



Introduction

- Limited literature regarding characteristics of referred patients to pediatric dental clinics
- Hollinger et al. (2018) investigated referral patterns of referred patients versus non-referred patients to the University of Iowa Pediatric Dental Clinic (UIPDC)¹
 - July 1, 2015 - May 31, 2016 (Paper referrals)
 - Referred patients (N=342), Non-referred patients (N=383)
 - Referred subjects were more likely to be treated by pediatric dental residents, live more than 30 miles away, have special health care needs, a greater number of teeth with decay and greater treatment needs
 - Non-referred patients were more likely to remain patients at the UIPDC and need space maintaining/orthodontic treatment¹
- Changes Impacting Referrals
 - Switch to electronic referral system at Iowa College of Dentistry
 - Covid-19 (2020)- Shift to fewer dentists accepting Medicaid²
 - Children's Medicaid changed to Managed Care (July 1, 2021)³; Administrative changes and reimbursement rates of 30-40 cents on the dollar⁴

Purpose

The goal of this study is to investigate and compare characteristics of current referred patients with previously referred patients at the University of Iowa Pediatric Dental Clinic (UIPDC).

Materials & Methods

- IRB Approval for retrospective chart review of referred patients to the University of Iowa Pediatric Dental Clinic (UIPDC)
- 1611 electronic referrals to UIPDC from July 1, 2020-December 31, 2021 were reviewed to determine the scope of the referrals for the defined time period
- Data Comparison- Impact of Medicaid Changes on Referral Patterns and Characteristics compared two groups of referred patients
 - N=342 (July 1, 2015 – May 31, 2016)
 - N= 535 (July 1, 2021 – December 31, 2021)
 - 14 variables selected for comparison –

Age group, Distance to UIPDC, Size of Community Participant is from, Type of Payment Used, Type of Referral Provider, Type of Practice Referred from, Level of Provider, Special Health Care Needs, Presence of Caries, Treatment needed (SSC, Extraction, Endo, Space maintaining/Orthodontic treatment, and Consultation with the UIPDC)

- Statistical Analysis**
 - Descriptive statistics were conducted
 - Pearson's chi-square test, Fisher's exact test, and nonparametric Mann-Whitney U test were used to determine statistical significance between the two groups of referred patients
 - All tests utilized a significance level of 0.05.
 - Statistical analyses were conducted using the statistical package SAS® System version 9.4 (SAS Institute Inc., Cary, NC, USA).

Results

Table 1. Demographic Characteristics of Study Participants 2020-2021 (N=1,611)

	Number of Participants	Percent
Age group		
1-5 years	935	58.0%
6-19 years	676	42.0%
Gender		
Male	849	52.7%
Female	762	47.3%
Distance to the UIPDC		
Less than or equal to 30 miles	216	13.4%
31-60 miles	480	29.8%
61-90 miles	517	32.1%
Greater than 90 miles	398	24.7%
Size of community that participant is from		
Less than or equal to 5,500	421	26.1%
5,501-25,000	446	27.7%
25,001-75,000	338	21.0%
Greater than 75,000	406	25.2%
Level of Care		
Pediatric dental resident	1,450	90.0%
Patient has Special Health Care Needs		
Yes	413	25.6%
No	1,198	74.4%
Type of Payment		
Medicaid	1178	77.4%
Private insurance	387	24.0%
Self-pay	46	2.9%

Table 2. Clinical Characteristics of Study Participants 2020-2021 (N=1,611)

	Number of Participants	Percent
Referral Provider Type		
Dental Specialist	481	29.8%
General dentist	1,121	69.6%
Physician	9	0.6%
Type of Practice Referred From		
Private Practice/Corp. Practice	1,054	65.4%
CHC	548	34.0%
Other	9	0.6%
Completion of Treatment		
Yes	1,214	75.4%
No	397	24.6%
Emergency Treatment Provided Between Appointments		
Yes	27	1.7%
No	1,584	98.3%
Treatment Completion Modality		
In office with/without nitrous	1,248	77.5%
Treatment with General Anesthesia	237	14.7%
Treatment with Conscious Sedation	126	7.8%
	Mean (SD)\ Median	Range
Treatment duration (days) **	85.0±102.7\56.0	0-812

Table 3. Demographic and Clinical Characteristics of Two Groups of Referral Patients

Characteristics	Patients referred Before Managed Care (N=342) n (%)	Patients Referred After Managed Care (N=535) n (%)	P-value
Age group			0.042*
1-5 years	182 (53.2)	322 (60.2)	
6-19 years	160 (46.8)	213 (39.8)	
Distance to the UIPDC			0.633
Less than or equal to 30 miles	48 (14.1)	72 (13.5)	
31-60 miles	95 (27.9)	160 (29.9)	
61-90 miles	106 (31.2)	174 (32.5)	
Greater than 90 miles	91 (26.8)	129 (24.1)	
Size of community that participants is from			0.783
Less than or equal to 5,500	80 (23.6)	127 (23.8)	
5,501-25,000	79 (23.2)	144 (26.9)	
25,001-75,000	102 (30.0)	129 (24.1)	
Greater than 75,000	79 (23.2)	135 (25.2)	
Type of payment used			0.358
Medicaid/DWD/DWM	243 (71.5)	400 (74.8)	
Private insurance	83 (24.4)	121 (22.6)	
Self-pay	14 (4.1)	14 (2.6)	
Types of Referral Providers			<0.001*
Specialist	120 (35.6)	151 (28.2)	
General dentist	206 (61.1)	380 (71.0)	
Physician	11 (3.3)	4 (0.8)	
Referring Practice Type			<0.001*
Private practice/Corporate practice	248 (73.6)	343 (64.1)	
CHC	81 (24.0)	188 (35.1)	
Other	8 (2.4)	4 (0.8)	
Level of Care that Participant			<0.001*
Undergraduate student	70 (21.4)	28 (5.2)	
Pediatric dental resident	209 (63.7)	481 (89.9)	
Faculty member	49 (14.9)	26 (4.9)	
Patient has Special Health Care Needs			0.019*
Yes	58 (17.0)	126 (23.6)	
No	284 (83.0)	409 (76.4)	
Presence of caries			<0.001*
Yes	227 (66.4)	488 (91.2)	
No	115 (33.6)	47 (8.8)	
SSC			<0.001*
Yes	153 (44.7)	336 (62.8)	
No	189 (55.3)	199 (37.2)	
Extraction			<0.001*
Yes	97 (28.4)	257 (48.0)	
No	245 (71.6)	278 (52.0)	
Endo			0.013*
Yes	94 (27.5)	190 (35.5)	
No	248 (72.5)	345 (64.5)	
Space Maintaining/Orthodontic Treatment			0.150
Yes	27 (7.9)	58 (10.8)	
No	315 (92.1)	477 (89.2)	
Consultation with the UIPDC			0.001*
Yes	17 (5.0)	60 (11.2)	
No	325 (95.0)	475 (88.8)	

Limitations

- 6 months for 2020-2021 versus 1 year for 2015-2016
- Missing information from previous study - Duration, Referral Date, Initial Appointment

Conclusions

Notable increase in overall referrals

- 342 patients (July 1, 2015 – May 31, 2016)
- 1,611 patients (July 1, 2020-December 31, 2021)

Significant differences between two groups:

Before Switch to Managed Care:

- Referred from a private practice

After Switch to Managed Care:

- Referred by a general dentist
- Receive care from a pediatric dental resident
- Have special health care needs
- Increased caries rates
- SSC's, Extractions, Endo, and Consultations

Future Work

- More extensive data analysis and review of referral variables
- Extend data collection period – July 1, 2021-June 30, 2022

References

- Hollinger N, Leary K, Kanellis M, Weber-Gasparoni K, Qian F (2022). *Outside Referral Patterns to the Pediatric Dental Clinic*. Submitted for Publication.
- Simon L, Marsh R, Samuels-Kalow ME. *The Early Impact of the COVID-19 Pandemic on Emergency Department Visits for Dental Problems*. Journal of the American Dental Association. 2020.
- Iowa Department of Human Services. (2022). Dental wellness plan. Iowa Department of Human Services. Retrieved March 19, 2022, from <https://dhs.iowa.gov/dental-wellness-plan>.
- Kim, B. (2022, February 25). Column: Iowa should raise its Medicaid dental reimbursements. The Quad-City Times. Retrieved March 19, 2022, from https://qctimes.com/opinion/columnists/column-iowa-should-raise-its-medicaid-dental-reimbursements/article_23302190-ea8b-5eec-bbac-7007918a1b10.html.

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