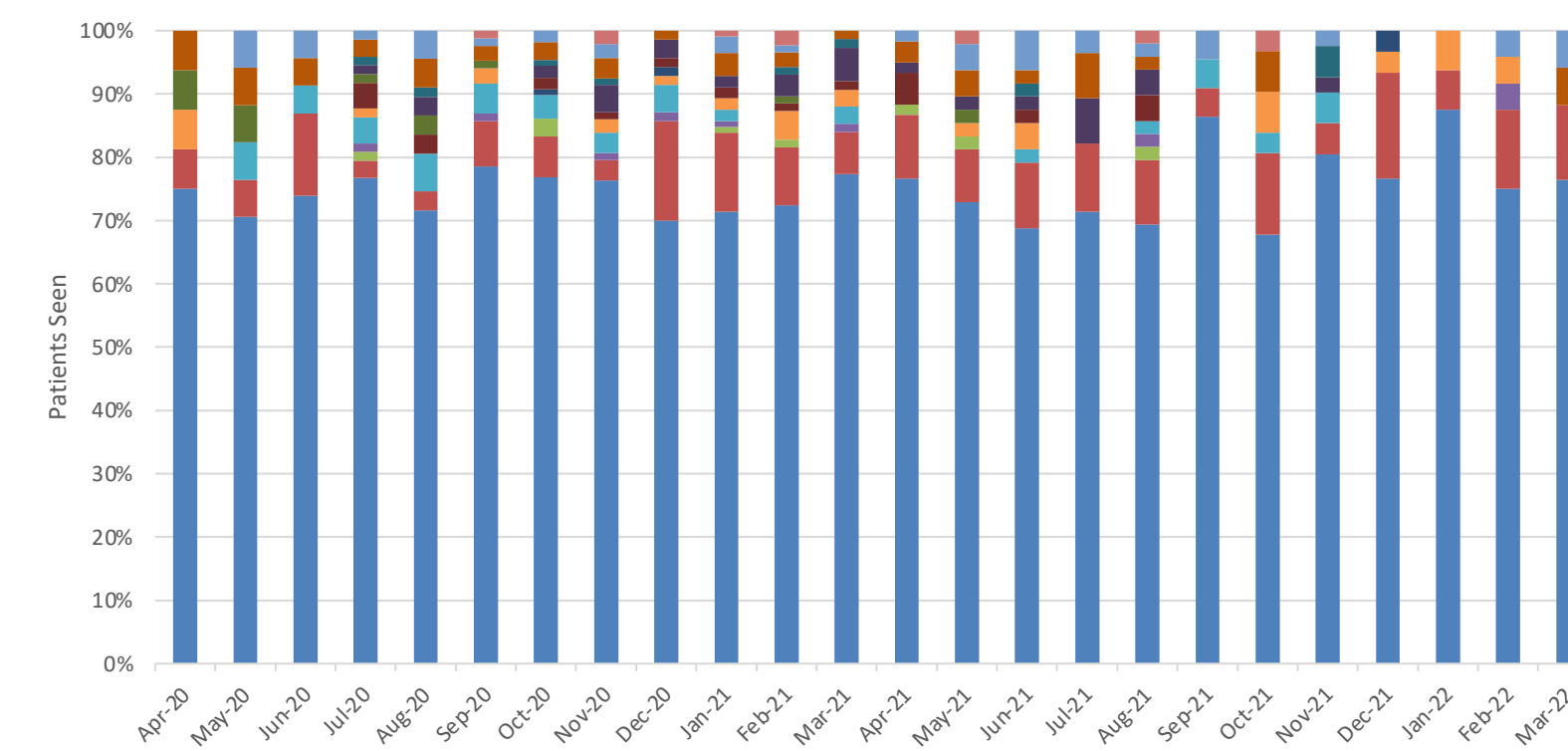


Figure 1. Healthy/Non-contributory conditions to SHCN. Patients with SHCN were seen consistently throughout the study period (26.7%). The ratio of healthy to SHCN patient was 2.75:1. The SHCN most commonly seen was autism (8.3%). Healthy/non-contributory conditions included asthma, ADHD, ophthalmologic, dermatologic, urologic, viral, sleep, high BMI, premature birthweight, eustachian tube defect. The conditions mentioned listed in the legend were considered SHCN.

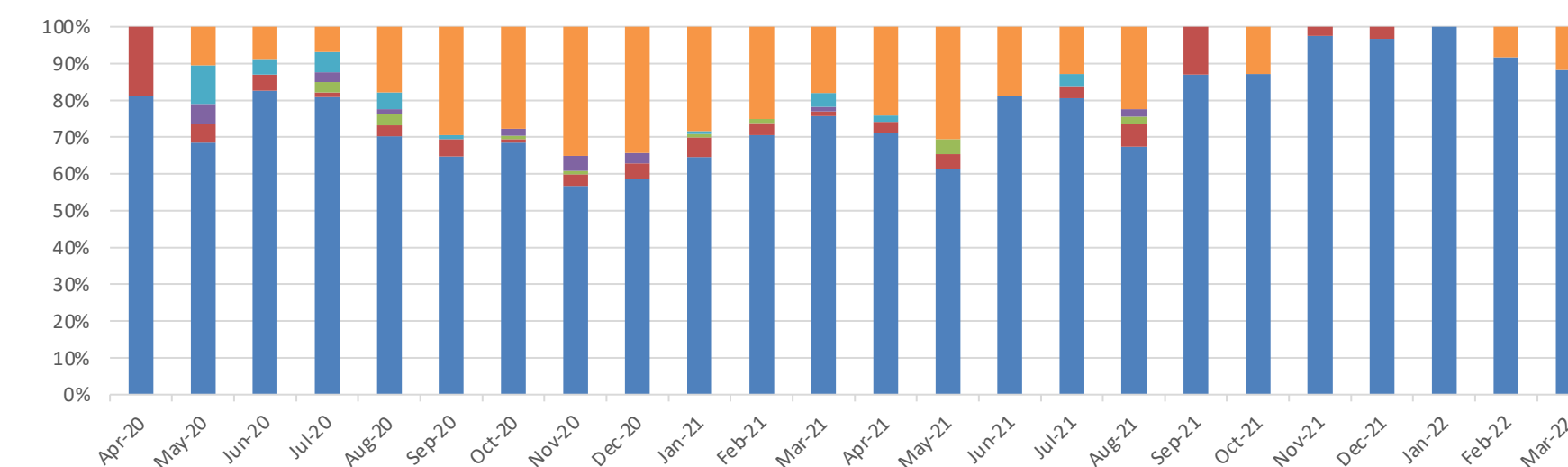


Figure 3. Recorded Pathology During Initial Teledentistry Visit. While there are patients with trauma (3.3%), soft tissue concerns (0.9%), loose primary teeth, 2 rows of teeth, or early loss of deciduous teeth (1.1%), the majority of patients overwhelmingly presented with caries as the main pathologic concern (72.4%). There was a gradual increase of patients with no pathologic concern in the months of November 2020 and December 2020.

Results (Continued)

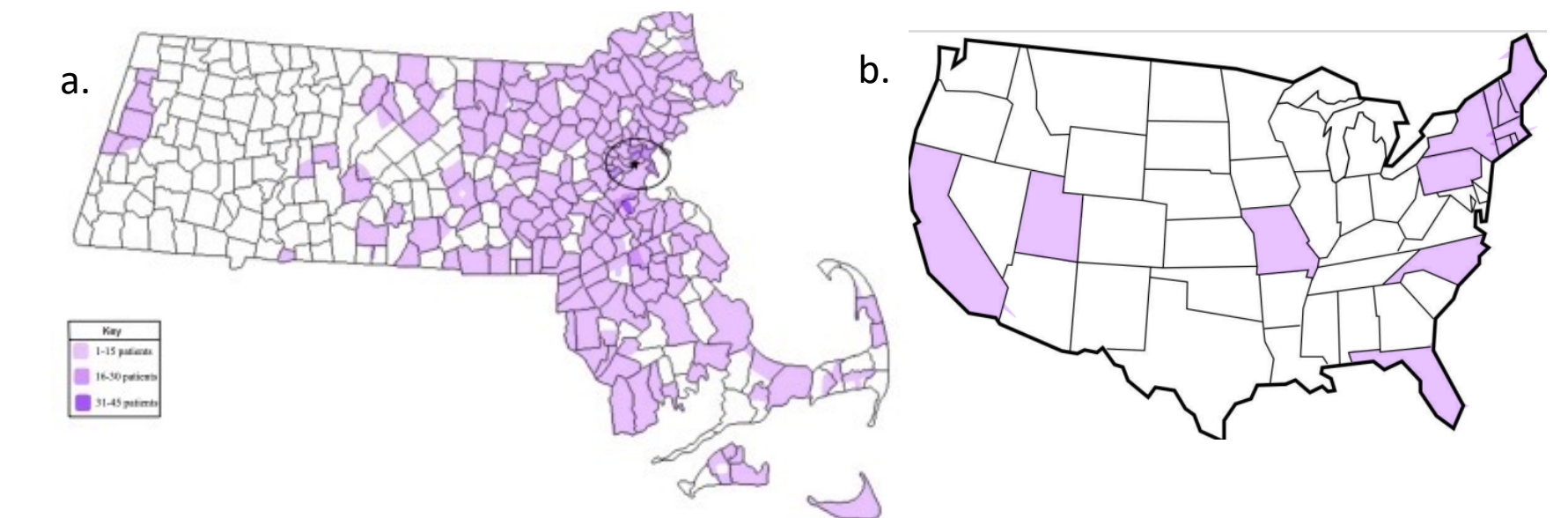


Figure 5. (a) Heatmap with Radius Around the Zipcodes that Most Utilized Teledentistry, (b) Map of U.S. States that BCH Teledentistry Served. Although the majority of patients were from Eastern MA, the provision of teledentistry services was wide-reaching geographically, serving children as far as UT, FL, and CA.

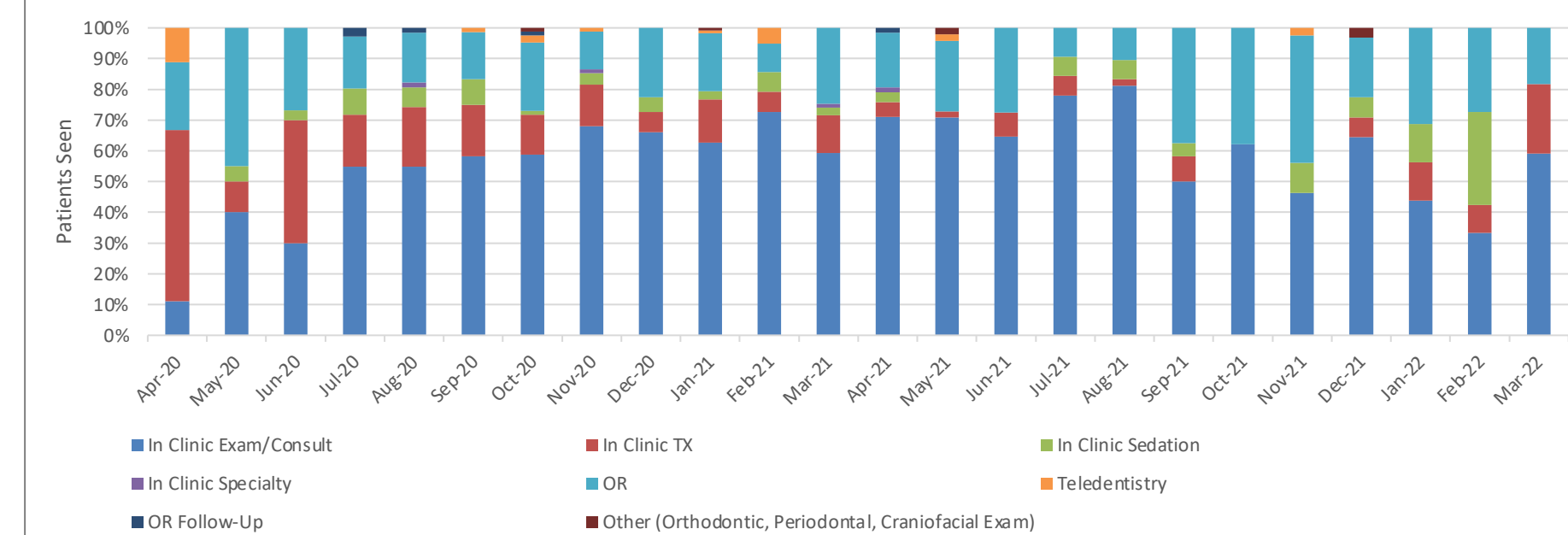


Figure 6. Follow-up After Initial Teledentistry Visit. In the beginning of the pandemic (April – June 2020), a significant proportion of patients were triaged to the OR or in-clinic treatment (>50%).

Conclusions

- Teledentistry visits have served as an innovative, useful tool during COVID-19.
- As Massachusetts reopened through phases, more dental and teledentistry visits occurred.
- In the first few months of teledentistry use, greater numbers of patients reported pain and presented with pathology, which were triaged for treatments in Clinic or the OR. Gradually, an increase number of patients were referred for routine exams and cleanings.
- Teledentistry served a sizeable percentage of children with SHCN, who reside in Eastern MA as well as across the US.

References

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