

ЕПІДЕМІОЛОГІЯ, ОРГАНІЗАЦІЯ, ІСТОРІЯ

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O. V. Den 'ga, M. D., O. E. Rejzvikh, Ph. M. D., V. S. Ivanov, Ph. M. D.State Establishment "The Institute of Stomatology
of the National academy of medical science of Ukraine"**THE STOMATOLOGICAL MORBIDITY OF CHILDREN OF UKRAINE
DURING 1985-2011**

The data on the stomatological morbidity of children of Ukraine are given in the article. The contradictoriness of data, connected to the changes of the sources of water supply in some regions, attracts attention. At the epidemiological studies in 2011 in children of 6-7 years old, the authors revealed, that in average the frequency of dental caries of permanent occlusion equals 23,2 % at index CFET being 0,42.

At the comparison of the data from the identical reviews of 1985 and 2011 on the definite localities, the contradictoriness of data, connected to the changes of sources of water supply in some areas, attracts attention.

But there are some areas, in which during the last 19 years (1992-2011) the content of fluorine in drinking water was reduced, but the indices of frequency and intensity of caries have grown respectively from 8 % and by 2,1-2,4 times.

Key words: *epidemiology, dental diseases, child population of Ukraine.*

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У ДЕТЕЙ УКРАИНЫ
ЗА ПЕРИОД С 1985-2011 ГОДЫ**

В статье представлены данные о стоматологической заболеваемости детей Украины. Обращает на себя внимание противоречивость данных, связанных со сменой в некоторых регионах источников водоснабжения. При проведении эпидемиологических исследований в 2011 году у 6 - и 7-ми летних детей нами установлено, что в среднем распространенность кариеса зубов постоянного прикуса у них составляет 23,2 % при КПУз 0,42.

Ключевые слова: *эпидемиология, заболевания зубов, население Украины.*

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ЗА ПЕРІОД З 1985-2011 РОКИ**

В статті представлені дані про стоматологічну захворюваність дітей України. Звертає на себе увагу суперечність даних, пов'язаних зі зміною в деяких регіонах джерел водопостачання. При проведенні епідеміологічних досліджень в 2011 році у 6 - і 7-ми літніх дітей нами встановлено, що в середньому поширеність карієсу зубів постійного прикусу у них складає 23,2 % при КПУз 0,42.

Ключові слова: *епідеміологія, захворювання зубів, населення України*

Comparing the literary data of 1958 and the data of the examination of 12-year-old children in 1985 by the specialists of OSISR, the authors have paid attention at the growth of prevalence of caries. The frequency of caries in urban children has grown by 18,1 %, the intensity of process increased by 1.6

times. In rural area within this period the frequency of caries affection became twice as much. Index CFET has increased by 3,5 times (tab. 1).

Table 1

**The characteristics of the tendencies of the morbidity with caries
in 12-year-old children of Ukraine (according to the literary data and the ones from OSISR)**

Literary data (Maslenkova N.V., 1958)			The findings by the Institute of Dentistry (1985)		
place of investi- gation	prevalence		place of investi- gation	prevalence	
	frequency, %	intensity (CFE)		frequency, %	intensity (CFE)
urban	67,1	2,2	urban	85,2	3,6
rural	43,5	1,0	rural	89,7	3,5

Table 2

**The characteristics of the tendencies of the sickness rate of caries cases
in 12-year-old children of Ukraine**

place of investigation		frequency,%	intensity (CFE)
urban	1985	85,2	3,6
	2011	73,6	2,5
rural	1985	89,7	3,5
	2011	83,2	4,0

During the following 26 years (1985-2011) this tendency has changed. The frequency of the process in urban 12-year-old children reduces from 85,2 % in 1985 to 73,6 % in 2011, at that the intensity of the process reduces by 1.1 times. In children from rural area the index of the prevalence of the process has altered insignificantly – from 89,7 % to 83,2 %. Index of CFET has decreased only by 0,5 points (tab. 2).

1985 by the scale of prevalence of caries – entire, mass, high and low (WHO) – the level of morbidity with caries of 12-year-old children the 17 cities of Ukraine are referred to the entire level of morbidity with caries, 13 cities – with mass morbidity, 2 ones with high and only 2 cities – with low level of morbidity.

The intensity of affection with caries was estimated in children according the following levels – high (CFEt>6.0), medium (CFEt=3,0-6,0), low – (CFEt<3,0). In the structure of the intensity of the affection the medium level of affection equals 56,3 %, low level is 37,5 % and only 6.2% at the high level of intensity of affection with caries. The intensity of caries affection in children of Ukraine was divided as that: the high level of affection equaled 7,9 % of cities, the medium one – 44,7 %, and low level is 47,4 % of cities.

At the comparison of the data from the identical reviews of 1985 and 2011 on the definite localities, the contradictoriness of data, connected to the changes of sources of water supply in some areas,

attracts attention. Thus, in Poltava, where the source of water supply was changes, the frequency of fluorosis has reduced, but the prevalence of dental caries has grown by 2,4 times, index CFET has increased by 2,9 times.

The effectiveness of water fluorination is proved by the fact, that during 21 years (1971-1992) of fluorination of drinking water in urban village Kalush (Ivano-Frankivs'k region) the frequency of dental caries in 12-year-old children almost twice as reduced and equaled 48 % at decrease of index CFET by 1,6 times. But in 19 years after the stoppage of water fluorination in 2011 the frequency of the process grew by 25 %, and index CFET increased by 1,6 times. At that in “twin-city” Dolyna these indices remained unchanged during the last 19 years (tab. 3).

Intensity of affection of teeth with caries in the areas with water fluorination has changed during 40 years and in 19 years after stoppage of fluorination in different ways. Thus, in urban village Kalush in 19 years – the index has lowered by 1.6 times, and in 40 years returned to the previous one, having increased by 1.6 times. In u/v Kalush, located on the North of the country in mountain district, the abrupt reduction of fluorine concentration in table water has caused, to author's opinion, the fast rise of caries morbidity in 12-year-old children, in whom adaptive reactions at pubertal age are unstable.

At that in the fluorosis area (u/v Karlivka in Poltava region) during 26 years (1985-2011) the fre-

quency and intensity of caries has grown almost twice – 66,7 % and 2,0 correspondingly. Undoubtedly, some carious cavities are defects of enamel and dentine from fluorosis affection, but in connection to the identity of the research group these artifacts were minimized.

So, at the comparative analysis of the number of caries cases in children of 12 and 15 years old during 26 years the general tendency to the shortening of frequency and intensity of affection with dental caries

draws attention. This phenomenon is especially obvious in 12-year-old children. Thus, in Lviv the frequency and intensity of caries within this period has reduced by 25 % (from 96,7 % to 73 % and from 4,6 to 2.1 respectively), in Ivano-Frankivs'k – by 30 % (from 93,8 to 63 % and from 4.7 to 2.0 respectively), in u/v Skole – by 10% (from 100 % to 90 % and from 7,4 to 5.2 respectively). In 15-year-old these figures are much less and equal 5-10 % (tab. 4).

Table 3

**The frequency and intensity of dental caries
in 12-year-old children in some regions of Ukraine**

City	Year of investigation	Frequency of caries, %	Intensity of teeth affection with caries*
Lviv	1985	96,7	4,6
	2011	73,0	2,1
u/v Skole	1985	100	7,38
	2011	90,0	5,2
Ivano-Frankivs'k	1985	93,8	4,7
	2011	63,3	2,0
Odesa	1985	68,0	3,5
	2011	76,0	2,4
u/v Kalush	1985	48,0	2,4
	2011	73,0	3,5
u/v Dolyna	1985	97,8	4,9
	2011	93,0	4,9
Poltava	1985	29,7	0,8
	2011	70,0	2,3
u/v Karlivka	1985	32,5	0,87
	2011	66,7	2,0

Note: * – value of m do not overtop 10 % of value M.

Table 4

**The frequency and intensity of dental caries
in 15-year-old children in different regions of Ukraine**

City	Year of investigation	Frequency of caries, %	Intensity of teeth affection with caries*
Lviv	1985	88,9	6,7
	2011	80,0	4,1
u/v Skole	1985	96,7	7,4
	2011	100,0	3,6
Ivano-Frankivs'k	1985	96,9	5,3
	2011	86,7	4,7
Odesa	1985	78,0	4,6
	2011	80,9	3,0
u/v Kalush	1985	85,0	3,6
	2011	86,7	5,5
u/v Dolyna	1985	94,9	7,1
	2011	96,7	7,8
Poltava	1985	74,5	2,3
	2011	76,7	4,0
u/v Karlivka	1985	46,2	1,64
	2011	76,7	3,0

Note: * – value of m do not overtop 10 % of value M.

But there are some areas, in which during the last 19 years (1992-2011) the content of fluorine in drinking water was reduced, but the indices of frequency and intensity of caries have grown respectively from 8 % (u/v Kalush) and by 2,1-2,4 times (Poltava, u/v Karlivka).

At epidemiological investigations in 2011 in children of 6 and 7 years old the authors determined that on the average in Ukraine the frequency of dental caries of permanent occlusion equals 23,2 % at CF_{Ft} being 0,42. The lowest affection in children of 6 and 7 years old was noticed in u/v Dolyna (10 % and

0,17). The highest one was in Odesa (25,8 % and 0,42) and in u/v Karlivka (46,1 % and 0,85). The high frequency and intensity of dental caries in Poltava and u/v Karlivka is connected, evidently, to the second affection of teeth, affected with fluorosis. At the temporary occlusion the lowest affection is in children from Poltava and u/v Karlivka (63,3 % and 76,9 %) at the lowest intensity of affection (CF_{Ft} =1,83 and 2,38 respectively). The other regions of Ukraine at the average have the same frequency – from 90 % to 100% at CF_{Ft} from 4,70 to 7,43 (tab. 5).

Table 5

The frequency and intensity of dental caries in children of 6 and 7 years old in different regions of Ukraine in 2011

City	Frequency of dental caries, %		Intensity of teeth affection with caries*	
	Temporary teeth	Permanent teeth	CF _{Ft}	CFE _{Ft}
Lviv	100,0	24,1	5,62	0,48
u/v Skole	86,7	23,3	5,27	0,47
Ivano-Frankivs'k	90,0	16,7	4,70	0,37
u/v Kalush	96,7	23,3	7,43	0,40
u/v Dolyna	96,7	10,0	6,03	0,17
Poltava	63,3	16,7	1,83	0,33
u/v Karlivka	76,9	46,1	2,38	0,85
Odesa	81,5	25,8	3,46	0,42
Average	87,9	23,2	4,60	0,42

Note: * – value of m do not overtop 10 % of value M.

Table 6

The structure of the indices CF_{Fp} and CFE_{Fp} in children of 6 and 7 years old in different regions of Ukraine, %

City	Temporary occlusion			Permanent occlusion			
	C	F	complications	C	F	E	complications
Lviv	87,21	12,79	11,63	80,77	19,33	0,00	0,00
u/v Skole	93,83	6,17	12,43	100,0	0,00	0,00	42,55
Ivano-Frankivs'k	88,46	11,54	10,87	43,40	56,60	0,00	13,04
u/v Kalush	98,30	1,70	12,62	100,0	0,00	0,00	0,00
u/v Dolyna	93,42	6,58	18,52	100,0	0,00	0,00	0,00
Poltava	79,27	20,73	6,54	81,82	18,18	0,00	0,00
u/v Karlivka	88,64	11,36	0,00	95,29	4,71	0,00	0,00
Odesa	46,87	53,13	18,32	35,56	64,44	0,00	21,31

At studying the components of the index CF_{Fp}, the authors have paid attention to the fact, that in this age group (except in Odessa) dental caries prevails (from 52,22 % to 98,30 %), and the complications of which are from 0 % (u/v Karlivka) to 18,52% (u/v Dolyna) (tab. 6).

In the index CFE_{Fp} the same tendency remains. Unfortunately, in all examined regions, except Ivano-Frankivs'k (43,40 %) and Odesa (35,56 %), dental caries equaled from 80,77% (Lviv) to 100 % (u/v Skole, u/v Kalush, u/v Dolyna).

Studying the changes in the structure of index CFE_{Fp} in 12-year-old children in investigated regions of Ukraine, the authors have observed the consider-

able growth of the number of filled teeth in comparison to carious ones (Lviv, Ivano-Frankivs'k, u/v Kalush, u/v Dolyna). Yet, in some regions the number of carious teeth has increased considerably in comparison to the filled ones (u/v Skole, Poltava, u/v Karlivka). So, in Poltava in 1985 the ratio C:F was 2,1:1, in 2011 it was already 5,2:1. In u/v Karlivka in 1985 the ratio C:F equaled 1:6, now – 6,2:1. The changes of the components of the index CFE_{Fp} in 12-year-old children in different regions of Ukraine during 26 years (from 1985 to 2011) are given in the tab. 7.

In 15-year-old teenagers these changes are almost the same. So, if earlier (in 1985) in Lviv in

such patients the ratio C:F equaled 1:1,1, in 2011 it is 1:4. In Ivano-Frankivs'k this ratio in 1985 was 1,5:1, in 2011 – 1:12,6. In u/v Kalush and u/v Dolyna these ratios have improved less considera-

bly. Thus, in u/v Kalush earlier C:F was like 1:1, at present it is 1:2,5. In u/v Dolyna the ratio equaled 1:2 in 1985 and 1:3 in 2011.

Table 7

The changes of the structure of the index CFE_p in 12-year-old children in different regions of Ukraine during 26 years

City	Year of investigation	CFE _p , abs.					CFE _p , %			
		C+F+E	C	F	E	comp.	C	F	E	comp.
Lviv	1985	139	78	58	3	–	56,1	41,7	2,2	–
	2011	76	33	42	1	4	43,5	53,3	1,2	11,8
u/v Skole	1985	213	78	128	7	0	36,6	60,1	3,3	0
	2011	190	107	76	7	28	56,42	40,0	3,6	26,05
Ivano-Frankivs'k	1985	149	94	53	2	0	63,1	35,6	1,3	0
	2011	74	19	55	0	5	25,6	74,4	0	25,4
u/v Kalush	1985	94	78	14	2	0	83,0	15,0	2,0	0
	2011	134	41	92	1	3	30,6	68,7	0,7	7,3
u/v Dolyna	1985	219	105	113	1	0	48,0	51,6	0,4	0
	2011	195	67	121	7	16	34,3	62,0	37	23,77
Poltava	1985	25	17	8	0	0	68,0	32,0	0	0
	2011	74	62	12	0	2	83,8	16,2	0	3,38
u/v Karlivka	1985	35	5	30	0	0	14,3	85,7	0	0
	2011	74	64	10	0	0	86,2	13,8	0	0

Table 8

The changes of the structure of the index CFE_p in 15-year-old children in different regions of Ukraine during 26 years

City	Year of investigation	CFE _p , abs.					CFE _p , %			
		C+F+E	C	F	E	comp.	C	F	E	comp.
Lviv	1985	180	84	90	6	0	46,7	50,0	3,3	0
	2011	149	30	119	0	4	20,0	80,0	0	13,0
u/v Skole	1985	220	105	105	10	0	47,7	47,7	4,6	0
	2011	121	53	57	11	14	43,7	47,1	9,2	26,7
Ivano-Frankivs'k	1985	168	97	66	5	0	57,7	39,3	3,0	0
	2011	168	12	149	7	1	7,1	89,3	3,6	7,5
u/v Kalush	1985	143	68	65	10	0	47,5	45,5	7	0
	2011	199	53	135	11	4	26,7	67,9	5,4	7,34
u/v Dolyna	1985	277	99	170	8	0	35,7	61,4	2,9	0
	2011	324	77	228	19	4	23,8	70,4	5,8	5,06
Poltava	1985	108	21	86	1	0	19,4	79,6	1	0
	2011	142	102	39	1	1	71,9	27,5	0,6	0,88
u/v Karlivka	1985	64	12	49	3	0	18,7	76,6	4,7	0
	2011	98	75	22	1	4	76,7	22,4	0,9	5,2

The planned preventive measures have worsened in Poltava and u/v Karlivka, where the ratio of carious and filled teeth before was 1:4.1. In 2011 it became 2,6:1 and 3,4:1 respectively. The change in

the components of index CFE in 15-year-old children in different regions of Ukraine during 26 years is given in the tab. 8.

