Reducing Missed Pediatric Dental Appointment Rates by Age-Groups at a Hawaii Health Center: A Quality Improvement Project

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INTRODUCTION

Missed dental appointments present a significant challenge in pediatric care, impacting both oral health outcomes and clinic operations, particularly in underserved populations. Studies show that missed appointments contribute to disparities in preventive treatments and lead to more invasive procedures. especially in Federally Qualified Health Centers (FQHCs) where revenues are based on a flat-rate reimbursement model.¹ No-show rates in dental clinics often range from 23% to 35%, exacerbating delays in care and increasing costs for both patients and providers.²

Quality Improvement (QI) projects utilize structured frameworks to address healthcare challenges systematically. The Plan-Do-Study-Act (PDSA) cycle is a widely recognized QI tool designed to identify root causes and test interventions iteratively. Through its continuous cycle of planning, implementing, evaluating, and refining, PDSA allows for targeted problemsolving to improve care outcomes and operational efficiency. This study applied the PDSA framework to investigate and enhance strategies for reducing missed pediatric dental appointments

At the Wajanae Dental Clinic, socio-economic factors transportation issues, and limited parental involvement are common barriers to appointment adherence. Research supports that proactive interventions, such as appointment reminders, can reduce missed appointments, but their specific impact on pediatric populations is underexplored.² This study evaluates the effectiveness of phone call reminders sent one week before scheduled appointments to improve attendance rates and enhance oral health outcomes for children and adolescents.3

PURPOSE

The purpose of this project is to reduce total missed appointment rate percentage (TMAR%) for pediatric patients aged 5 to 17 at FQHCs in Hawaii at the Wai'anae Coast Comprehensive Health Center (WCCHC).

It aims to assess whether confirming appointments one week in advance via phone calls can lower noshow rates.

METHOD

This quality improvement study assessed the impact of phone call reminders on total missed appointment rate percentage (TMAR%) for pediatric dental visits. Baseline data were collected over 12 weeks, followed by a provider phone reminder intervention implemented one week before appointments. This is in addition to the pre-intervention, which is WCCHC's standard protocol for appointment reminders. WCCHC's text messaging system reminds patients 2 days before and receptionists call patients 1 day before appointments.

From March to August 2024, post-intervention data were gathered for 12 weeks. Quality Improvement (QI) methods, including control charts and sigma analysis, were used to compare pre-and-post intervention, TMAR%, and evaluate the effectiveness of the intervention. Statistical analysis was performed to determine any significant changes in appointment adherence.

FIGURES



Age Group	Phase	Average TMAR%	Stability Index	Overall Sigma	Within Sigma
5-12	Pre-intervention	41%	1.09	0.16	0.15
	Post- intervention	41%	0.95	0.18	0.17
13-17	Pre-intervention	41%	0.86	0.20	0.23
	Post- intervention	43%	1.25	0.22	0.18

1.TMAR% (Total Missed Appointment Rate): Indicates the percentage of appointments missed during each

phase. 2.Stability Index: Reflects the consistency of the missed appointment rates (lower values signify better stability). 3.Sigma Levels:

1.Overall Sigma: A broader measure of process variation 2.Within Sigma: Focuses on variation within subgroups of data

These results highlight no significant improvement in average TMAR% following the intervention for either age group. However, the stability index showed improvement in the 5-12 age group post-intervention, suggesting reduced variability in attendance. For the 13-17 age group, the stability index worsened post-intervention, indicating increased variability.

RESULTS

- For those aged 5-12, it was 41%
- For the 13-17 age group, it averaged 41%.
- Following the phone call reminder intervention, there was no significant reduction in the no-show rates, which remained at 41% for the 5-12 age group and increased slightly to 43% for the 13-17 age group.
- Although the intervention did not reduce the overall TMAR%, there was an improvement in the stability index, which decreased from 1.09 to 0.95, indicating greater consistency in missed appointment rates after the intervention.
- However, the variability in no-show rates remained unchanged.

CONCLUSIONS

- The intervention of confirming appointments one week in advance did not reduce the no-show rate among pediatric patients. However, it did improve consistency in attendance, as seen in the lower stability index.
- These findings indicate that while communication may influence appointment adherence, additional cycles of the Plan-Do-Study-Act (PDSA) process are essential to accurately identify and address root causes of missed appointments. Further PDSA cycles can refine intervention strategies to better support patient attendance, ultimately improving patient care and clinic efficiency.
- This study underscores the importance of iterative testing and evaluation to develop targeted solutions for enhancing access to dental care within this population.

REFERENCES

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