



# Enhancing Pediatric Health Equity: Oral Health and FAIREST-6 Airway Screening Integration

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## Introduction/Background

Sleep plays a vital role in a child's physical, emotional, and cognitive development. Yet, sleep-disordered breathing (SDB) continues to be an underrecognized condition with far-reaching consequences for pediatric health. Ranging from subtle symptoms like mouth breathing and snoring to more serious conditions such as obstructive sleep apnea, SDB often presents differently in children than adults, making early detection a challenge. Left unaddressed, these sleep disturbances can impact behavior, growth, cardiovascular health, and academic performance. At the same time, dental health issues—especially among low-income and minority children—remain a widespread concern, often exacerbated by factors like limited access to care and systemic disparities. Research has revealed an important link between SDB and oral health, as children who mouth-breathe are more prone to dental changes and caries. In response, tools like the FAIREST-6 screening instrument offer promising pathways for dentists and healthcare providers to identify at-risk children and improve outcomes through early intervention.

## Purpose

This case presentation highlights the challenges in pediatric oral healthcare and emphasizes the critical importance of early airway assessments in children. It examines the link between caries prevalence and indicators of sleep-disordered breathing (SDB), showcasing the utility of the FAIREST-6 screening tool in identifying at-risk patients.

## Case Presentation

- Patient:** 5-year-old Hispanic female, S.H., recently migrated from Venezuela seeking asylum with her family.
- Initial Encounter:** Seen through a school-based dental program offering comprehensive pediatric care.
- Clinical Findings:**
  - Heavy mouth breathing, high-arched palate, dental wear, carious lesions present
  - Mentalis strain during swallowing
  - Grade 3 ankyloglossia (tongue-tie)
  - Grade 4 tonsil hypertrophy



Figure A : Facial and lateral profiles of Patient K.L



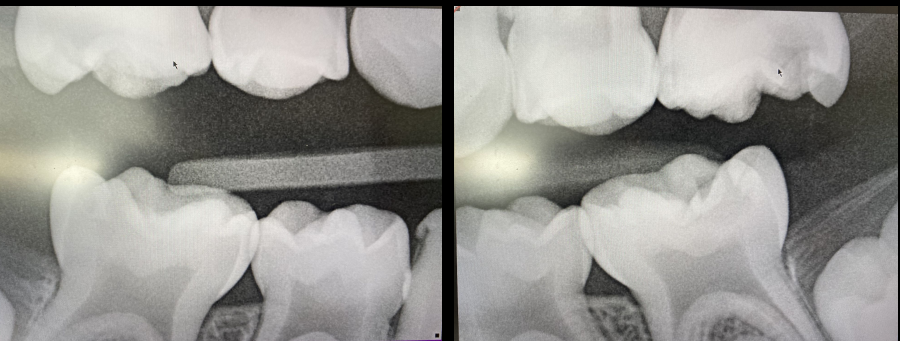
Figure B Brodsky Grade 4 tonsillar hypertrophy, tonsils occupy more than 75% of the oropharyngeal airway space.



Figure C : Posterior right, anterior, and posterior left, upper arch and lower arch



Figure D: Preoperative bitewings of Right and Left



## Functional Airway Evaluation Screening Tool ( FAIREST- 6):

**FAIREST 6** Six Red Flags for: Pediatric Sleep Disordered Breathing (SDB)

Functional Airway Evaluation Screening Tool

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Each of these six (6) factors is an independent "red flag" for sleep-disordered breathing.

1. **MOUTh BREATHING**

Difficulty with exclusive nasal-breathing for 8+ minutes?

☐ NO ☒ YES

2. **MENTALIS STRAIN**

No Mentalis-Strain Mentalis-Strain

☐ NO ☒ YES

3. **TONSIL HYPERTROPHY**

Tonsil Coverage

0-25% 25-50% 51-75% 76-100%

☐ <50% ☒ >50%

4. **ANKYLOGLOSSIA**

TRMR-TIP: Tongue Range of Motion (4 sides with Tip up to Incline Papilla)

Grade 1 >80% Grade 2 50-80% Grade 3 <50% Grade 4 <25%

☐ NOT RESTRICTED ☒ RESTRICTED (GRADE 3-4)

5. **DENTAL WEAR**

Are there visible signs of dental wear?

☐ NO ☒ YES

6. **NARROW PALATE**

Signs of dental crowding, high arch, and/or narrow palate?

☐ NO ☒ YES

**GRADING SCALE**

The score on the FAIREST-6 is equal to the sum of the number of exam findings present. Scores may range from 0 (none of the items are present) to 6 (all six of the concerning exam findings are present). A score of two corresponds to mildly increased risk of sleep disturbance; four indicates moderately increased risk; six indicates severely increased risk.

Number of Red Flags Risk of Sleep Disturbance

0 1 2 3 4 5 6

Normal Mild Moderate Severe

- Our patient S.H presented with SIX Red Flags for Pediatric Sleep Disordered Breathing.
- Her score corresponds to a **severely increased risk for Sleep Disordered Breathing.**
- The six factors were :
  - Presence of mouth-breathing ( heavy and labored breathing) throughout the dental examination- as seen on her profile picture- she was not able to nasal breath for more than 15 secs
  - Presence of mentalis strain when attempting to swallow
  - Tonsil coverage > 75
  - Grade 3 <50%
  - Dental wear observed in anterior centrals and laterals and primary molars
  - High arch, narrow palate with dental crowding

Figure E: FAIREST- 6 Functional Airway Evaluation Screening Tool utilized during our dental examination

## Dental Treatment

### Treatment completed:

A- SSC Hall Crown, J- SSC Hall Crown, K- SSC Hall Crowns, R-DLF resin, T- SSC Hall Crown



Figure F: Post operative pictures

## Patient Outcome

**Caries Management:** All of patient S.H.'s dental caries were effectively treated through the Bringing Smiles Dental Program, establishing a dental home.

**Sleep-Disordered Breathing (SDB) Awareness:** Parents were educated on signs of SDB (e.g., grinding, snoring, bedwetting, prolonged meals), and were referred to an ENT for further evaluation and a possible sleep study.

**Orthodontic Concerns:** Future palatal expansion was discussed due to contributing factors like mouth breathing, tongue tie, high-arched palate, and low tongue posture; a panoramic x-ray was scheduled in nine weeks to assess crowding.

**Interdisciplinary Collaboration:** Partnered with the school speech therapist to integrate tongue-strengthening and myofunctional therapy into speech sessions, supporting oral function and potential lingual frenectomy.

**Preventive Care Emphasis:** Highlighted the importance of maintaining proper oral hygiene and attending regular dental recall visits to ensure long-term oral health.

## Conclusion

- This case underscores the importance of integrating sleep-disordered breathing (SDB) evaluations into pediatric oral healthcare, especially in underserved communities.
- Tools like the FAIREST-6 screening tool enable early identification of airway concerns in school-based dental programs.
- Early detection promotes interdisciplinary collaboration between dental, medical, and educational professionals.
- Addressing both oral and airway health improves access to care and supports better long-term health outcomes for vulnerable pediatric populations.
- Programs like *Bringing Smiles* exemplify the impact of school-based dental initiatives in advancing health equity for underserved Hispanic children.
- By incorporating SDB assessments, these programs extend beyond traditional dental care, tackling broader health challenges such as sleep-related issues.
- Collaborative efforts among healthcare providers, educators, and community stakeholders help reduce barriers related to immigration, culture, and socioeconomic status.
- Ultimately, such initiatives ensure children receive comprehensive, holistic care within the comfort of their school environment.

## Reference

- Padmanabhan V, Kavitha PR, Hegde AM." Sleep disordered breathing in children--a review and the role of a pediatric dentist" J Clin Pediatr Dent2010 Fall;35(1):15-21.
- Guilleminault C, Huang Y Shu, Chin WC, Okorie C."The nocturnal-polysomnogram and "nonhypoxic sleep-disordered-breathing" in children". Sleep Med 2019;60:31-44.
- Oh JS, Zaghi S, Peterson C, Law CS, Silva D, Yoon AJ. Determinants of Sleep-Disordered Breathing During the Mixed Dentition: Development of a Functional Airway Evaluation Screening Tool (FAIREST-6) Pediatr Dent. 2021 Jul 15;43(4):262-272.
- US Department of Health and Human Services. Oral Health in America: A Report of the Surgeon General. Rockville, MD; 2000.
- Liu, J.C Probst, A.B. Martin, J-Y. Wang, and C.F. Salinas, "Disparities in dental insurance coverage and dental care among US children: the national survey of children's health" Pediatrics, vol. 119, no. 1, pp. S12-S21, 2007
- W. E. Mouradian, E. Wehr, J.J. Crall. "Disparities in children's oral health and access to dental care" JAMA. 2000; 284:2625-2631.
- A.Arroyo Buenestado, D. Rivas-Perez. "Early Childhood Caries and Sleep Disorders" J Clin Med. 2023 Feb; 12(4): 1378.