

Mobile Dental Clinic Outreach in Suffolk County, NY: A Location-Based Analysis of Pediatric Dental Care Utilization

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BACKGROUND

Dental caries in children and young adults is the most common chronic disease of childhood in the United States and disproportionately affects children from low-income communities [1]. Many children experience delayed diagnosis and treatment of dental disease leading to pain, infection, and increased need for restorative or emergency care.

Mobile dental clinics have emerged as an effective strategy to improve access to dental care for children who face these barriers. By delivering preventive and basic restorative services directly within community settings such as schools, early childhood education programs, and community centers, mobile dental clinics aid in early intervention [2]. The use of mobile dental programs can increase dental service utilization and reach children who may not otherwise receive consistent dental care.

Understanding location-based differences in the types of services provided and levels of dental disease can identify communities with higher needs and influence future outreach planning, resource allocation, and preventive strategies.

This study aims to evaluate geographic patterns of pediatric dental care delivered through a mobile dental clinic by assessing differences in dental care utilization and dental disease burden among children treated at outreach locations across Suffolk County, New York.

METHODS

This retrospective chart review following IRB approval (2026-00150) utilized a report from a proprietary electronic dental record in the software axiUm™ specific to the Mobile Dental Care Center (MDCC) at Stony Brook University School of Dental Medicine (SBUSDM). Analysis of patient visits to the MDCC between 05.11.2023 – 12.31.2025 included age, sex, ZIP code, visit date, outreach location, type of service (preventive, restorative, emergency), and presence of dental caries including referral for additional dental care if warranted.

The data analysis included nonparametric analyses including descriptive statistics, Pearson and Spearman Rank correlations. p-Value of 0.05 was considered significant.

RESULTS

	ZIP	#	min_age	mean_age	max_age	OP NEEDs	URGENT	% POV.
Patchogue	11772	53	6	7.3	9	46	9	6.9
Coram	11727	51	5	7.4	10	43	16	8.0
Medford	11763	49	4	7.3	9	46	11	5.6
Shirley	11967	40	4	7.1	10	31	16	6.4
Riverhead	11901	38	5	7.2	10	33	9	7.9
Mastic Beach	11951	28	6	7.5	9	22	10	21.7
Mastic	11950	24	3	7	9	21	6	7.9
Bellport	11713	17	5	7.2	9	14	5	8.4
Middle Is.	11953	14	5	7.7	9	10	4	11.7
Wyandanch	11798	7	3	3.9	5	6	1	18.2

Table 1. ZIP/ poverty percentage not significantly associated with urgent dental encounters (Spearman $p = -0.53, p = 0.12$). A significant negative association between poverty percentage and operative needs (Spearman $p = -0.72, p = 0.02$), indicating lower overall utilization in higher-poverty areas rather than disproportionate use of urgent services. These findings suggest pediatric dental care utilization patterns are not driven by socioeconomic disadvantage at the ZIP-code level.

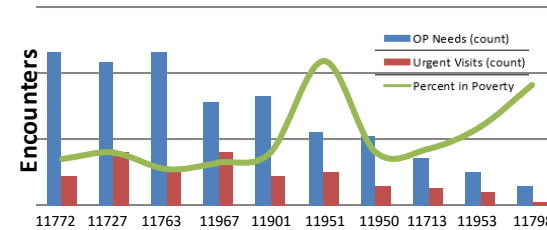


Figure 1. Pediatric dental utilization patterns were consistent across ZIP codes, with similar age distributions and proportions of urgent versus open-need encounters. Higher community poverty was not associated with increased urgent care use, indicating that variations in service volume are driven by population size rather than socioeconomic disparities in care access or delivery.



Figure 2. Map of Long Island indicating service delivery area of top referral for operative needs and urgent needs. Table 2 below indicates distance from SBUSDM to sites serviced by the MDCC with highest operative and urgent care needs per data.

	ZIP	Miles to SDM
Patchogue	11772	13.5
Coram	11727	9.6
Medford	11763	11.1
Shirley	11967	19.1
Riverhead	11901	30.6
Mastic Beach	11951	24.3

DISCUSSION AND CONCLUSIONS

Across ZIP codes, utilization patterns were consistent with respect to age distribution, operative needs, and urgent needs. Mean patient age around 7 years in all communities, indicating age differences did not impact variation in utilization. ZIP-code poverty percentage was not positively correlated with urgent needs. Neither Pearson nor Spearman correlation analyses demonstrated a statistically significant association between poverty and urgent care counts (Table 1).

A significant negative Spearman correlation was observed between poverty percentage and operative needs, reflecting lower overall service volume rather than increased reliance on urgent care in higher-poverty ZIP codes (Figure 1).

Together these findings suggest care delivery in this population is geographically and socioeconomically equitable, with urgent needs driven by patient volume rather than socioeconomic disadvantage.

These findings highlight the need for increased access and follow up, along with establishing a dental home. The American Academy of Pediatric Dentistry recognizes care for infants, children, adolescents, and individuals with special health care needs is an essential duty of every dentist [1]. The ability of a practitioner to render appropriate care as well as to refer to the patient's dental home is critical in ensuring continued patient evaluation and follow-up for the vulnerable population served by a mobile dental clinic.

LIMITATIONS

This analysis was conducted at the ZIP-code level and is therefore subject to other limitations. Poverty measures represent area-level estimates and may not reflect individual household circumstances. Additionally, the number of ZIP-codes included limits statistical power favoring non-parametric interpretation. Despite these constraints, the consistency of findings across analytic approaches strengthens confidence in the conclusions.

REFERENCES



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