

Improving Dental Service Utilization Rate Using a Proactive Telephone-Based Scheduling Strategy in Primary Healthcare

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Abstract

Objective: To determine the effect of a proactive telephone-based scheduling strategy to improve dental service utilization rate in primary healthcare. **Material and Methods:** A retrospective study was carried out based on the dental appointments' records of a primary healthcare center before-strategy and after-strategy periods. The variables studied for both periods were the number of dental appointments requested, dental appointments undergone, no-shows, and available quotas. Data collection was performed by two researchers between May and June 2018. Descriptive statistics were used to calculate the absolute and relative frequencies. **Results:** A total of 10,193 records of dental appointments were registered within the two periods. After-strategy period, dental appointments undergone increased by 16,7%, no-shows decreased by 3%, and available quotas decreased by 21.3%. **Conclusion:** A proactive telephone-based scheduling strategy increased the dental service utilization rate in primary healthcare.

Keywords: Dental Health Services; Public Health Administration; Public Health Dentistry.

Introduction

Chile has established a mixed health system. Public healthcare insurance is provided by a public fund, the National Health Fund (Fondo Nacional de Salud, FONASA), to 4 out of 5 citizens in the country, mostly through public hospitals. Private healthcare insurance is provided by Social Security Institutions (Institución de Salud Previsional, ISAPRE), mostly through private clinics [1].

Primary Health Care (PHC) is considered an essential part of the sanitary system, as it is the gateway to secondary and tertiary health services [2,3]. In Chile, PHC for FONASA affiliates is mostly delivered in Family Health Centers (FHC) [4]. Dental care in PHC is prioritized for the population under 20 years old through various programs. These include the Explicit Health Guarantee for 6 years old, oral health for 12 years old and Zero Program (Programa CERO) for 6 months to 7 years old. The rest of the patients under 20 years old have prioritized access to dental service in FHC. The population over 20 years old, which is not prioritized, usually gets dental appointments on an extended schedule (5 pm-8 pm). Dental appointments are organized by the Service of Medical Statistical Orientation (SOME) of the FHC, as for the rest of health professionals.

There is a high no-show rate in public services, specifically in dental service [5-9], probably because appointments are scheduled two months in advance, without appointment confirmation [8]. Thus, no-show becomes a relevant problem, not just an economic issue, but a cause for poor access to dental care [6,8-10]. Because of this, FHC Tucapel (Concepción, Chile) implemented a “Dental SOME” in order to implement a proactive telephone-based scheduling strategy to improve the dental service utilization rate. The aim of this study is to evaluate the impact of this strategy.

Material and Methods

Study Design

A retrospective study was carried out based on the dental appointments' records of the FHC Tucapel (Concepción, Chile). In October 2017, FHC Tucapel assigned a staff member to coordinate dental appointments of the FHC, calling the patients to confirm their attendance, and, in the event that a patient canceled, she had to fill that available quota with another patient. The population of interest was the dental appointments requested from October 2016 to March 2017 (before-strategy) and October 2017 to March 2018 (after-strategy).

There are two types of dental appointments in FHCs, shown in Table 1, which were categorized into six groups according to age range.

Table 1. Types of dental appointments.

Type of Appointment	Service Provided	Duration
Early Consultations (EC)	Resolve of urgency, treatment admissions	15 minutes
Dental procedures (DP)	Programmed procedures established in the treatment plan: Preventive and rehabilitation procedures	30 minutes
Age Range	Program	Abbreviation
6 months to < 6 years old	Zero Program	ZP
6 years old	Explicit Health Guarantee for 6yearsold	6P
7 to < 11 years	Under 20 years old program	7-11P
12 years old	12 year-old program	12P
13-19 years	Under 20 years old program	13-19P
20 years and older	No specific program for this age group	20P

The variables studied were: number of dental appointments requested, dental appointments undergone (effective dental service utilization rate), no-shows, and available quotas. Each of the variables mentioned above was classified according to the type of service provided. Data collection was performed by two researchers between May and June 2018.

Data Analysis

The researchers collected the dental appointment records from AVIS (AVIS LATAM). Then tabulated the data in a Microsoft Excel v. 2013 spreadsheet (Microsoft, Redmond, USA). Descriptive statistics were used to calculate the absolute and relative frequencies. The analysis of the data was performed with the InfoStat v. 2014 Software (InfoStat, Córdoba, Argentina).

Ethical Aspects

This study was conducted in full accordance with the World Medical Association Declaration of Helsinki and approved by the Commission of Research and Bioethics of the Faculty of Dentistry of the University of Concepción, Chile (C.E.C. N°014/18) and from the FHC Tucapel. The use of Patient Informed Consent was not applicable as data were obtained from Public Databases, but all data was anonymized and coded before analysis.

Results

A total of 10,193 dental appointments were registered within the two periods. Prior to the strategy, from the 4,670 dental appointments requested, 24% corresponded to no-show, while, after the strategy, from the 5,523 dental appointments undergone, 21% corresponded to no-show. Figure 1 shows the distribution of the dental appointments undergone by the age group.

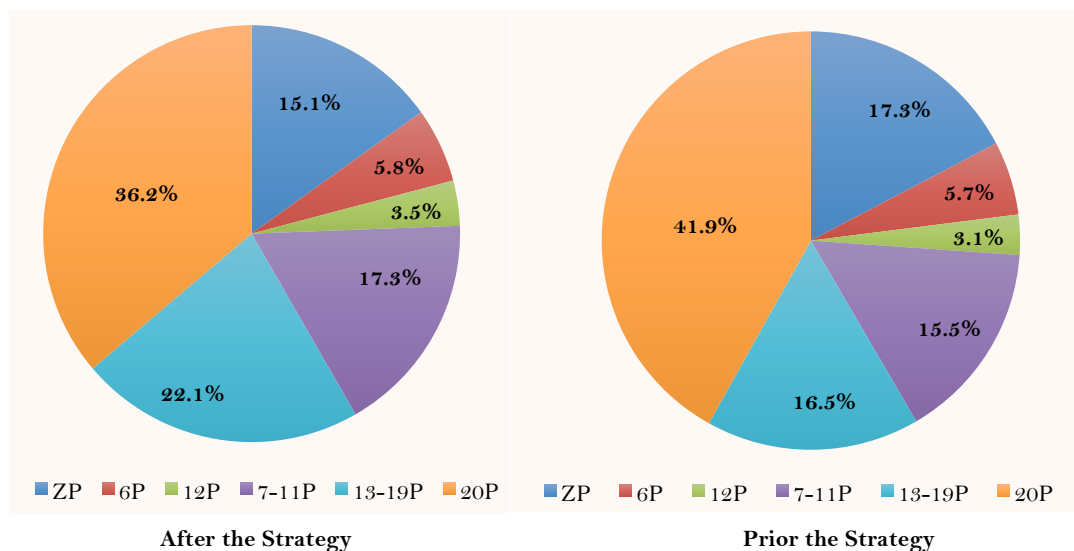


Figure 1. Distribution of the dental appointments undergone prior and after the strategy.

Dental appointments undergone increased in 16.7% (Figure 2), EC and DP increased in 19.3% and 14.1%, respectively. No-show rates by age group are shown in Figure 3.

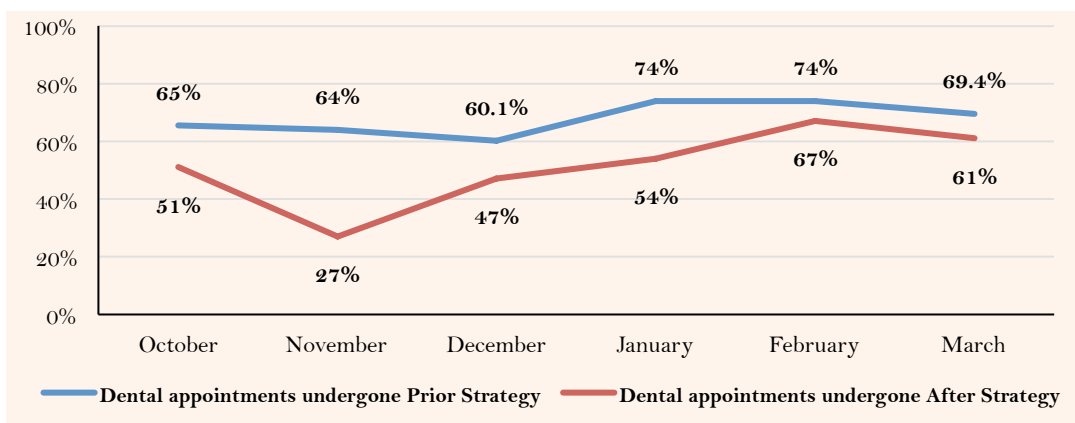


Figure 2. Average of dental appointments prior and after the strategy.

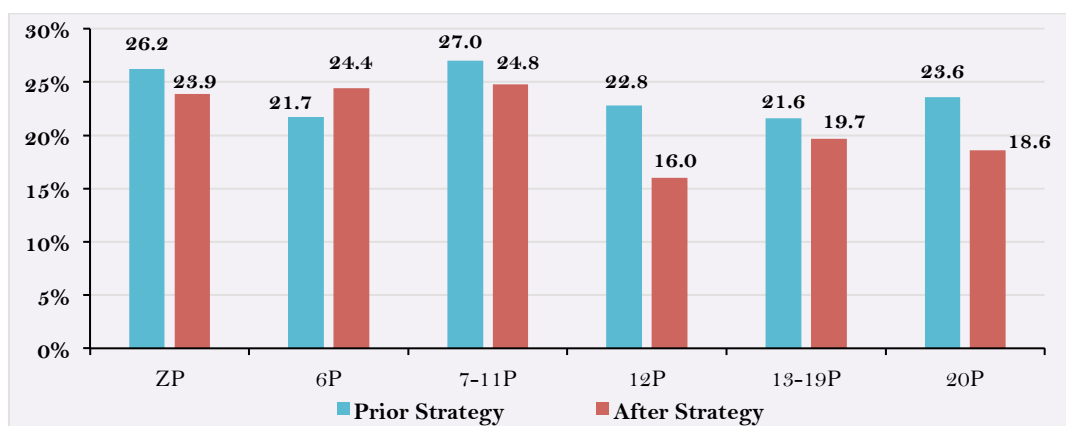


Figure 3. No-show distribution by the group after and prior to the strategy.

After-strategy, no-show decreased in a 2.8%, in EC decreased in a 3.2% and DP decreased a 2.4% (Figure 4).

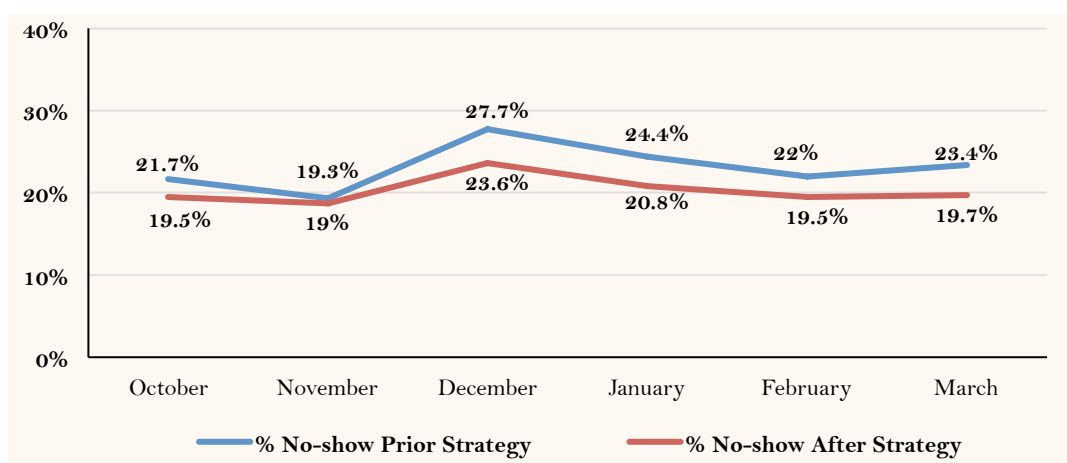


Figure 4. Average of no-show of dental appointments prior and after the strategy.

Schedule available quotas decreased in 21.3% (Figure 5), for EC decreased from 44.1% to 23.9% and for DP from 21.8% to 6%.

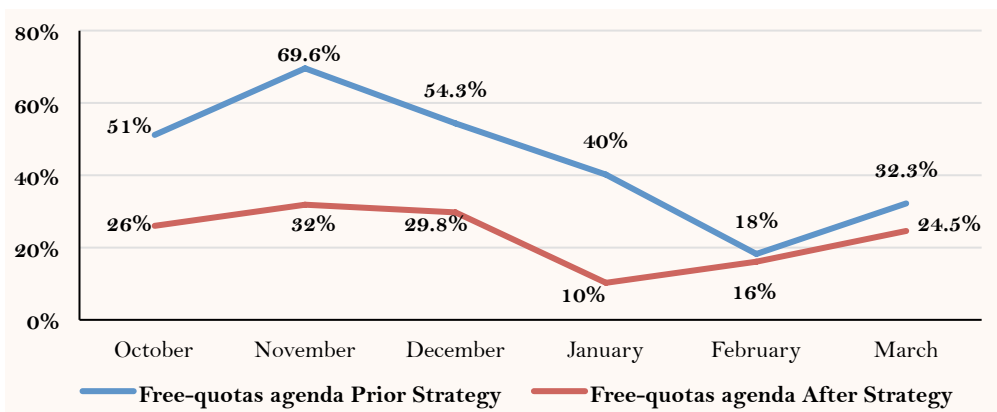


Figure 5. Available quotas of agenda distribution prior and after the strategy.

Discussion

With the telephone-based strategy, there was an increase in the number of dental appointments, in addition to a decrease in the percentage of no-shows and available quotas. This is due to this strategy of calling patients to confirm their attendance, and when patients could not attend nor answered the phone, those quotas were released to complete them with other patients who requested appointments, which mostly corresponded to the age group 20P.

It was observed that no-show in both types of care was lower with the telephone-based strategy. However, a trend is maintained since EC have a lower no-show than DP in both periods. This difference could be due to the need to resolve some urgency or concern, with pain being one of the main reasons for going to the dentist. In contrast, for DP the patient has a treatment plan and must attend periodically until discharge, increasing the percentage of absenteeism due to illness, very long periods between the appointment request and the appointment date, severe weather conditions, among other factors [11,12].

Also, it was observed that in all age groups, the no-show decreased, with EC being more relevant in percentage terms. One exception, where non-attendance increased was in 6-year-old children, specifically in DP. This trend could be due to the incompatibility of FHC hours of service and school hours, which makes it difficult for parents to take the child out of school to attend their dental check-up [13]. On the other hand, in preschool children, additional factors must be considered, since they are subject to the decision, time and needs of their parents or guardians [14]. In addition, it is worth mentioning that this FHC serves a smaller percentage of 6-year-old patients since it has an in-school dental service, giving greater dental coverage to primary education students, and this care has not been considered in this study.

Regarding the number of dental appointments undergone, an increase was observed in all age groups with the implementation of the strategy, except for the group of 13-19P, where there was a decrease. This could be due to the fact that in this age range, people tend to adopt an attitude of rebellion, showing indifference to their oral health, giving priority to other needs than to their teeth [15,16].

The age groups where the effects of the telephone-based strategy were most evident with respect to the number of dental appointments undergone were the ZP and 20P. This difference in the group ZP could be due to the fact that this group program began in 2017.

If we consider the group 20P, these values show that the strategy has a positive impact in this age group that usually gets dental appointments in extended hours' agenda. This could be due to the fact that these

patients when going to request a dental appointment, the person hired for completing the dental agendas of FHC, granted a large part of the available quotas to these patients.





When transforming appointments to chronological hours, on before-strategy period 1,180 hours of care were not provided, because of available quotas and no-shows, which is equivalent to eight months of full-time work by a dental team. Then, during the intervention, 737.5 hours of care were not provided, equivalent to five months of work. This reduction implies that the strategy generated an increase of three months in efficiency.

Among the strengths of the study, we find the use of an official FHC database, so the records are standardized. In addition, we worked with the population during a period of twelve months, which allowed us to obtain specific data regarding the use of dental service by all users of FHC. Among the limitations to consider, we find that, as we used a secondary database, it was not possible to analyze variables such as sex, caries history or socioeconomic level, among others. Thus, it was not possible to determine possible associations between these variables and adherence to dental treatment, which could have generated more information regarding how to approach dental care depending on each patient. It should also be considered that through this database, it was not possible to identify the category of care of pregnant patients, which were included within the corresponding age range. In a future study, the research could be extended to this risk focus group, in order to observe their behavior when facing dental care in a particular way, since the literature indicates a low adherence of this priority group [6].

Conclusion

The strategy of dental SOME decreased the number of no-shows and caused an increase in dental appointments undergone. Along with this, there is also a decrease in the available quotas on the agenda, which generates a better occupation of the human resources in PHC, thus achieving greater coverage of oral health needs of patients enrolled in this FHC. The major improvements were more noticeable in the first consultations, and the age group that benefited the most was 20 years and over.

Authors' Contributions

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All authors declare that they contributed to critical review of intellectual content and approval of the final version to be published.

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Conflict of Interest

The authors declare no conflicts of interest.

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