



## ORIGINAL ARTICLE / ОРИГИНАЛНИ РАД

# The first dental visit – comparative analysis of two successive five-year periods

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## SUMMARY

**Introduction/Objective** An important moment in oral health care and preventive dentistry is the first dental visit, recommended to be undertaken between the child's sixth and 12th month of life. World-wide evidence shows a considerable delay. This study evaluates characteristics of the first dental visit in a public health care center in Novi Sad, Serbia, during 2006–2015 period, and changes in occurrence driven by the healthcare reform.

**Methods** The study design was retrospective, evaluating available data on age and the main reason for the first dental visit of 270 children, who come to the same dentist and pediatrician in a public health care center during the 2006–2015 period.

**Results** Collected data determined the third and the fourth year of life as the dominant age (45.8% of children) for the first dental visit in 2006–2010, initiated mostly by a dental check-up (53.8%). During the second period (2011–2015), most of the first visits (31.1%) were done by the age of one, while the main reason for 80.1% of the visits was dental check-up.

**Conclusion** Considerable progress regarding the first dental visit was made in the observed period, which is, at least partially, due to the health care reform and emphasized preventive versus curative measures, by means of advanced communication between parents and chosen medical staff in prenatal and pediatric clinics.

**Keywords:** caries; dental visit; oral health promotion

## INTRODUCTION

One of the essential components of general health is certainly oral health, since it concerns all age groups – from newborns to elders. Even though the most common public belief is that oral care begins at the time of the eruption of the first tooth, it is actually initiated far earlier: good oral hygiene practices are formed as soon as the child is born, with the oral cavity regularly cleaned. Later, when the children's teeth first erupt, parents should begin cleaning with damp face towels, wash cloth wrapped around a finger, or a very soft toothbrush, as the American Academy of Pediatric Dentistry recommends, and continuing with toothbrushing with fluoride toothpaste [1–4]. However, the cleaning is not the only issue that can influence future oral health condition, and parents should be aware of feeding and dietary habits related to oral health, the use of pacifiers, digit sucking, age-appropriate injury prevention, frequency of dental visits, etc. [5, 6]. Overall, they must be enlightened that most oral diseases are preventable. Thus, an important moment in the lifelong program of oral health care and preventive dentistry is certainly the first dental visit, when the appropriate, most significant data regarding oral health care and the preventive measures should be presented to

parents [7]. According to recommendations of the American Academy of Pediatric Dentistry, but also other relevant associations, such as the European Academy of Paediatric Dentistry, the American Dental Association, the American Academy of Pediatrics, the American Association of Public Health Dentistry, the Academy of General Dentistry, dental visits begin with the appearance of a child's first tooth, typically around six months of life but no later than the age of one year [2]. Still, there are many reports which demonstrate that the first dental visit is prolonged and that it was commonly initiated after a decay noticed by a parent, caries-related pain and other lesions, followed by a routine check-up [7–11].

Concerning the initiation of the first dental visit, it is expected that pediatricians advise parents [12]. Additionally, another approach to timely education of parents, especially expectant mothers, was revealed [13, 14, 15]. Namely, it is considered that mothers are a primary source of early education in children; they care about good hygiene and healthy nutritional practices of their children, and, consequently, the children's oral condition depends of their knowledge about positive attitudes towards oral habits. Moreover, expectant mothers systematically go to the healthcare facilities, generally are willing to follow counsel during pregnancy, and

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are more open to health-related information [16]. Thus, they could be targeted by health education programs. For instance, a gynecologist can present the importance of a mother's state of oral cavity for the child's development, early childhood caries development, transmission of the oral infection, etc., but can also point out the importance of the first dental visit. Furthermore, the presence of the dental staff at prenatal classes is necessary to introduce the concept of the early dental visit and to increase the awareness of the overall importance of oral and dental health as part of general health [17].

Considering the above-explained importance of the first dental visit, the main aim of this study was to evaluate the characteristics of the first dental visit in a public health care center (PHCC) in Novi Sad, Serbia, during the 2006–2015 period, and changes in occurrence driven by the healthcare reform.

## METHODS

### Subjects

The research target group were children attending public dental clinics belonging to the Jovan Jovanović Zmaj PHCC in Novi Sad, Serbia. The presented study includes data on 270 children, of both sexes, who come to the same dentist and pediatrician in primary healthcare clinics of the same PHCC. The consent for this research was given by the Ethics Committee of the Jovan Jovanović Zmaj PHCC.

### Data collection

The data was collected retrospectively from dental records. Information about each child's age and the main reason for the first dental visit was recorded. A data set for two periods was formed: the first observed period was from year 2006 to 2010, and the second one was from 2011 to 2015.

### Ethical considerations

The study was conducted without shared consent from the families involved. We handled all the material with confidentiality. The data was collected after the Ethics Committee approval (No. 21/29-2) and the research was conducted in full accordance with ethical principles, including the World Medical Association Declaration of Helsinki.

## RESULTS

The data on the children's age and main reasons for their first dental visit during the two periods was collected retrospectively from dental records. According to the results, presented in Table 1, in the first observed period, the initial dental visit was made by almost the same number of children during the first and the second year of life (12.1% and 11.7%, respectively), as well as the fifth and sixth (17.8% and 12.5%, respectively). Similarly, almost

**Table 1.** Overview of the children's age at the first dental visit during the two observed periods: 2006–2010 and 2011–2016

Year of children's life at first dental visit	Percentage of patients	
	Period I: 2006–2010	Period II: 2011–2015
First	12.1%	31.1%
Second	11.7%	25.5%
Third	23.5%	24.4%
Fourth	22.3%	11.1%
Fifth	17.8%	7.7%
Sixth	12.5%	0%

**Table 2.** Overview of the main reasons for the first dental visit during the two observed periods: 2006–2010 and 2011–2016

Main reasons for the first dental visit	Percentage of patients	
	Period I: 2006–2010	Period II: 2011–2015
Dental check-up	53.8%	80.1%
Dental trauma	14.6%	2.2%
Pain	31.6%	17.7%

analogous number of two- to three-year-olds (58, 23.5%) and three- to four-year-old children (55, 22.3%) visited the dentist for the first time, which determined the third and the fourth year of life as the dominant age for the first dental visit in the 2006–2010 period. At the same time, the main reason (Table 2) for the first dental visit was predominantly a dental check-up (53.8%), followed by pain (31.6%), and dental trauma (14.6%). During the second period, from 2011 to 2016, our data showed different situation: most of the first visits (31.1%) were done by the age of one, while the main reason for 80.1% of the first dental visit was a dental check-up. In the second period, first visits during the second year were also intensified (up to 25.5%), and there was no child over five and under six years old who had not visited the dentist yet.

## DISCUSSION

Despite a clear recommendation that the first dental visit should be undertaken around six months of life but no later than the age of one year, worldwide evidence shows that there is a considerable time delay [1]. For example, a report from the Wrocław Medical University, Poland, showed that 9.5% of the children had their first dental visit by the age of one, 21.5% of the children had their first dental visit between the ages of one and two years, 22.5% of the children visited the dentist for the first time when they were between the ages of two and three years, 38.7% of the children first visited the dentist when they were older than three, and 5.8% of 6–7-year-olds had not visited the dentist yet [7]. Leroy et al. [8] demonstrated that 62% of three-year-old children and 21% of five-year-old children in Belgium had not visited the dentist yet. According to data from Riyadh, Saudi Arabia, 32.2% of children had their first dental visit between the ages of one and three, but 52.9% of the group had their first dental visit between the third and fifth, and 14% between the fifth and eighth year of life. One percent of children had their first dental visit when they were older than eight years [10]. Also, a Bulgarian study reported that the majority of

children making their first dental visit were 3–6 year-olds (51.9%) and the least attendance was in the children younger than one year (1.73%) [9]. According to another study from Iowa, USA, of 340 parents who completed questionnaires, 2% reported having taken their child for a dental visit by one year of age, 11% by two years of age, and 31% by three years of age [11]. In contrast, a study in four communities within Manitoba, Canada, reported that 74.7% of caregivers (guardians and majority being mothers) favored a dental visit by the age of one year [17]. In general, apart from the latter study, all of the listed studies are in accordance with findings concerning the first period of our research: about 10% or even less children visited the dentist in the first year of their life. However, during the second period of our research, a significant increase in the early visits could be noticed: over 30% of children went to the dentist before the first birthday. One of the major factors of this change could be the result of the health care reform in Serbia, conducted between 2004 and 2012. Namely, in Serbia, the Ministry of Health is the owner of public health facilities and provides funding, monitoring, and control of public healthcare activities in public health institutes. On the other hand, the National Health Insurance Fund provides compulsory social insurance and ensures that insured persons may exercise their healthcare rights governed by the Law on Health Insurance [18]. One of the rights under compulsory health insurance is right to health care, which involves, among other things, examination and treatment of mouth and teeth diseases. These essential healthcare rights were the same in both observed periods. However, the healthcare reform aimed to modify the existing system and to put the focus on primary healthcare service. In addition, it emphasized preventive measures versus curative ones in order to decrease the rate of preventable diseases and to reduce health expenditures. Among other things, patients can choose their general practitioner, pediatrician, occupational health specialist, dentist, gynecologist, etc., who can then continuously monitor their health. In regard to the first dental visit, this had an immediate impact by advancing the communication between the chosen general practitioners (pediatricians), dentists, and even gynecologist and medical staff at prenatal classes. At the health care center where this study was conducted, the flow of information and good practice on advising about the importance of the first dental visit was constantly performed by a listed medical staff, as it was implicated by the health reform instructions. This enhanced communication, as it was conducted in appropriate primary healthcare clinics, where data for this research was collected and where children and their parents, particularly mothers, were receiving health care, obviously resulted in an increased awareness about the importance of the first dental visit before the child's first birthday.

Furthermore, the main reasons for the first dental visit were quite diverse. Dental check-up stands as the main reason in a report by Leroy et al. [8] for over half the subjects (54.3%); the reason for one third of the subjects was decay noticed by a parent, and for the remaining subjects

the reasons were caries-related pain (9.1%) and other lesions (2.5%). According to a study by Murshid [10], pain was the dominant factor (71.5%) which brought children to their first dental visit, while a check-up was the main reason for 27.3% of children. A study from Nigeria reported that toothache was the reason for a child's first visit to the dentist in 47.4% of the cases, while a routine dental check-up accounted for 42.7% [19]. Even in this case, the results from the two observed periods in our research can support positive influence of advanced communication between all subjects involved in a child's oral care. Namely, a dental check-up became a pronouncedly dominant reason for the first dental visit in the second period, reflecting the positive influence of the healthcare reform, while dental trauma and pain were diminished.

Regarding the limitation of this study, the method of collecting the data on the first dental visit was convenient for the authors due to their direct access to patient records, but some impedance that may have affected the study results should be noted. For example, the PHCC where this study was conducted is one of the biggest regional PHCCs and it accommodates clinics of general practitioners (pediatricians), dentists, and gynecologist and prenatal classes. Furthermore, patients regularly choose one PHCC for the primary health care and prevention. Therefore, although authors did not access records of parents (mothers), it was considered that the parents' (mothers') health was regularly monitored, and that expectant mothers attended prenatal classes at the same PHCC. Also, this PHCC is situated in an urban area and future studies including different clinics in different cities or rural areas are strongly recommended.

## CONCLUSION

An important moment in the lifelong program of oral health care and preventive dentistry is certainly the first dental visit, recommended to be undertaken around the child's sixth month of life but no later than its first birthday. However, worldwide evidence shows that there is considerable time delay, which was also noticed in the presented study. Nonetheless, the healthcare reform, conducted in Serbia from 2005, focused on primary healthcare service and emphasizing preventive measures versus curative ones, contributed, at least partially, to some notable changes: the time for the first dental visit was changed from the third and the fourth (dominant in the 2006–2010 period) to the first year of life (2011–2016), followed by a significant increase of the dental check-up as the main reason for the first dental visit (from 53.8% to 80.1%). However, even though considerable progress has been made, further strengthening of the partnership between medical and dental professionals through more organized prevention, promotion, and education programs are needed in Serbia in order to introduce early dental visits as a common, routine medical appointment.

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## Прва посета стоматологу – компаративна анализа два узастопна петогодишња периода

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### САЖЕТАК

**Увод/Циљ** У циљу очувања оралног здравља веома је важна прва посета стоматологу, која је препоручена да се обави између шестог и дванаестог месеца живота детета. Подаци из целог света указују да се прва посета дешава касније. Циљ овог рада је био да анализира карактеристике прве посете стоматологу и промене после реформи у здравству.

**Метод** Ретроспективно су анализирани подаци о узрасту и разлогу прве посете стоматологу 270 деце која су посећивала истог стоматолога и педијатра у Дому здравља Нови Сад од 2006. до 2015. године.

**Резултати** У периоду од 2006. до 2010. године доминантан узраст у коме су деца први пут прегледана је био између три

и четири године (45,8%), а разлог је био рутински стоматолошки преглед (53,8%). У периоду од 2011. до 2015. године већина посета је обављена у првој години живота (31,1%), а разлог је такође био стоматолошки преглед (80,1%).

**Закључак** У посматраним периодима је приметан знатан напредак у узрасту у коме су деца дошла у прву посету стоматологу, који се догодио захваљујући здравственим реформама и побољшаним превентивним мерама, као и бољој комуникацији између родитеља, педијатара и изабраних стоматолога.

**Кључне речи:** каријес; посета стоматологу; промоција оралног здравља