Role of a Mobile Dental Unit in Increasing Access to Dental Care

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Background

Tooth decay is the most common chronic disease in young children and disproportionately affects those from low-income and minority communities. Dental caries affect roughly 18% of 2–5-year-olds in low-income populations, versus just 6% in their higher-income peers.[1] This disparity increases with age and is exacerbated by barriers such as limited transportation, lower health literacy, and higher rates of missed appointments. Mobile dental units (MDUs) help reduce barriers by delivering preventive care and education directly to underserved communities.[2] Since 2022, the Yale Pediatric Dental Center has operated a school-based MDU to improve access to dental care for preschoolers enrolled in Head Start programs across Southern Connecticut. Given its focus on underserved populations, Head Start provides a strategic opportunity for implementing targeted dental health initiatives. This study presents program data and compares it to state and national statistics to evaluate the MDU's impact on access to care and rates of untreated decay.

Program Evaluation

This two-year program analysis examined the impact of the Yale Mobile Dental Unit (MDU) in improving access to dental care and reducing oral health disparities among preschool-aged children enrolled in Head Start programs across Southern Connecticut. Between December 2022 and November 2024, the MDU provided care to 319 children (ages 0–5) in a total of 444 encounters (accounting for multiple visits) at 18 early childhood centers. This study population likely represents children facing the greatest barriers to dental care, including limited transportation, low health literacy, and lack of an established dental home.

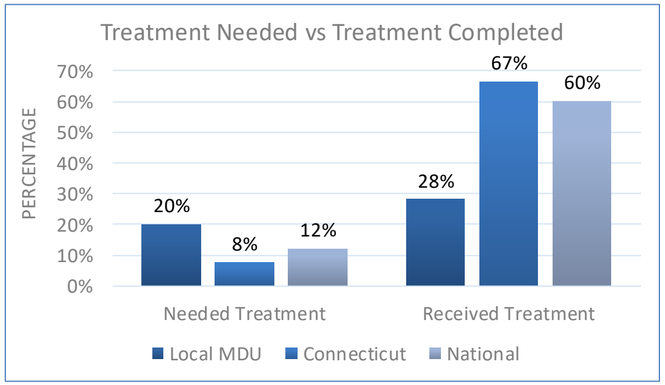
Prior to each visit, caregivers completed medical and dental history forms and consent documents in English or Spanish. Pediatric dentists and residents provided comprehensive services including examinations, cleanings, fluoride varnish applications, and radiographs. After each visit, families received a written summary of care and recommendations. When dental caries or pathology was identified, the care team contacted families directly to coordinate follow-up care at the outpatient dental clinic.

Caries-related metrics were collected and included decayed teeth (dt, representing untreated disease), treated teeth (tt, representing access to care), and total caries experience (dft). Among children with at least one decayed or filled tooth, changes in dt and tt scores were analyzed over time to assess outcomes. Treatment completion and continuity of care were also tracked.

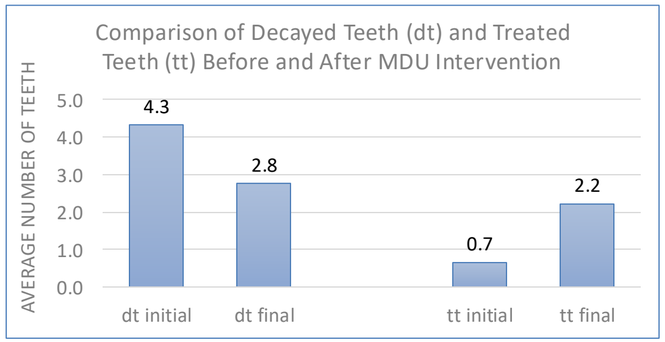
Results

Overall prevalence of decay	20.7%
Overall prevalence of untreated decay*	14.4%
Average DFT score*	5.0

*values at the end of the two-year data period



- Approximately 30% of children had two or more visits on the MDU, suggesting some level of continuity. However, just 28% of children identified as needing additional treatment completed it successfully.
- Among patients with identified decay, approximately 55% were scheduled for follow-up visits at the outpatient clinic but failed to attend.



Discussion

Approximately 20% of children evaluated on the Mobile Dental Unit (MDU) had past or present caries, a rate similar to the national average of 18%.[1] However, the proportion requiring treatment for active decay or dental trauma was substantially higher than state (8%) and national (12%) statistics. Despite this elevated treatment need, only 28% of patients completed the recommended care, which is well below treatment completion rates reported in broader Head Start populations.[3] The children seen on the MDU represented a specific subset of the Head Start population without an established dental home, suggesting limited prior access to routine dental services. This lack of access is reflected in both the high disease burden and low follow-up rates.

Although overall treatment completion was limited, average dt scores declined over the two-year period. This improvement was likely driven by comprehensive treatment provided to a subset of children, including full-mouth rehabilitation in the operating room and the application of Silver Diamine Fluoride (SDF) to arrest active lesions, both of which enabled efficient management of multiple dental needs in a single visit.

Importantly, over half of the children identified as needing treatment were scheduled for follow-up care but did not attend these follow-up appointments in the outpatient clinic. The remaining patients were either unreachable, reporting seeking care elsewhere, or were placed on a waitlist for treatment under general anesthesia. Factors contributing to missed follow-ups may include transportation barriers, language challenges, and limited caregiver availability or motivation. These findings underscore the persistent challenges in achieving continuity of care, even when initial access is facilitated through school-based mobile services. Children treated on the MDU likely represent those facing the greatest systemic barriers to care. Further research is needed to explore these obstacles and develop targeted strategies to improve treatment completion and long-term oral health outcomes in this high-risk population.

Conclusion

This study highlights the effectiveness of a Mobile Dental Unit in expanding access to care and identifying unmet dental needs among underserved preschoolers. While 28% of patients successfully completed treatment and average dt scores declined over time, approximately 70% of children still had untreated needs, far exceeding state and national averages. These findings emphasize the critical role of mobile dental units in addressing local disparities in pediatric oral health. However, improving continuity of care remains a significant challenge. Additional efforts are needed to better support families in completing treatment and to further reduce barriers such as transportation, scheduling, and follow-up care. The data reinforce the value of school-based mobile dental programs while underscoring the need for continued investment and innovation to improve long-term outcomes.

References

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