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REVIEW ARTICLE  
PRACA POGLĄDOWA

## ANALYSIS OF REGULAR DENTAL CHECKUPS OF KYIVITES IN STOMATOLOGICAL ESTABLISHMENTS OF VARIOUS PROPERTY FORMS

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### ABSTRACT

**The aim:** carry out analysis of regular dental checkups in Kyiv in state and private dental establishments.

**Materials and methods:** The analysis was conducted using the statistical reports (approved standard №20) which have been obtained in Kyiv and Ukraine from 2008 till 2017. The method of copying data with using statistical estimation methods was applied.

**Results:** The authors have established significant dental preventive measures decline in Kyiv state dental establishments from 2008 till 2017. A tendency toward increased private dental sector within the dental prevention has been noted.

**Conclusions:** The obtained results will be used to substantiate concepts of municipal stomatological dental care improvement as well as to introduce the university clinic model.

**KEY WORDS:** regular dental checkups, population of Kyiv, state and private stomatological establishments

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### INTRODUCTION

Oral health is essential to general health and well-being and greatly influences quality of life [1]. Stomatological diseases are important components of noncommunicable diseases, which continue to be a leading public health problem in the WHO European Region [2,3,4].

Considerable incidence of stomatological diseases among Ukrainians makes the issue of preserving and improving stomatological health medically and socially valuable [5,6,7,8,9].

This is why the main direction of the stomatological service functioning should be application of its preventive strategy, aimed at preserving stomatological health status of the population. The main ways of preventive strategy application are hygienic education, regular checkups and stomatological preventive treatment [1,10,11,12].

Management of stomatological service and substantiation of its improvement, including preventive measures, is impossible without systematic generalization and analysis of the medical statistical reports on its functioning [8,9].

### THE AIM

The aim: carry out analysis of regular dental checkups in Kyiv in state and private dental establishments.

### MATERIALS AND METHODS

Analysis of regular dental checkups was conducted on the base of the statistical reports (№ 20), which have been

obtained in Kyiv and Ukraine from 2008 till 2017. The assessment included data obtained in the state and private institutions, from adult and pediatric dental patients. The method of copying data with using statistical estimation methods was applied.

### REVIEW AND DISCUSSION

The analysis of Kyiv state and municipal preventive service shows significant decline in preventive service volume during last decade, especially regarding the adult Kyivites.

In 2017, during regular checkups, 660621 adult patients were examined in municipal and state stomatological establishments of Kyiv, which represents less than one third (28%) of all Kyivites older than 18 years (17.2% of all Ukrainians). Compared to 2008, the relative share of those who were examined during regular checkups decreased by 16% in Kyiv and 4.9% in Ukraine (see.tab.1).

The relative share of the patients who were examined within the regular checkups made up less than a half (45-46%) in Kyiv, and one fourth (23-24%) in Ukraine from all adults who referred for stomatological service.

Among all adults examined within the regular checkups schedule in 2017, 82.1% required dental treatment in Kyiv, and 55.6% in Ukraine. These data showing dental treatment demands haven't changed since 2008, when they made up 81.2% and 56.3%, respectively.

In 2017 in Kyiv relative share of patients who received treatment after regular checkups was 71.9%, i.e., almost

**Table 1.** Regular dental checkups of adults in municipal and state stomatological establishments, Kyiv, Ukraine, 2008, 2012, 2017 (own development according to the data of statistical reports)

Region/years	2008	2012	2017	Absolute increase 2017/2008
Relative share of adults examined within the checkup schedule (%)				
Kyiv	44.0	35.0	28.0	-16.0
Ukraine	22.1	21.3	17.2	-4.9
Relative share of all adults examined on their own referral (y %)				
Kyiv	45.6	46.0	45.5	-0.1
Ukraine	23.3	23.7	23.6	0.3
The adults who after checkups required dental treatment (% from all examined adults)				
Kyiv	81.2	81.4	82.1	0.9
Ukraine	56.3	55.4	55.6	-0.7
Relative share of those adults who after checkups required treatment and received it				
Kyiv	73.4	75.5	71.9	-1.4
Ukraine	77.1	77.6	74.7	-2.4
Relative share of those who were treated after regular checkups and upon their own referral (%)				
Kyiv	44.0	21.5	16.5	-27.5
Ukraine	22.1	23.6	18.7	-3.4

**Table 2.** Regular dental checkups of children in state and municipal stomatological establishments in Kyiv, Ukraine, 2008, 2012, 2017 (own development according to the data of statistical reports)

Region/years	2008	2012	2017	Absolute increase 2017/2008
Relative share of those children examined within regular checkups (y %)				
Kyiv	113.7	105.7	90.8	-22.9
Ukraine	70.9	69.5	56.4	-14.5
Relative share of children undergoing checkups related to those who referred for stomatological service (%)				
Kyiv	49.4	49.7	51.6	2.2
Ukraine	42.7	42.4	42.3	-0.4
Relative share of the children who underwent checkups and required dental treatment (% from the amount of examined children)				
Kyiv	59.0	54.6	59.1	0.1
Ukraine	49.6	48.8	48.7	-0.9
Relative share of the children who received treatment during the checkups related to the children who required treatment (%)				
Kyiv	73.5	71.9	68.0	-5.5
Ukraine	83.3	82	78.5	-4.8
Relative share of those who received dental treatment during checkups and upon their own referral (%)				
Kyiv	113.7	41.5	36.8	-76.9
Ukraine	70.9	41.9	33.8	-37.1

one third of the examined patients (28.1%), who required dental treatment, hadn't received it before. Relative share of the patients who received dental treatment during regular checkups related to total number of adults who required it, being lower in Kyiv than in Ukraine, throughout all study period, and it tended to decline.

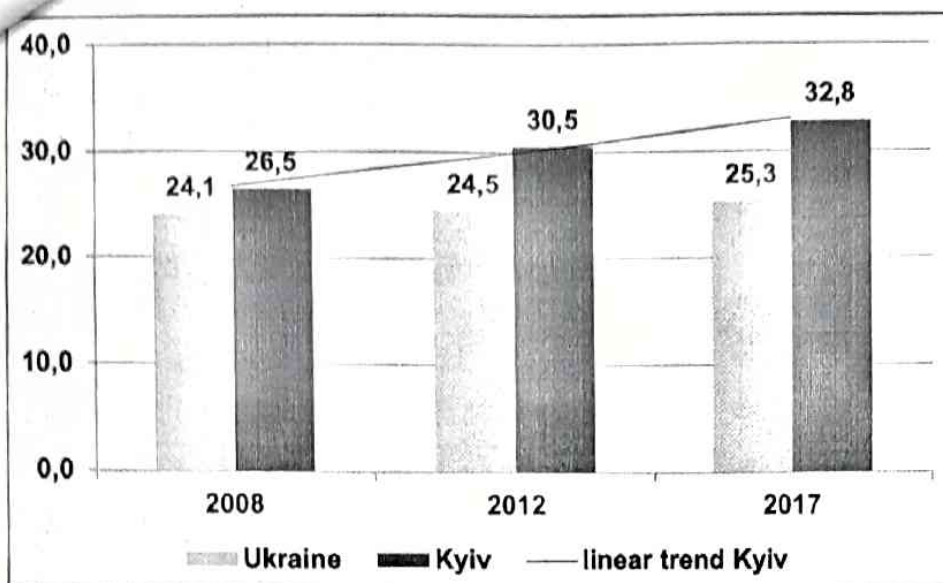
The relative share of those adult patients who received dental treatment during regular checkups and after their own referrals showed that in 2017 the share of such patients in Kyiv was only 16.5% of all adults in Kyiv, and 18.7% of

all Ukrainians. Compared to 2008, these characteristics decreased in Kyiv by 27.5% and in Ukraine – by 3.4%.

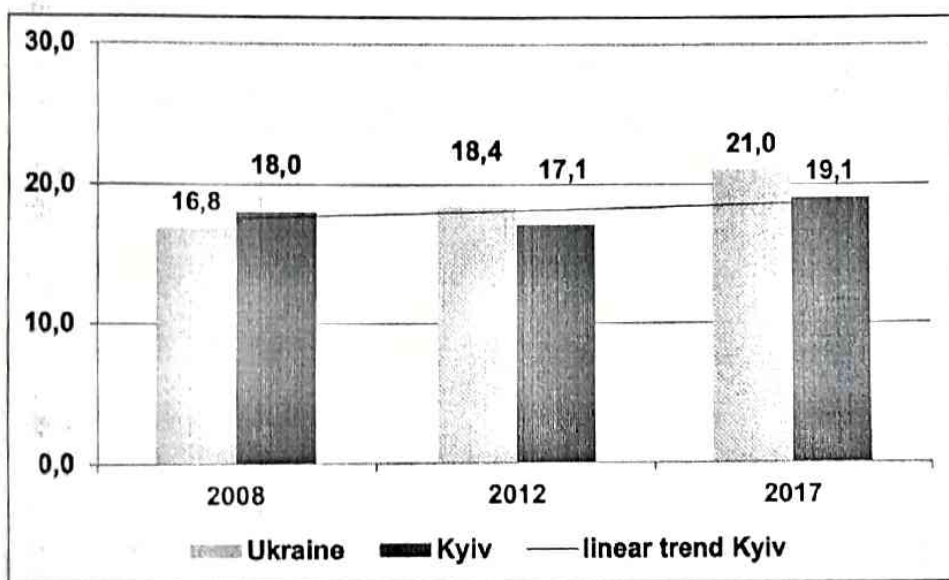
So, the cause of unsatisfactory stomatological health status of the adults is insufficient prophylaxis during both primary and secondary stomatological prevention, which is evidenced by negative dynamic pattern of regular prevention among adults in both municipal and state establishments of Kyiv and Ukraine.

The adult stomatological health is predisposed for children behavioral patterns [13,14], so conducting stomato-





**Fig. 1.** Relative share of complicated caries among adults, Kyiv, Ukraine 2008, 2012, 2017 (%) (own development according to the data of statistical reports)



**Fig. 2.** Relative share of complicated caries among the children, Kyiv, Ukraine, 2008, 2012, 2017 (%) (own development according to the data of statistical reports)

logical prevention among children is an urgent task of stomatological service of Ukraine.

Unsatisfactory stomatological health of children in Ukraine is confirmed by the fact that on average, in 2008, a 12-years-old child had 2.8 teeth treated for caries, filling or extraction. To compare: the same parameter for Germany, Great Britain and Finland made up 0.7 teeth [15].

The regular checkups and regular dental treatment parameters in children showed tendency toward significant decline during 2008-2017 of preventive measures conducted within the children of Kyiv and Ukraine (see table 2.).

So, if in Kyiv in 2008 each child was examined by the stomatologists more than once a year (relative share of the regularly examined children related to all population was 113.7%, in 2017 only 90.8% of all children were regularly examined by stomatologists. These data were considerably lower in all Ukraine (70.9% in 2008 and 56.4% in 2017).

For 10 years total amount of children dental visits has greatly declined, so, despite decrease in the amount of

children regularly examined for prevention, the relative share of regularly examined among all children referring for stomatological services, has stayed steady (49- 52% in Kyiv and 42-43% in Ukraine).

Unsatisfactory dental health of children is proved by the fact that among those children who underwent checkups, more than a half in Kyiv (54.6-59.1%) and a half in Ukraine (48.7-49.6%) required dental treatment.

The relative share of the children who were treated during the checkups in 2017 in Kyiv made up 68.0% of the children who required it, and, compared to 2008, it declined by 5.5%. I.e., in 2017 in Kyiv one third of the children (32.0%), who required dental treatment, hadn't received it. In Ukraine the relative share of the children who were treated during periodical checkups related to all children who required treatment, declined from 83.3% in 2008 to 78.5% in 2017.

The assessment of relative share of the children who received dental treatment during regular checkups and upon their referrals showed that in 2017 the percentage

**Table 3.** Share of patients who received dental treatment upon their referrals or regular checkups in private stomatological establishment in Kyiv and Ukraine 2008, 2012, 2017 (own development according to the data of statistical reports)

Region/years	2008	2012	2017	Absolute Increase 2017/2008
Relative share of adults who received dental treatment upon their referrals or regular checkups in private stomatological establishments (%)				
Kyiv	12.26	16.04	22.11	9.85
Ukraine	13.45	16.93	22.03	8.59
Relative share of children who received dental treatment upon their referrals or regular checkups in private stomatological establishments (%)				
Kyiv	0.72	1.62	3.65	2.93
Ukraine	0.76	0.75	1.19	0.43

of them in Kyiv corresponded to one third (36.8%) of all children living in Kyiv, while in 2008 all children received dental treatment, sometimes being treated several times a year (113.7% in 2008). The same tendency was observed in Ukraine: decrease of the percentage of the children who received dental treatment after regular checkups and upon their referrals (from 70.9% in 2008 to 33.8% in 2017).

The disadvantages of the dental treatment and prevention management in Kyiv are confirmed by the fact that each third (32.8%) carries case in adults and each fifth (19.1%) case in children is treated as complicated caries.

The dynamic analysis (fig 1, 2.) shows unfavorable tendency toward increase in the relative share of complicated caries treatment among the adults in Kyiv, from 26.5% in 2008 to 32.8% in 2017, and among the children from 18.0% to 19.1%, respectively. This tendency was characteristic for Ukraine in general.

The cause of this is decreased medical service availability and affordability. According to the studies conducted by State Committee of Statistics of Ukraine [16] the share of families in Ukraine where any family member couldn't visit the dentist even though he needed it, during last 12 months, increased from 7,51% in 2013 to 10,13% in 2017. The main cause of stomatological service low availability, as more than 98% of the surveyed suppose, is its high cost in both private and municipal stomatological establishments.

Poor availability of stomatological service and unsatisfactory management of prevention, including the hygienic education, is indirectly supported by those respondents who said that during last 12 months they had referred to the stomatologists in the state (14.5%) and private (7.8%) establishments. So, according to these results, during a year only each fourth Ukrainian refers to the stomatologists and three fourth don't receive stomatological attention during the year.

The results of the conducted study established that during last decade the role of private stomatological establishments in servicing adults has grown.

In Kyiv in 2017 110605 patients over 18years old were treated in private stomatological establishments upon their own referrals or after regular checkups, compared to 2008 this figure has increased 1.3 times. During this period the share of adults who were treated in the private stomato-

logical sector (related to the amount of adult citizens who received this service in all stomatological establishments of Kyiv, both private and state) has increased from 12.26% in 2008 to 22.11% in 2017. The same tendency was characteristic for Ukraine generally (tab.3).

As for the children, in 2017 in Kyiv 7333 children received dental treatment upon their own referrals or after regular checkups in private stomatological establishments which is 3.6% of all children treated in all stomatological establishments. I.e., though during last ten years the number of children treated in private establishments, both in Kyiv and Ukraine, has increased 1.3times, municipal and state stomatological establishments are still the most active and preferred regarding stomatological prevention.

## CONCLUSIONS

Authors have found significant decline in preventative measures during 2008-2017, which were rendered by municipal and state stomatological establishments of Kyiv. During 10 years relative share of those who underwent regular checkups has decreased among adults by 16.0% (from 44.0% in 2008 to 28.0% in 2017), and among children – by 22.9% (from 113.7% to 90.8%, respectively), relative share of the patients who received treatment upon their referral or after checkups has decreased among adults by 27.5% (from 44.0% in 2008 to 16.5% in 2017), among children – by 76.9% (from 113.7% to 36.8%, respectively).

The tendency toward increase of the private stomatological establishments' role regarding prevention among the adults has been detected. The share of the patients treated in private establishments among all adult Kyivites has increased from 12.26% in 2008 to 22.11% in 2017.

The prospective further studies may regard substantiation the concepts to the management of preventive stomatological service provided to the big city citizens and developing university stomatological clinic model, basing on the state and private partnership.

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*The Authors declare no conflict of interest*

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