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Oral Health in the Children's Preventive Health Care Initiative: indicators and goals in a Primary Health Care Service

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Abstract *The objective of this study is to assess fulfillment of the oral health goals of the Children's Preventive Health Care Initiative in 12 Health Units (HU) of a Primary Health Care Service, in Porto Alegre, in the state of Rio Grande do Sul, through a cross-sectional analytical study on the annual dental visit coverage in early childhood. The study was comprised of 660 children born in 2010. In relation to the coverage of dental visits for each year of life of children, the health units did not achieve the set targets (100%). However, a considerable number of children (35%) had their first dental visit during the first year of life. In relation to the total number of visits, 22% of the children had never gone to the dentist and only 8% did the recommended four visits. There was a positive correlation between the ratio of the total population and children from ages 0 to 4 years in the area enrolled in the initiative, on the one hand, and the number of dental professionals and coverage in the first year of life in each health unit, on the other. Although few children had adequate follow-up visits in relation to the set targets, the percentage of coverage was higher than that found in the literature.*

Key words *Children, Oral health services, Public Health Surveillance, Access to health services*

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Introduction

Early childhood caries (ECC) is a highly prevalent and severe disease that affects children in the early years of life[1] and therefore requires early intervention and clinical approaches on an individual and collective level. Early childhood is the ideal time to introduce good habits and launch educational/preventive oral health programs[2], but the active participation of the family is important, especially since parents or legal guardians often have insufficient dental health care knowledge in relation to that stage of life.

Preventive health care initiatives are a set of activities aimed at organizing strategies and responses of health services to specific needs and common diseases among the population, by providing greater access to health resources and higher quality care[3].

Given the importance of prioritizing educational initiatives for this age group in Primary Health Care (PHC), the Community Health Service of the Conceição Hospital Group (SSC-GHC) implemented a Preventive Health Care Initiative for oral health in its 12 health units, so that all children born after 2010 would receive at least one annual dental visit until the fourth year of life. In these visits, the oral health status of children is evaluated and proper oral care instructions are given to mothers/fathers or guardians according to the stage/age of the children, to inform caregivers about the importance of food aspects, oral hygiene and other issues in basic childcare[4]. Afterwards, oral health coverage targets in the SSC-GHC Children's Program were set.

Since this was a pilot project to incorporate oral health into children's primary health care, there was no objective criterion for setting the targets or establishing the guidelines for fulfilling them. Four years after the inclusion of the oral health indicator, the results obtained thus far need to be assessed quantitatively. With these results, it may be possible to establish goals and coverage more closely tailored to the realities of the teams and the population receiving care.

Therefore, in light of the need to assess the implementation process of the Children's Preventive Health Care Initiative for Oral Health and the current lack of data in the literature on the subject, the objective of this study was to evaluate the fulfillment of the goals of this oral health initiative in the 12 HU of the SSC-GHC, through examining the dental visit coverage profile of a group of children born in 2010 and the relationship between the coverage profile and the composition of the Oral Health Teams (OHT), total population of the area enrolled in the initiative and number of children in the region.

Methods

This is a retrospective, cross-sectional, analytical study with a quantitative approach, about dental visit coverage in the Children's Preventive Health Care Initiative in 12 Health Units of the Conceição Hospital Group, responsible for health care in the North Zone of the city of Porto Alegre, in the state of Rio Grande do Sul. The SSC-GHC is a Primary Health Care Service composed of professionals from the minimum family health team (family doctors, dentists, oral health professionals, nurses and nursing technicians and assistants) and professionals from the Family Health Support Center (social workers, psychologists, nutritionists and pharmacists), who provide care for approximately 105,000 registered people. In 2010, the Children's Preventive Health Care Initiative was included among the health indicators agreed by the teams and established as one of the goals of the health service. This initiative recommends at least one annual dental visit in the first four years of children's lives, in order to instill healthy habits and behaviors toward oral health.

In this study, the following variables were assessed: population coverage of dental visits by children born in 2010, participating in the Preventive Health Care Initiative; coverage targets set for 2010, 2011, 2012 and 2013; composition of Oral Health Teams per HU; total population of the area enrolled in the initiative; and number of children from ages 0 to 4 years within the HU region.

The data related to the quantitative variables was collected from the Information System and Annual Monitoring and Evaluation Reports of the SSC-GHC. The composition of the Oral Health Teams in 2010 was obtained from the Community Health Management records and the figures for the total population and population of children from ages 0 to 4 years in each HU was collected from the Health Information System of the Community Health Service in March 2010. The data was compiled an on Excel spreadsheet and evaluated using SPSS 16.0 software.

To analyze the variables related to composition of the Oral Health Teams per HU, total population of the area enrolled in the initiative, number of children from 0 to 4 years old in the

HU region and first dental visit coverage, the Spearman correlation test was used, with a statistical significance level of $p < 0.05$. The variables related to population coverage of dental visits by children born in 2010 and the coverage target set for 2010, 2011, 2012 and 2013 were described and presented using absolute and relative frequencies.

The study was assessed and approved by the Research Ethics Committee of the Conceição Hospital Group, and registered on the Brazil Platform.

Results

A total population of 660 children born in 2010 and registered with the Children's Preventive Health Care Initiative of the 12 Health Units of the SSC-GHC participated in the study. Data related to the distribution coverage of dental visits per year of life, number of visits and when the first visit occurred, were evaluated.

According to Figure 1, the Health Units failed to achieve the targets set by the Service, which was 100% coverage in 2010 and 2011 and 60% in 2012 and 2013. Furthermore, only 35% of the children under age one, 34% between age one and less than two years of age, 48.5% between age two and less than 3 years of age and 41% between age three and less than four years of age had a dental visit in each of the years.

Figure 2 shows in what year of life children made their first dental visit and indicates that 22% of the children had never been to a dentist, 35% made their first visit in the first year of life, 18% in the second year, 15% in the third year and 10% in the fourth year. Overall, 78% of the children had visited the dentist at least once by age four.

Figure 3 presents the total number of dental visits made by the children. Of the 660 children surveyed, 22% had never gone to the dentist, 29% had only gone once, 21% twice, 20% three times and 8% four times.

Figure 4 is a graphic representation of the correlation between the ratio of the total population of users of the area enrolled in the initiative and the number of dental surgeon professionals and oral health technicians in the OHT, on the one hand, and dental visit coverage in the first year of life of each HU, on the other. It was noted that the lower the ratio, the higher the coverage of dental visits in the first year of life, with statistically significant differences of $p = 0.001$.

Figure 5 is a graphic representation of the correlation between the ratio of the total population of children from ages 0 to 4 years and the number of OHT professionals, on the one hand, and dental visit coverage in the first year of life of each HU, on the other. It was noted that the lower the ratio, the higher the dental visit coverage in the first year of life, with statistically significant differences of $p = 0.008$.

When the correlation was made between the ratio of the total population of the area enrolled in the initiative and the number of OHT profes-

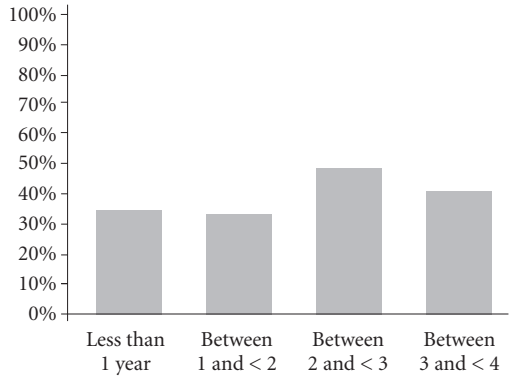

Figure 1. Distribution of the coverage of dental visits of the cohort of children born in 2010, by year of life, in the 12 HU of the SSC-GHC, Porto Alegre-RS, 2014.

Source: Authors.

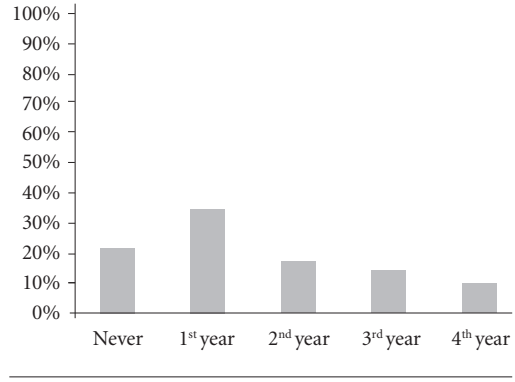

Figure 2. Period (year of life) when children made their first dental visit of the cohort of children born in 2010, by year of life, in the 12 HU of the SSC-GHC, Porto Alegre-RS, 2014.

Source: Authors.

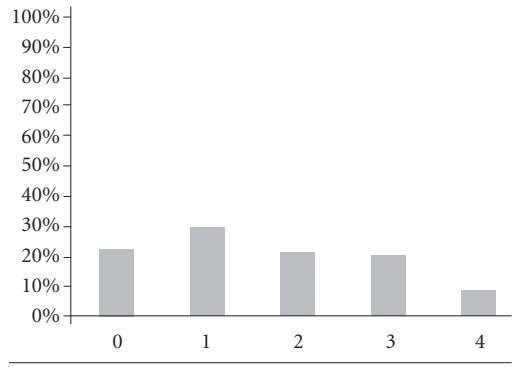

Figure 3. Distribution of the total number of dental visits of the cohort of children born in 2010, in the 12 HU of the SSC-GHC, Porto Alegre-RS, 2014.

Source: Authors.

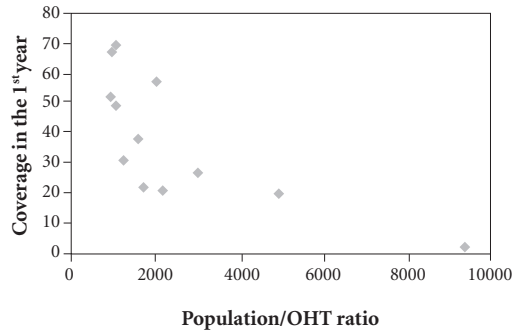

Figure 4. Correlation between the ratio of the total population and OHT, on the one hand, and coverage in the first year of life, on the other, of the cohort of children born in 2010, in the 12 HU of the SSC-GHC, Porto Alegre-RS, 2014.

Source: Authors.

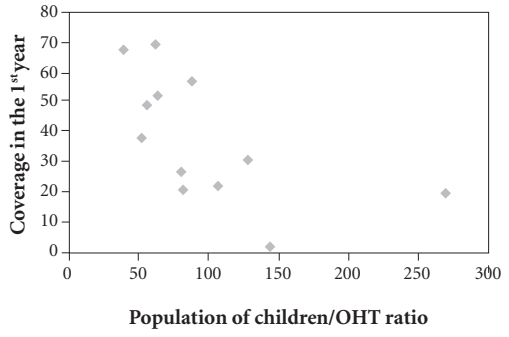

Figure 5. Correlation between the ratio of the population of children from ages 0 to 4 years and OHT, on the one hand, and coverage in the first year of life, on the other, of the cohort of children born in 2010, in the 12 HU of the SSC-GHC, Porto Alegre-RS, 2014.

Source: Authors.

sionals, on the one hand, and children that never had a dental visit, on the other, and the correlation between the ratio of the population of children from ages 0 to 4 years and the number of OHT professionals, on the one hand, and children who never had a dental visit, on the other, there was no statistically significant difference ($p = 0.342$ and $p = 0.602$, respectively).

Discussion

The main reason for conducting this study is due to the fact that four years after including the oral health indicator in the Children's Preventive Health Care Initiative, a quantitative evaluation and monitoring of the process is necessary in order to determine future goals and coverage based on the population characteristics of the Health Care Teams. The primary purpose of health evaluation and planning is to provide support for the whole decision-making process in the health system, through identifying problems, reorienting actions and services developed, assessing the incorporation of practices in the routines of professionals and measuring the impact of the actions implemented by the services[5].

Health indicators, defined as measurement tools that reflect a particular characteristic of conditions of interest[6], measure aspects not subject to direct observation. In addition, they not only express classical dimensions related to structure, processes and results, but also their connection with social, economic and environmental issues[5].

Health indicators, as well as the oral health indicator included in the Children's Preventive Health Care Initiative, enable the results of health actions and programs to be assessed in relation to changes found in the health status of the population and in terms of the knowledge and behavior derived from the practices carried out[7]. However, despite the importance of using these indicators, there is little information on the longitudinal care of children in reference to dental follow-up, making this study innovative in regards to this theme.

If Primary Health Care (PHC) is considered the gateway of children to the health system, an essential responsibility of health units is to propose educational and preventive measures to promote oral health. The National Oral Health Policy recommends that children from ages 0 to 5 years should start receiving oral health care no later than six months of age, taking advantage of

vaccination campaigns, clinical visits and activities in social venues or parents' groups. It is also recommended that oral health initiatives be part of comprehensive children's programs, in conjunction with multi-professional teams and not performed in isolation by dentists[2].

This study found that 78% of the children had visited the dentist by age four, with 53% having gone in the first and second year of life and an average of 25% in the third and fourth years. Even though the set targets were not achieved, access to oral health care in early childhood was higher than the results found in the literature[8,9]. In a survey conducted in the city of Canela (Rio Grande do Sul), Kramer et al.[8] found that only 13.3% of children up to age five years had already gone to the dentist. It was also noted that the higher the age, the greater the frequency of children's visits to the dentist: among children under two years of age, only 4.3% had ever visited the dentist; among children from two to three years of age, the percentage was 11.2%; and among children over age three, it was 26.2%. This gradual increase in dental care may be due both to professionals perceiving the need for preventive care and the need for intervention resulting from oral problems that become more prevalent as children grow older[8]. In another study, conducted in Iowa (United States), there was an increase from 2% to 31% in the number of children who sought dental services from one to three years of age, respectively[9]. And, in a survey conducted by Ardenghi et al.[10], the percentage of children of who had never gone to the dentist dropped from 86.5% to 60.5% from the ages of one to three, respectively.

It can also be seen that 22% of the children studied had never had a dental visit. National data shows that a high proportion of preschoolers have never received dental care[11]. According to the National Household Sample Survey of 2008, approximately 80% of children 0 to 4 years old have never had a dental visit[12]. According to Siegal et al.[13], only 21.1% of American children less than six years of age have ever gone to the dentist. A survey conducted in Pelotas (Brazil) showed that 79.3% of children from two to five years of age had never visited the dentist[14].

Despite the fact that the percentage of children in this study who had never had a dental visit is much lower than in other studies[11-14], this group should be the focus of oral health teams, since it may have the highest level of disease. It would appear that insufficient knowledge on the part of parents and legal guardians as to the importance of early first dental visits and cultural factors related to the notion that children up to age one do not need to see a dentist contributes to this phenomenon. A study conducted in Araraquara (Brazil) showed that 43% of mothers felt their children should have their first dental visit in the first year of life, 44% felt that this visit should occur between the ages of one and three years, 7% believed they should start at age three and 6% said that children should only go to the dentist in emergency situations[15].

Other factors such as fear and anxiety, low importance given to teeth and the buccal cavity, leading to a low perception of need for treatment, and past experiences, related to humiliation and discrimination, are also factors that hinder access to dental services, with direct consequences on the oral health of children[16,17].

In relation to the fact that a considerable percentage of children visited the dentist in the first year of life (35%), this may be due to children going to health units more often for pediatric visits; mothers having received prenatal care in these units and established a link with the team; and that visits are free. In a study conducted in Pelotas (Brazil), the prevalence of use of dental services by children, for routine purposes, was two times higher among those who went for the recommended pediatric visits and mothers who had more than seven prenatal visits[18]. According to Kramer et al., during the first year of life, children manifest different vulnerabilities and receive medical care more often[8].

According to the data presented in Figures 4 and 5, there is a positive correlation in regard to the ratio of the total population of the area enrolled in the initiative and the total number of OHT professionals, on the one hand, and coverage in the first year of life in each HU, on the other, and also in relation to the ratio of population of children from ages 0 to 4 years and the number of OHT professionals, on the one hand, and coverage in the first year of life in each HU. According to a study conducted in the state of Santa Catarina, it was found that as the ratio of oral health professionals registered with the SUS increased in relation to the population, first dental visit coverage also increased[19]. In addition, it was concluded that Oral Health Teams with a larger number of professionals in relation to the population (total size of the population as well as the number of children from ages 0 to 4 years) were able to provide a higher number of visits and prioritize age groups, life stages and specific health conditions.

Final considerations

Even though the oral health care of children born in 2010 was inadequate in terms of the targets set for the 12 HU of the SSC-GHC, dental visit coverage percentage was significantly higher than in other studies in the literature, demonstrating that comprehensive Preventive Health Care Initiatives are important strategies for expanding access to health in early childhood. It also seems necessary to have a compatible ratio between the size of the population of users in the area enrolled in the initiative and the number of oral health professionals, facilitating the work of health surveillance and reducing health inequalities, particularly access.

Due to the scant amount of literature on surveillance of oral health actions for preschool children and specific indicators for this age group, the results of this study will hopefully serve as a basis to promote the implementation of public policies focused on receiving dental care in early childhood.

Collaborations

A Schwendler participated in the conception of the project; data collection, analysis and interpretation; writing and critical review of the article and final approval of the version to be published. DD Faustino-Silva participated in the conception of the project; data collection, analysis and interpretation; writing and critical review of the article and final approval of the version to be published. CF Rocha contributed to the data analysis and interpretation and the writing and critical review of the article.

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