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ABSTRACT

Purpose: This study aims to determine the influence of COVID-19 on the demand for in-office conscious sedation in pediatric dentistry.

Methods: A retrospective chart review was conducted at two pediatric dental clinics located in Laredo (Health professional shortage area) and in San Antonio. The records were identified by using a search for CDT codes D0150 (Comp Exam), D0120 (Periodic Exam), D0140 (Limited Exam), and D0145 (Oral Eval under 3yr) for six months pre-COVID-19 and six months post COVID-19. Records were obtained for patients aged 2 to 14 years old. Patients were divided according to age into three groups (2-5, 6-9, and 10-14). The exam visits meeting the inclusion criteria were evaluated for planned code D9248 non-intravenous conscious sedation, and if completed within six months. Chi-square statistical test was performed at a significance level of $P < .05$. **Results:** A total of 1835 exam visits pre-COVID-19 and 1379 exam visits post-COVID-19 were reviewed. There was an increase in the percentage of both planned and completed sedations to the total number of exam visits ($P < .0001$). Most of the increase in planned and completed sedations happened in the group aged 2-5 ($P < .0001$). When comparing the two clinics, the percentage of planned sedations increased at the Laredo clinic ($P < .00001$). However, the increase was statistically insignificant at the San Antonio clinic. **Conclusion:** There is an increase in planned and completed sedations post-COVID-19. Most of the increase happened in the age group 2-5 years old, and at the clinic located at the Health Professional Shortage Area.

INTRODUCTION

The World Health Organization declared COVID-19, the disease caused by SARS-CoV-2, a pandemic in March of 2020. Early in the pandemic data suggested that children were less frequently infected by and affected by the COVID-19 disease. Of the children that were infected most displayed minimal to mild forms of the disease which rarely required hospitalizations. (1) A nationwide lockdown was mandated by the government during the COVID-19 pandemic in order to reduce the transmission of the virus. Another precaution taken in order to reduce the transmission was from the American Dental Association (ADA) which instructed dentists to stop providing elective dental treatment, except for those patients who required emergency treatment during this lockdown period. (2) The University of Texas Health Sciences Center at San Antonio's Pediatric Dental Residency Program at the Ricardo Salinas Dental Clinic and the Laredo Dental Clinic enforced the lockdown guidelines mandated by the government and ADA. During the period March 23, 2020, until May 11, 2020, only emergency care was provided. In the subsequent months, when the clinics reopened for routine care, guidelines were to avoid non-urgent aerosol-producing procedures. Many of these guidelines, ongoing changes, and alterations to the "traditional" dental visit can trigger trepidation to parents about the safety of the dental setting for themselves and their children. Studies have shown that parents fear COVID-19 and it impacts their behavior in seeking dental care for their children (3).

The COVID-19 pandemic appears to have significantly affected hospital operating room time which is an important treatment modality to deliver care for many pediatric dentists. With limited operating room access for dentists and caregivers' reservations about going to the hospital for dental treatment due to the fear of contracting COVID-19, in-office conscious sedation is necessary. This study aims to evaluate the clinical role conscious sedation serves when behavior management fails and access to general anesthesia in the operating room is limited.

MATERIALS and METHODS

Following Institutional Review Board approval from the University of Texas Health Science Center at San Antonio (San Antonio, Texas), a retrospective chart review was conducted at two dental clinics serviced by pediatric dental residents of the University of Texas Health Center at San Antonio: Laredo Dental Clinic-Laredo (Health professional shortage area- HPSA designated) and Ricardo Salinas Clinic- San Antonio. Using Axium software program, records were identified by using a search for CDT codes D0150 (Comp Exam), D0120 (Periodic Exam), D0140 (Limited Exam), and D0145 (Oral Eval under 3yr) from Sep2019 to Feb2020 (pre-COVID-19) and from Sep2021 to Feb2022 (post COVID-19). Records were obtained for patients aged 2 to 14 years old at the exam time. Patients were divided according to age into three groups (2-5, 6-9, 10-14).

The Exams' appointments meeting the inclusion Criteria were evaluated for:

- Planned code D9248 non-intravenous conscious sedation.
- The completion of code D9248 within six months of planning.

The percentage of planned sedations to the total number of exam appointments, the percentage of completed sedations to the number of planned sedations, and the percentage of completed sedations to the total number of exam appointments were calculated for the mentioned periods. Chi-square statistical test was performed at a significance level of .05 to confirm the statistical significance of the results.

		Number of Exam appointments	Number of planned D9248	Number of completed D9248 within/6m	Planned D9248 to total Exam appointments %	Completed D9248 w/6m to planned %	Completed D9248 to total exam %
Age (2-5)	Pre-COVID-19	412	91	45	22.1%	49.5%	10.9%
	Post-COVID-19	119	95	79	79.8%	83.2%	66.4%
	p-value (<.05)				<.00001	<.00001	<.00001
Age (6-9)	Pre-COVID-19	684	151	71	22.1%	47%	10.4%
	Post-COVID-19	789	141	107	17.9%	75.9%	13.6%
	p-value (<.05)				<.00001	<.00001	.061727 > .05
Age (10-14)	Pre-COVID-19	739	11	6	1.5%	54.5%	0.8%
	Post-COVID-19	471	25	16	5.3%	64%	3.4%
	p-value (<.05)				.025519	.591943 > .05	.001032
Total	Pre-COVID-19	1835	253	122	13.8%	48.2%	6.6%
	Post-COVID-19	1379	261	202	18.9%	77.4%	14.6%
	p-value (<.05)				.000083	<.00001	<.00001

Statistically significant (Green) Statistically not significant (Orange)

		Number of appointments	Number of planned sedation	Number of completed Sedation w/6m	Planned sedation to total %	Completed sedation w/6m to planned %	Completed sedation w/6m to total %
Laredo	Pre-COVID-19	862	122	63	14.1%	51.6%	7.3%
	Post-COVID-19	643	160	125	24.9%	78.1%	19.4%
	p-value (<.05)				<.00001	<.00001	<.00001
Salinas	Pre-COVID-19	995	131	59	13.2%	45%	5.9%
	Post-COVID-19	744	102	77	13.7%	75.5%	10.3%
	p-value (<.05)				.741847	<.00001	.000683

Statistically significant (Green) Statistically not significant (Orange)

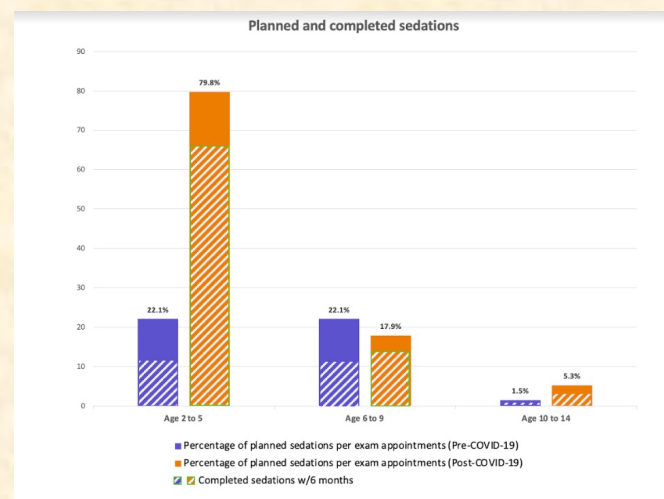


Figure 1. Planned and completed sedations for different age groups

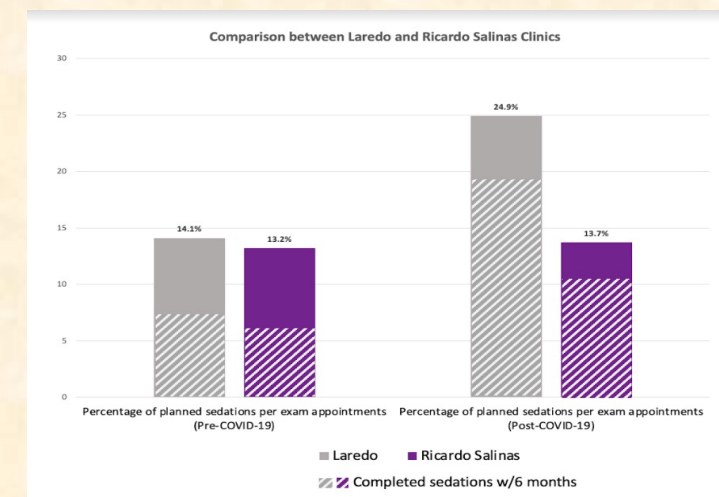


Figure 2. Comparison between Laredo and Ricardo Salinas Clinic

RESULTS

A total of 1835 exam visits pre-COVID-19 (862 Laredo, 995 Salinas), and 1379 exam visits post-COVID-19 (643 Laredo, 744 Salinas) were reviewed. The percentage of the total planned non-intravenous sedation to the total number of appointments increased from 13.8% pre-COVID-19 to 18.9% post-COVID-19 ($P = 0.00083$). Looking at the completed cases, the results showed that the percentage of the total completed to the total planned sedations increased from 48.2% pre-COVID-19 to 77.4% post-COVID-19 ($P < 0.00001$). Furthermore, the percentage of the total completed sedations to the total number of appointments increased from 6.6% pre-COVID-19 to 14.6% post-COVID-19 ($P < 0.00001$). Most of the change happened in the group aged 2-5 years old with an increase in the planned sedations to the total number of exam appointments from 22.1% pre-COVID-19 to 79.8% post-COVID-19 ($P < 0.0001$). When comparing the two locations the percentage of the planned sedations to exams increased from 14.1% pre-COVID-19 to 24.9% post-COVID-19 at the Laredo clinic ($P < 0.00001$), while the increase was statistically insignificant at the Salinas clinic in San Antonio. However, both locations demonstrated an increase in the percentage of completed sedations in the post-COVID-19 period in comparison to the pre-COVID-19 period. The change is from 51.6% pre-COVID-19 to 78.1% post-COVID-19 ($P < 0.0001$) in Laredo, and from 45% pre-COVID-19 to 75.5% post-COVID-19 ($P < 0.0001$) in Ricardo Salinas- San Antonio.

CONCLUSIONS

- COVID-19 has an influence on the demand for conscious sedation in pediatric dentistry. There is an increase in planned and completed cases post-COVID-19 compared to pre-COVID-19.
- Most of the increase happened in the age group 2-5 years old
- Most of the increase happened in the Laredo Clinic, a partially- rural, health professional shortage designated area.
- Conscious sedation can be a useful tool when there is reduced access to the operating room
- Further research is required to evaluate the success rate of sedation when it is proposed as an alternative to treatment under general anesthesia

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