UPMC CHILDREN'S

Effects of an Established Dental Home on Early Caries Incidence

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dmft Scores by Cohort at UPMC Children's Hospital of Pittsburgh





DISCUSSION

This study provides significant evidence supporting the importance of dental homes in reducing caries incidence. However, several limitations should be considered:

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- Unique patient population: the majority of new patient dental evaluations at UPMC Children's Hospital of Pittsburgh involve one or more of the following:
 - medically complex patients requiring hospital-based care
 - patients referred due to extensive dental needs
 - patients requiring advanced behavior management techniques

Thus, dmft scores for this sample may be inflated compared to the general public.

- Dental home classification: some patients in this sample may have been referred from what could be considered a previously established dental home. Such charts were not categorized separately for this study.
- Permanent tooth exclusions: a subset of patients exhibited early eruption of the first permanent molars with carious lesions. These teeth were not included in calculations, as this study focused solely on the primary dentition.

An important issue in early childhood caries incidence is the potential high cost of intervention.² Various medical/sedation fees were calculated for a random selection of dental patients (ten per category) and are shown in Figure 2. These expenses starkly contrast those of nitrous oxide or moderate sedation utilization in the dental clinic setting, illustrating the substantial financial implications of ECC.

Further research considerations and direction include:

- Greater categorization of patient groups to refine data analysis
- Longitudinal studies tracking both cohorts' dmft/DMFT scores to assess trends in caries prevalence into adolescence
- Investigation of medical/dental treatment fees for ECC patients
- Research into financial and systemic barriers affecting dental home access

CONCLUSION

This study echoes findings within current literature: that early establishment of a dental home reduces early caries incidence in children and their subsequent dental treatment needs.3 More investigation into specific pediatric patient populations across a wider time range will continue to provide valuable insight into the relationship between the development of caries in children with dental homes and those without.

REFERENCES

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PURPOSE

This study aims to evaluate the effectiveness of early dental home establishment in reducing early childhood caries and the need for subsequent dental treatment.

INTRODUCTION

A dental home consists of the ongoing relationship between a dentist and patient, encompassing all aspects of oral health care. It should be established by 12 months of age or within six months of the first tooth eruption to promote lifelong oral health. Preventative interventions during the first year of life significantly reduce the risk of Early Childhood Caries (ECC). Without early intervention, ECC can lead to:

- Increased risk of cavities in both primary and permanent teeth
- Hospitalizations and emergency visits
- High treatment costs
- Missed school days and learning difficulties
- Lower oral health-related quality of life1

METHODS

This retrospective study analyzed patient records from UPMC Children's Hospital of Pittsburgh Dental Clinic using Open Dental Software to evaluate the impact of early dental home establishment on caries development. Records of children under 18 months old who had new patient exams in 2019 were reviewed and dmft scores (decayed, missing, and filled primary teeth) were recorded. The same cohort was reevaluated in 2023/2024 at ages 3.5-5 years to document completed or planned dental treatments due to caries. These outcomes were compared to a control group of new patients aged 3.5-5 in 2023/2024 who established their dental homes later. Exclusions for both groups included unlocated charts, no-show appointments, trauma-related emergency visits, and patients who were 100% G-tube fed. No interventions were introduced, and the study relied on existing data to assess correlations between early dental home establishment and caries development.

RESULTS

Of the 1,298 new patient charts initially reviewed, 730 charts met the inclusion criteria: 122 early dental home and 608 late dental home. (Figure 3)

Early dental home dmft scores ranged from 0-17: mean 4.36, median 4 (Figure 1) Late dental home dmft scores ranged from 0-20: mean 6.86, median 7

The difference in dmft scores between early and late dental homes was statistically significant (p < 0.001).

Patients were further categorized as having no caries, ECC, or SECC:

Early dental home: No caries: 33.61%; ECC: 33.61%; SECC: 32.79% (Figure 4)

Late dental home: No caries: 20.23%; ECC: 16.12%; SECC 63.65% (Figure 5) These findings highlight the significant impact of early dental home establishment in reducing the severity of dental caries.

