



Jennifer Francisco-Llamas, DMD | Jennifer Shamsian, DDS | Carolina Duarte, DDs, PhD

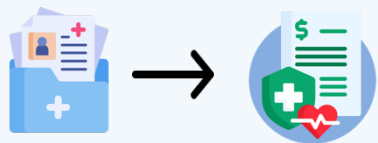
BACKGROUND

Pediatric dental emergencies (PDEs), classified as non-traumatic dental conditions (NTDCs) or traumatic dental conditions (TDCs), prompt acute visits to the Emergency Department.

These emergencies can cause evident distress among children and represent a financial burden for the families and the health care system.

The lack of access to an effective continuity of care/follow up (CoC) system has been associated with higher risk of delayed detection and management of post-trauma complications.

METHODS



Retrospective chart review of children receiving dental services at the Nicklaus Children Hospital (NCH) Emergency Department between 2023-2024

Continuity of care was assessed using Nicklaus Children Hospital (NCH) Electronic Health Record and insurance portals



Descriptive statistics were used to summarize demographic and clinical characteristics.

Comparative analyses between groups (e.g., by insurance type or continuity of care) were performed using Chi-square. Statistical significance was set at $p < 0.05$

Results

A total 370 participants met the inclusion criteria, out of which 209 (56.6%) received CoC, 20 (5.4%) were found in insurance databases but did not receive CoC, and 141 (31.8%) were not found in insurance databases.

RESULTS – ED Characteristics, Common EDs and Factors Influencing Continuation of Care

| Characteristic | n (%) | P-value |
|--|------------|---------|
| Gender (N=369) | | |
| Male | 237 (64.2) | <0.001 |
| Female | 132 (35.8) | |
| Dental Insurance Type (N=369) | | |
| Medicaid | 213 (57.7) | <0.001 |
| Self pay | 120 (32.5) | |
| Private Insurance | 34 (9.2) | |
| Time for ED Use (N=369) | | |
| 0:01-6:00 | 11 (3.0) | <0.001 |
| 6:01-12:00 | 62 (16.8) | |
| 12:01-18:00 | 152 (41.2) | |
| 18:01-0:00 | 127 (34.4) | |
| Not Documented* | 17 (4.6) | |
| Office Hours (N=369) | | |
| Clinic Hours | 149 (40.4) | 0.004 |
| Outside Clinic Hours | 203 (55.0) | |
| Not Documented* | 17 (4.6) | |
| Day of the Week (N=369) | | |
| Weekday | 239 (64.8) | <0.001 |
| Weekend | 130 (35.2) | |
| Previous Appointment at NCH (N) | | |
| Yes | 58 (15.7) | <0.001 |
| No | 311 (84.3) | |
| Age in years (N=369) | | |
| 0.5 - 5 | 113 (30.6) | 0.087 |
| 6 - 11 | 143 (38.8) | |
| 12 - 18 | 113 (30.6) | |
| Continuity of care (N=369) | | |
| No/Unknown | 160 (43.4) | <0.001 |
| Yes | 209 (56.6) | |
| Continuity of Care at NCH | | |
| Continuity of Care at NCH | 143 (68.4) | |
| Time to continuation of care in days (N=209) | | |
| 0-90 | 172 (82.3) | <0.001 |
| 91 - 180 | 14 (6.7) | |
| >180 | 21 (10.0) | |

*Excluded from analysis

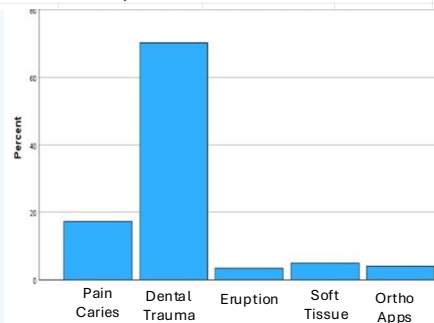


Figure 3: Type of dental emergency. The most frequent emergencies were dental trauma (70.3%, $p < 0.001$) followed by dental pain/carries (17.3%).

| Characteristic | Type of Dental Emergency | | | | | P-Value |
|---|--------------------------|------------------|------------------|-----------------|---------------|---------|
| | Dental Trauma (260) | Pain Caries (64) | Soft Tissue (18) | Ortho Apps (15) | Eruption (12) | |
| Gender - n(%) | | | | | | |
| Male | 167 (64.2) | 38 (59.4) | 11 (61.1) | 13 (86.7) | 8 (66.7) | 0.399 |
| Female | 93 (35.8) | 26 (40.6) | 7 (38.9) | 2 (13.3) | 4 (33.3) | |
| Age in years - n(%) | | | | | | |
| 0.5 - 5 | 98 (37.7) | 11 (17.2) | 4 (22.2) | 0 (0.0) | 0 (0.0) | <0.001 |
| 6 - 11 | 90 (34.6) | 25 (39.1) | 11 (61.6) | 8 (53.3) | 9 (75.0) | |
| 12 - 18 | 72 (27.7) | 28 (43.8) | 3 (16.7) | 7 (46.7) | 3 (25.0) | |
| Time for ED Use (N=369) | | | | | | |
| 0:01-6:00 | 8 (3.1) | 1 (1.7) | 1 (5.6) | 1 (6.7) | 0 (0.0) | <0.001 |
| 6:01-12:00 | 29 (11.4) | 18 (30.5) | 7 (38.9) | 2 (18.2) | 6 (60.0) | |
| 12:01-18:00 | 114 (44.9) | 23 (39.0) | 9 (50.0) | 4 (36.4) | 2 (20.0) | |
| 18:01-0:00 | 103 (40.6) | 17 (28.8) | 1 (5.6) | 4 (36.4) | 2 (20.0) | |
| Not Documented* | 17 (4.6) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | |
| Type of Dentition Affected - n(%) | | | | | | |
| Primary | 115 (44.2) | 32 (50.0) | 7 (38.9) | 3 (20.0) | 10 (83.3) | <0.001 |
| Permanent | 141 (54.2) | 28 (43.8) | 4 (22.2) | 9 (60.0) | 2 (16.7) | |
| Both | 2 (0.8) | 3 (4.7) | 1 (5.6) | 3 (20.0) | 0 (0.0) | |
| Non-Dental | 2 (0.8) | 1 (1.6) | 1 (5.6) | 0 (0.0) | 0 (0.0) | |
| Location of affected tooth - n(%) | | | | | | |
| Anterior | 246 (94.6) | 15 (23.4) | 3 (16.7) | 1 (6.7) | 5 (41.7) | <0.001 |
| Posterior | 8 (3.1) | 45 (70.3) | 7 (38.9) | 5 (33.3) | 6 (50.0) | |
| Both | 5 (1.9) | 4 (6.3) | 2 (11.1) | 9 (60.0) | 1 (8.3) | |
| Non-Dental | 1 (0.4) | 0 (0.0) | 6 (33.3) | 0 (0.0) | 0 (0.0) | |
| Frequent Treatment Notes over 5% Frequency - n(%) | | | | | | |
| Sedative Filling | 35 (9.46) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | <0.001 |
| Splint | 59 (15.95) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | |
| Extraction | 53 (14.32) | 12 (3.24) | 6 (1.62) | 0 (0) | 4 (1.08) | |
| Follow-up activity codes 0-90 days | | | | | | |
| D0140 - ED | 16 (13.0) | 10 (29.4) | 2 (40) | 1 (16.7) | 1 (25.0) | 0.136 |
| D1208/1206 - Fluoride | 21 (17.1) | 3 (8.8) | 1 (20.0) | 5 (83.3) | 1 (25.0) | <0.001 |
| D1110/1120 - Prophy | 26 (21.1) | 3 (8.8) | 1 (20.0) | 5 (83.3) | 1 (25.0) | 0.002 |
| D0120 - Periodic Eval | 14 (11.4) | 0 (0.0) | 1 (20.0) | 5 (83.3) | 1 (25.0) | <0.001 |
| consultations | 78 (63.4) | 12 (35.3) | 0 (0.0) | 1 (16.7) | 0 (0.0) | <0.001 |
| D1330 - Hygiene Ed | 25 (20.3) | 3 (8.8) | 1 (20.0) | 5 (83.3) | 1 (25.0) | 0.002 |
| D7140 - Extraction | 3 (2.4) | 17 (50.0) | 1 (20.0) | 0 (0.0) | 2 (50.0) | <0.001 |
| D9230 - NO2 | 3 (2.4) | 13 (38.2) | 0 (0.0) | 0 (0.0) | 1 (25.0) | <0.001 |
| D9920 - Behavior Management | 2 (1.6) | 4 (11.8) | 1 (20.0) | 0 (0.0) | 0 (0.0) | 0.03 |

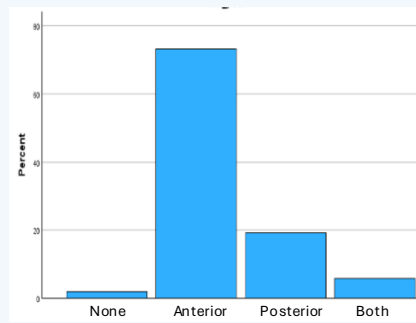


Figure 4: Type of dentition affected. Permanent and primary dentition were equally affected with most cases on anterior teeth (73.2%, $p < 0.001$).

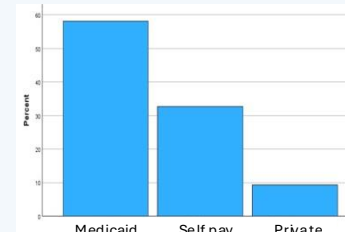


Figure 1: Dental Insurance Type. Most of the patients receiving dental care were Medicaid recipients (57.4%) over self-pay (32.4%, $p < 0.001$).

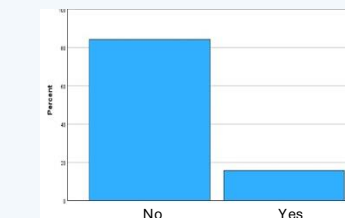


Figure 2: Previous Appointment at NCH. Patients at the ED for dental emergencies did not have a previous appointment at NCH in 84.3% of the cases ($p < 0.001$).

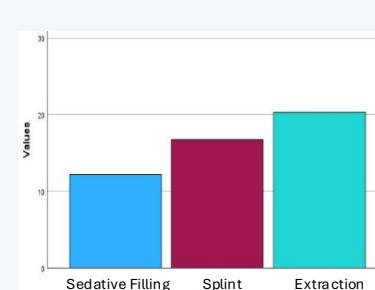


Figure 5: Treatment implemented. The most often prescribed intervention was extractions (20.3%), followed by splints (15.9%) and sedative fillings (9.5%).

DISCUSSION

CoC was influenced by insurance type and having an existing dental home in the same system where the ED was treated. The type of emergency didn't influence CoC but we observed a tendency for dental caries to have a higher rate of CoC. Those receiving splints were most likely to have CoC, which can be explained by the need for ongoing stabilization and monitoring, whereas those receiving extractions had the least CoC.

The nature of the emergency influenced the time at which the emergency occurred, and type of treatment provided. For instance, permanent teeth usually underwent tooth-preserving treatment plans (splints and sedative fillings), while those in primary teeth were mostly managed by extraction.

Primary and permanent dentitions were similarly affected, but we observed pathology specific patterns (e.g. eruption affecting primary dentition).

The most common CoC follow up activities were consultations and preventive services for dental trauma, orthodontic appliances emergencies, extractions for pain/carries, eruption complications and repeat Emergency Dental Visits for soft tissue lacerations

The retrospective nature of our study relies on EMR documentation that is subject to human error.

In addition, we were unable to obtain follow-up information for patients who were self-payers or privately insured.

CONCLUSION

NCH's ED serves as the provider of choice for after-hours dental emergencies for Medicaid recipients.

The ED frequently served as initial point of contact for patients without an established dental home between our system.

School-age males represented most of the dental trauma-related ED visits. Trauma and dental caries were the most common causes of emergency visits.

Pediatric dental ED visits showed predictable patterns in etiology, dentition, and treatment approaches. These patterns could be used to guide prevention efforts during routine visits