



Paper Accepted*

ISSN Online 2406-0895

Original Article / Оригинални рад

Duška Blagojević^{1,2,†}, Ljubica Pavlović-Trifunović³, Milica Šipovac¹,
Isidora Nešković^{1,2}, Sanja Vujkov^{1,2}, Bojan Petrović^{1,2}

The first dental visit – comparative analysis of the two successive five-years periods

Прва посета стоматологу – компаративна анализа два узастопна петогодишња периода

¹ University of Novi Sad, Faculty of Medicine Novi Sad, Serbia;

² Dentistry Clinic of Vojvodina, Department of Preventive and Pediatric Dentistry, Novi Sad, Serbia;

³ The Public Health Care Center Novi Sad, Serbia

Received: March 9, 2018

Revised: March 28, 2018

Accepted: April 3, 2018

Online First: April 13, 2018

DOI: <https://doi.org/10.2298/SARH180309032B>

* **Accepted papers** are articles in press that have gone through due peer review process and have been accepted for publication by the Editorial Board of the *Serbian Archives of Medicine*. They have not yet been copy edited and/or formatted in the publication house style, and the text may be changed before the final publication.

Although accepted papers do not yet have all the accompanying bibliographic details available, they can already be cited using the year of online publication and the DOI, as follows: the author's last name and initial of the first name, article title, journal title, online first publication month and year, and the DOI; e.g.: Petrović P, Jovanović J. The title of the article. *Srp Arh Celok Lek*. Online First, February 2017.

When the final article is assigned to volumes/issues of the journal, the Article in Press version will be removed and the final version will appear in the associated published volumes/issues of the journal. The date the article was made available online first will be carried over.

† **Correspondence to:**

Duška BLAGOJEVIĆ

Dentistry Clinic of Vojvodina, 12 HajdukVeljkova Street, 21000 Novi Sad, Serbia

E-mail: duska.blagojevic@mf.uns.ac.rs

The first dental visit – comparative analysis of the two successive five-years periods

Прва посета стоматологу – компаративна анализа два узастопна петогодишња периода

SUMMARY

Introduction/Objective Important moment in oral health care and preventive dentistry is first dental visit, recommended to be undertaken between child's sixth and twelfth month. Worldwide evidences show considerable time delay.

The aims of this study was to evaluate characteristics of first dental visit 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.

Results Collected data determined 3rd and 4th year as dominant age (45.8% of children) for the first dental visit in 2006–2010, initiated mostly by dental check-up (53.8%). During second period (2011–2015), the most of the first visits (31.1%) were done by the age of one, while the main reason for 80.1% was dental check-up.

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

Keywords: caries; dental visit; oral health promotion

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 270 деце која посећују истог стоматолога и педијатра.

Резултати У периоду од 2006–2010. доминантан узраст у коме су деца први пут прегледана је био 3–4 године (45,8%), а разлог је био рутински стоматолошки преглед (53,8%). У периоду 2011–2015. 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 реформама и побољшаним превентивним мерама, као и бољој комуникацији између родитеља, педијатра и изабраних стоматолога.

Кључне речи: каријес; посета стоматологу; промоција оралног здравља

INTRODUCTION

One of the essential components of general health is certainly oral health, since it concerns all age groups - from newborns to elders. Even 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, while the oral cavity is 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]. But, 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, 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, important moment in lifelong program of oral health care and preventive dentistry is certainly 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 AAPD, 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 but no later than 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 routine check-up [7–11].

Concerning initiation of first dental visit, it is expected that pediatricians advise parents [12]. Besides that, 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 are more open to health-related information [16]. Thus, they could be targets of health education programs. For instance, gynecologist can present importance of 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 importance of first dental visit. Furthermore, presence of dental staff at prenatal classes or relevant is necessary to introduce concept of early dental visit and to increase awareness of the overall importance of oral and dental health as part of general health [17].

Considering above explained importance of first dental visit, the main aim of this study was to evaluate characteristics of first dental visit in one Public Health Care Center (PHCC), Novi Sad, Serbia during 2006-2015, and changes in occurrence driven by the Healthcare reform.

METHODS

Research target group were children attending the governmental dental clinics, belonging to The Public Health Care Center "Jovan Jovanović Zmaj" in Novi Sad, Serbia. The present study included data on 270 children, of both genders, who come to the same dentist and pediatrician in primary healthcare clinics of same Public Health Care Center (PHCC).

Data were collected retrospectively from the dental records. Information about each child's age and the main reason for the first dental visit was recorded. 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.

RESULTS

Data of children's age and main reasons for first dental visit during two periods: 2006–2010 and 2011–2016 were collected retrospectively from the dental records. The present study included 270 children, of both genders. According to the results, presented in Table 1, in first observed period,

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

Year of children's life at first dental visit	Percentage of patients	
	I Period 2006–2010	II Period 2011–2015
First	12.10%	31.10%
Second	11.70%	25.50%
Third	23.50%	24.40%
Fourth	22.30%	11.10%
Fifth	17.80%	7.70%
Sixth	12.50%	0%

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

Main reasons of first dental visit	Percentage of patients	
	I Period 2006–2010	II Period 2011–2015
Dental check-up	53.80%	80.10%
Dental trauma	14.60%	2.20%
Pain	31.60%	17.70%

initial dental visit was made by almost the same number of children during first and second year of life (12.1% and 11.7%, respectively), as well as fifth and sixth (17.8% and 12.5%, respectively). Similarly, almost analogous number of 2–3 years (58,23.5%) and 3-4 years old children (55, 22.3%) visited dentist for the first time, that determined 3rd and 4th year of life as dominant age for the first dental visit in 2006-2010 period. In the same time, the main reason (Table 2) for of the first dental visits was dominantly dental check-up (53.8%), followed by pain (31.6%) and dental trauma (14.6%). During second time period, from 2011–2016 year, 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 visits was dental check-up. In the second period, first visits during second year were also intensified (up to 25.50%), and there was no child over five and under six years old who had not visited the dentist yet.

DISCUSSION

Despite clear recommendation that first dental visit should be undertaken around six months but no later than one year, worldwide evidences show that there is considerable time delay [1]. For example, report from Wroclaw Medical University, Poland, showed that 9.5% of children had their first dental visit by the age of one, 21.5% over one and under two, 22.5% at age over two and under 3, 38.7% of the children first visited the dentist at the age over three, and 5.8% of 6–7-year-olds had not visited the dentist yet [7]. Leroy et al. demonstrated that in Belgium 62% of 3-year-old children and 21% of 5-year-old children had not visited the dentist yet [8]. According to data from Riyadh, Saudi Arabia, 32.2% of the children had their first dental visits between the ages of 1 and 3, but 52.9% of the group had their first dental visits between the 3th and 5th, and 14.0% o between 5th and 8th year of life. One percentage had their first dental visits when they were older than 8 years [10]. Also, the 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 three hundred and forty parents who completed questioners, 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]. On the contrary, a study in four communities within Manitoba, Canada reported 74.7% of the caregivers (guardian and majority being mothers) favored a

dental visit by the age of one year [17]. In general, besides the last one, all of listed studies are in accordance with findings in first period of our research: about 10% or even less children visited dentist in the first year of life. But, during second period of our research, significant increase in early visits could be noticed: over 30% of children came to 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 during 2004 to 2012. Namely, in Serbia, the Ministry of Health (MH) 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 others, examinations and treatments of mouth and teeth diseases. These essential healthcare rights were the same in both observed period. But, the Healthcare reform aimed to modify existing system and to put the focus on primary healthcare service. Also, it emphasizes preventive measures versus curative, in order to decrease rate of preventable diseases and also reduce health expenditures. Among others, patients can choose general medical doctor, pediatrician, occupational health specialist, dentist, gynecologist etc., which then can continuously monitor their health. Concerning first dental visit, that had straight impact by means of advancing communication between chosen general medical doctors (pediatricians), dentists and even gynecologist and medical staff at prenatal classes. In The Health Care Center, where this study was conducted, the flow of information and good practice on advising about importance of first dental visit was constantly performed by listed medical staff, as it was implicated by health reform instructions. This enhanced communication, as it was conducted in appropriate primary healthcare clinics, where data for this research were collected and where children and their parents, particularly mothers were receiving health care, obviously resulted in increased awareness about the importance of first dental visitation until child's first birthday.

Furthermore, the main reasons for the first dental visit were quite different. Dental check-up stands as main in report of Leroy et al. for over half the subjects (54.3%), one-third a decay noticed by a parent, and for the remaining ones caries--related pain (9.1%) and other lesions (2.5%) [8]. According to the study of Murshid, pain was the dominant factor (71.5%) bringing children to their first dental visits, and check-up was for 27.3% a main reason for children's first dental visits [10]. Study from Nigeria, reported that toothache was 47.4% reason for a child's first visit to the dentist, while routine dental check-up accounted for 42.7% [19]. Even in this case, results from two observed periods in our research can support positive influence of advanced communication between all subjects involved in child's oral care. Namely, dental check-up become far dominant reason for first dental visit in second period, reflecting positive influence of healthcare reform, while dental trauma and pain were diminished.

Regarding limitation of this study, the method of collecting data on first dental visit was convenient for the authors as having direct access to patient records, but some impedance that may have affected the results of study should be noticed. For example, PHCC, where this study was conducted is one of the biggest regional PHCC and, among others, endorse clinics of general medical doctors (pediatricians), dentists, 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 parents (mothers) health is regularly supervised, as well that expectant mothers attend prenatal classes in the same PHCC. Also, this PHCC belongs to urban area, and future studies including different clinics in different cities or rural areas, are strongly recommended.

CONCLUSION

Important moment in lifelong program of oral health care and preventive dentistry is certainly first dental visit, recommended to be undertaken around child's sixth month but no later than first birthday. But, worldwide evidences show that there is considerable time delay, which was also noticed in presented study. But, the Healthcare reform, conducted in Serbia from 2005, which was focused on primary healthcare service and emphasizing preventive measures versus curative, contributed, at least partially, to some notable change: time for first dental visit was changed from 3rd and 4th (dominant in 2006-2010) to first year of life (2011-2016), followed by significant increase of dental check-up as the main reason of the first dental visit (from 53.8% to 80.1%, respectively). Still, even considerable progress was made, further strengthening of a 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.

ACKNOWLEDGEMENTS

The authors are thankful to archive of the Jovan Jovanović Zmaj Public Health Care Center for providing access to patient records. Authors also thank Dr Ivana Beara for editorial assistance.

REFERENCES

1. American Academy of Pediatric Dentistry. Guideline on periodicity of examination, preventive dental services, anticipatory guidance/counseling, and oral treatment for infants, children and adolescents. *Pediatr Dent*. 2016; 38(6): 133-41.
2. American Academy of Pediatric Dentistry. Infant oral health. *Pediatr Dent* 2000; 22:82.
3. Collett BR, Huebner CE, Seminario AL, Wallace E, Gray KE, Speltz ML. Observed child and parent toothbrushing behaviors and child oral health. *Int J Paediatr Dent*. 2016; 26: 184-192.
4. Trubey RJ, Moore SC, Chestnutt IG. Parents' reasons for brushing or not brushing their child's teeth: A qualitative study. *Int J Paediatr Dent*. 2014; 24: 104-112.
5. Darmawikarta D, Chen Y, Carsley S, Birken CS, Parkin PC, Schroth RJ, Maguire JL. Factors associated with dental care utilization in early childhood. *Pediatr* 2014; 133: 1594-600.
6. Savage MF, Lee JY, Kotch JB, Vann WF, Jr. Early preventive dental visits: effects on subsequent utilization and costs. *Pediatr*. 2004; 114: 418-423.

7. Grzesiak-Gasek I, Kaczmarek U. Retrospective evaluation of the relationship between the first dental visit and the dental condition of six- and seven-year-old children. *Adv Clin Exp Med* 2016; 25: 767–73.
8. Leroy R, Bogaerts K, Hoppenbrouwers K, Martens LC, Declerck D. Dental attendance in preschool children— a prospective study. *Int J Paediatr Dent* 2013; 23: 84–93.
9. Mileva SP, Kondeva VK. Age at and reasons for the first dental visit. *Folia Med (Plovdiv)* 2010; 52: 56–61.
10. Murshid EZ. Children's ages and reasons for receiving their first dental visit in a Saudi community. *Saudi Dent J* 2016; 28: 142–7.
11. Quiñonez RB, Stearns SC, Talekar BS, Rozier RG, Downs SM. Simulating cost-effectiveness of fluoride varnish during well-child visits for Medicaid-enrolled children. *Arch Pediatr Adolesc Med.* 2006; 160(2): 164–70.
12. Di Giuseppe G , Nobile CG , Marinelli A, Angelillo IF. Knowledge, attitude and practices of pediatricians regarding the prevention of oral diseases in Italy. *BMC Public Health.* 2006; 6: 176.
13. Medeiros PBV, Otero SAM, Frencken JE, Bronkhorst EM, Leal SC. Effectiveness of an oral health program for mothers and their infants. *Int J Paediatr Dent* 2015; 25: 29–34.
14. Plutzer K, Spencer AJ. Efficacy of an oral health promotion intervention of early childhood caries. *Community Dent Oral Epidemiol* 2008; 36: 335–46.
15. Harrison RL, Veronneau J, Leroux B. Effectiveness of maternal counselling in reducing caries in Cree children. *J Dent Res* 2012; 91: 1032–7.
16. George A, Shamim S, Johnson M , Ajwani S, Bhole S, Blinkhorn A, Ellis S, Andrews K. Periodontal treatment during pregnancy and birth outcomes: a meta-analysis of randomised trials. *International Journal of Evidence-based Healthcare* 2011; 9(2): 122–47.
17. Fleming P. Timetable for oral prevention in childhood—a current opinion. *Prog Orthod* 2015; 16: 27.
18. Gajić-Stevanović M, Aleksić J, Stojanović N, Živković S. Health care system of the Republic of Serbia in the period 2004–2012. *Serb Dent J* 2014; 61: 36–40.
19. Eigbobo JO, Aikins EA, Onyiaso CO. Knowledge of preventive child oral healthcare among expectant mothers in Port Harcourt. *Nigeria Paediatr Dent* 2013; 23: 1–7.