

## MEDICINAL PROVISION AND AVAILABILITY OF DENTAL CARE IN STATE ESTABLISHMENTS OF UKRAINE

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### Abstract

Providing affordable dental care to the general population and its qualitative medicinal provision is an urgent medical and social problem of Ukraine.

**The purpose:** to assess the dynamics of dental services in state (municipal) medical institutions and the level of necessary medicines availability, namely, drugs for local and general anesthesia, emergency care, treatment of diseases of the oral mucosa and periodontal tissues, antiseptics, and antibacterials ones.

**Materials and methods.** Medical-statistical method, the data of official statistical reporting of medical institutions of Ukraine, materials contributed by the State Statistics Committee of Ukraine as to availability of certain types of medical care and medicines.

**Results.** 60-80% of the present day Ukrainian population get dental care in the public health sector, but over the last decade the number of visits to dentists per capita in municipal and state-owned institutions has decreased significantly, as well as all types of dental care, including preventive, provided to the population has decreased, too. The population social stratification, reduction of budget funding of state (municipal) medical institutions has led to a decrease in the availability of dental care in this country. In 2020, according to a sample survey, every 7th resident of Ukraine was unable to visit a dentist and make prosthetics if necessary in these types of medical care. The main reason for this situation, according to 95.1% of respondents, is the high cost of dental services.

**Conclusions.** One of the ways to ensure affordable dental care for the population of Ukraine is to develop and approve a guaranteed level of free dental care for its socially vulnerable groups (children, people of retirement age), as well as the creation of socially oriented dental institutions on the base of public-private partnership.

**Keywords:** provision of medicinal preparations and dental materials, availability of dental care, state (municipal) dental institutions.

## Introduction

The results of special epidemiological studies show a very high level of dental morbidity in Ukraine, which is much higher than in Europe. The prevalence of caries of temporary occlusion teeth in 6-year-old children is 87.9% (in the European Union - 20%) with the intensity of CPE lesions - 4.6; the prevalence of caries of permanent occlusion teeth in 12-year-old children - 72.3% with the intensity of CPE - 2.75 (in the European Union - 1.5) [3]. At the same time, in Ukraine there is a reduction of the network and insufficient funding of state (municipal) dental institutions, commercialization of dentistry and impoverishment of the population, which leads to reduced access to dental care and negatively affects the health of the population [1, 2, 3].

Poor dental health, especially in children, has a negative impact on their overall health throughout life. In addition, there are currently strong pathogenetic links between dental and chronic non-communicable diseases. That is why, according to current WHO documents, oral health is a mandatory component of comprehensive prevention of chronic non-communicable diseases, which in the European region and in Ukraine, in particular, are the leading cause of premature death and disability. Thus, ensuring the availability of dental care can be considered not only as a medical, but also a significant medical, social and socio-economic problem of Ukraine, which needs to be urgently addressed.

**The purpose:** to analyze provision of medicines and dental materials, the dynamics of dental services rendering in state (municipal) medical institutions and the level of availability of dental care for the general population of Ukraine.

## Materials and methods

Analysis of the dental care provided to adults and children in Ukraine in institutions of communal and state ownership is carried out on the basis of reporting forms adopted in this country and materials produced by the "Center for Medical Statistics of the Ministry of Health of Ukraine" [7, 8, 9]. The analysis of the availability of dental care was carried out on the basis of representative sample surveys conducted by State Bureau of Statistics in 2018-2020 and published in statistical reference

books [4, 5, 6]. Data from a sample survey of general population on the state of their health and the availability of certain types of health care are a thematic module for the ongoing survey of living conditions. The sample of the persons under survey represents the entire population of Ukraine. Methods of statistical grouping, tabulation, generalization and comparison were used. To assess the dynamics of indicators, the growth rate in % was determined (GR, %). The statistical significance of differences between the indicators obtained in the sample survey was assessed according to Pearson's test ( $\chi^2$ ).

## Results

The analysis of statistical data of the "Center for Medical Statistics of the Ministry of Health of Ukraine" showed that the Ministry of Health has a strong network of medical dental institutions. In 2020, dental care was provided by 1,355 state and municipal health care facilities, including 168 independent dental clinics and 1,187 treatment and prevention facilities, which include budget and self-supporting dental departments or offices.

In recent years, the number of independent state / municipal dental clinics has decreased significantly due to their reorganization into dental units of central district or city hospitals. A significant decrease in the number of facilities that consisted of dental departments (offices) was mainly due to rural outpatient clinics, which were part of the Centers of Primary Health Care and other institutions as structural units, while previously they considered as independent. This merger led to a reduction in the positions of dentists.

In recent years, the volume of dental care in privately owned institutions has increased. In 2020, 617 independent dental clinics and 4,467 privately owned dental offices provided dental care to the population of Ukraine. The ratio of dentists in the public health sector to doctors working in the private sector in 2020 was 59.7% to 40.3%.

It is established that according to the state statistical reporting, municipal and state-owned institutions, despite the reduction of their network and positions of dentists in them, continue to play a leading role in providing dental care to the residents of Ukraine, especially to privileged categories and children. In 2020 they provided 68.4% of all visits of

Ukrainian residents to dentists, 63.1% of visits of adults and 88.7% of visits of children. Over the last decade, there has been a clear trend to reduce the share of visits to dental institutions of communal and state ownership due to the outflow of patients, primarily aged 18 y.o. and older, to private dental institutions.

The study found that despite the existence of a strong network of dental institutions in the system of the Ministry of Health of Ukraine, during 2008-2020 in Ukraine there was a significant reduction in the volume of dental services received by the population in public and state institutions.

Thus, the dynamic analysis of the average number of visits per capita of Ukraine revealed a significant reduction of this indicator, both among the total population (by 63.6%, from 1.1 in 2008 to 0.4 in 2020) and among the adult population (by 70.0%), and children (by 70.6%, from 1.7 in 2008 to 0.5 in 2020). The main reason for the sharp decline in the number of visits to the dentists in 2020 is COVID-19 pandemic. But the downward trend in this indicator was formed before the pandemic and it indirectly indicates a decrease in the availability of dental care and due to reduced number of dental offices, positions of dentists, lack of budget funds to finance dental care, absolutely scanty dental services covered by the national budget (National Health Service of Ukraine), the lack of costs for free prosthetics and increased prices for orthopedic and other dental services.

The leading activity of the dental service has always been the implementation of its preventive strategy aimed at maintaining the dental health of the population. The main ways of carrying out preventive work are sanitary education, planned preventive examinations and dental rehabilitation of the general population.

The analysis of preventive work of dental institutions of communal and state property showed that during the last decade there was a significant reduction in the volume of preventive services, especially provided to the adult population.

During 2008-2020, the share of those examined in the planned rehabilitation decreased among the adult population by 70.1% (from 22.1% in 2008 to 6.6% in 2020), and among children by 75.7% (from 70.9% to 17.2%), respectively. The share of those rehabilitated in the order of planned rehabilitation

and on appeals decreased by 65.6% among adults (from 22.1% in 2008 to 7.6% in 2020), and among children by 82.2% (from 70.9% to 12.6%), respectively.

Defects in the organization of preventive dental care cause unsatisfactory state of dental health of the Ukrainian population, that's why the main reason for going to the dentist is the treatment of caries. The share of appeals for the treatment of caries is consistently more than half of all appeals of adults and children to the dentist (in 2020, 52.1% and 51.5%, respectively).

Untimely receipt of dental care due to reduced availability leads to an increase in the proportion of cases of caries treatment at the stage of complications. Thus, in 2020, every fourth (27.7%) case of caries in adults and children (23.9%) was treated at the stage of complications.

In addition, in Ukraine more than half (in 2020 - 58.2%) of cases of malignant neoplasms of the oral cavity are detected in neglected stages (III – IV), which indicates the need for annual examinations of the oral cavity in order to detect precancerous conditions and cancer of the oral cavity.

Over the past decade, the volume of not only therapeutic but also all types of dental care provided to residents of Ukraine in municipal and state-owned institutions has significantly decreased. Thus, the number of persons who received dentures decreased by 64.3% (from 1.4 per 100 persons in 2008 to 0.5 in 2020), and the number of children who completed orthodontic treatment decreased by 60.2% (from 66.1 in 2008). to 26.3 per 10,000 children in 2020).

The decrease in the frequency of access to dental institutions of state / communal ownership, as well as the existence of problems in ensuring the availability of dental care for the population of Ukraine indicate not only the results of analysis of official statistical reports of health care institutions, but also data from specially conducted population surveys.

According to these surveys the percentage of families in which any of their members during the last 12 months was not able to receive medical care, purchase medicines and medical supplies equaled 19.2%.

41.2% of respondents, among those who could not receive medical care, indicated the impossibility to

visit a dentist, and almost a third emphasised the impossibility to perform dental prosthetics (29.6%).

Among all the persons under survey the share of people who could not visit the dentist at the case of necessity was 7.9% in 2020, and to make prosthetics, respectively - 5.7% (Table 1). That is, in 2020, 13.6% of respondents or every 7th respondent could not receive dental care if he needed.

The main reason for such low availability of dental care, according to 95.1% of respondents, is too high its cost in private institutions and low supply of dental materials and drugs of public dental institutions.

The availability of dental care largely depends on the financial capacity of population. In the groups of low-income, i.e. less than the average monthly size of the actual subsistence level (calculated by the Ministry of Social Policy), the share of people who could not visit the dentist and make prosthetics was probably higher than among all population (9.7 % and 7.3%, respectively,  $p < 0.05$ ).

The availability of dental care also depends on the age of the family members. In the families with children under 18 years of age, the share of family members who could not visit the dentist if necessary was probably higher (9.7% vs. 7.7%;  $p < 0.05$ ), and in the families with members older than 60 years the share of persons who failed to receive prosthetics (9.3% vs. 5.4%,  $p < 0.05$ ) was higher.

Other factors that differentiate the availability of dental care are place of residence - either an urban settlements or rural areas. The availability of dental services is lower for villagers. 9.0% of rural residents could not visit a dentist in the case of necessity vs 7.4% of urban dwellers. There was no statistically significant difference in the availability of prosthetics depending on the place of residence of the respondents (5.3% in rural areas and 5.9% in urban areas,  $p > 0.05$ ).

The low availability of dental care and low sanitary culture of the population is evidenced by a very small proportion of respondents who indicated that during the last 12 months they consulted a dentist in a public health institution (11.0%) or a dentist in a private institution (9.8%). That is, during the year, only every fourth inhabitant of Ukraine applies for dental care, and three quarters remain not examined by a dentist once a year.

The medical activity of the rural population is lower than that of the urban population. 9.0% of surveyed rural dwellers and 11.9% of urban residents sought medical and dental care from state and municipal health care institutions for 12 months ( $p < 0.05$ ). 8.6% and 10.3% of respondents, respectively ( $p < 0.05$ ) referred to private doctors.

In the dynamics, both in urban and rural areas, there is a tendency to increase the frequency of visits to private dental institutions and a decrease in the number of dentists in state and municipal medical institutions.

Among the adult population, pensioners are the least likely to go to the dentist - only 9.3% of men and 8.6% of women over 60 y.o. have visited a dentist in public / municipal institutions and 5.6% and 6.5%, respectively, in private institutions.

The frequency of visits to dentists among children is low, too. Thus, according to the results of a survey of families members, children under 3 y. o. were examined by a dentist in only 1.3% of cases during the last 12 months. Most often, young men of conscription age (16 - 17 y. o.) received dental care. 20.8% of them got it in state dental institutions and 13.5% - in private ones. But even among them, only every third young man visited a dentist in the last 12 months.

The state of dental health of the adult population is formed in childhood, so the implementation of preventive dental measures among children, which include annual preventive dental examinations, is an urgent task of state and municipal dental institutions.

Negative trends in the state of dental health of the Ukrainian population, the reduction of preventive care and the availability of dental care, its insufficient medicinal provision are noted by a lot of researchers [1, 2, 3]. The existence of these problems necessitates the development of expansion and approval of a guaranteed level of dental care for the population of Ukraine, funded by the state (National Health Service), especially for its vulnerable groups, and the justification of new organizational forms of dental care, including cooperation of the National Health Insurance Fund and on the basis of public-private partnership.



## Conclusions

Health of Ukraine has a strong network of medical dental institutions. It has been established that over the last decade the network of institutions and subdivisions in communal and state-owned dental institutions has been reduced and the network of private dental institutions and offices has been expanded.

2. It is shown that dental institutions of communal and state forms of ownership, despite the reduction of their network and positions of dentists in them, continue to play a leading role in providing dental care to the people of Ukraine.

3. There is a negative trend to reduce the number of visits to dentists per capita in public and state institutions, as well as a significant reduction in all types of dental care, including preventive, provided to the population in these institutions, associated with low level of logistical and medical support of state health care institutions and high cost of dental services in the commercial sector of dentistry.

4. Problems in ensuring the availability of dental care for the population of Ukraine have been identified. In 2020 every 7th resident of Ukraine was unable to visit a dentist and make prosthetics if necessary. The main reason for this situation, according to 95.1% of respondents, is the high cost of dental services. This indicates the need to develop and approve a guaranteed level of free dental care for the population of Ukraine, especially for its vulnerable groups, in particular children and persons of retirement age.

Another way to solve the problem of ensuring the availability of dental care is to create socially oriented dental structures with joint responsibility of the state and private business, in particular on the principles of public-private partnership. This s determines the prospects for further research.

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**Table 1.** Availability of dental care and frequency of visits to the dentist of the population of Ukraine according to the results of a sample survey \*

Indicator	2018	2019	2020.
Proportion of an average family members who, if necessary, could not visit the dentist, %			
Among all family members	8.3	8.6	7.9
In urban areas	8.2	8.5	7.4
In rural areas	8.4	8.7	9.0
Proportion of an average family members who, if necessary, could not make dental prosthetics, %			
Among all family members	6.1	5.7	5.7
In urban areas	6.3	5.8	5.3
In rural areas	5.8	5.4	5.9
The share of an average family members who during the last 12 months consulted a dentist in a state medical institution, %			
Among all family members	14.9	12.9	11.0
In urban areas	15.1	12.2	11.9
In rural areas	14.6	14.5	9.0
The share of an average family who have consulted a private dentist during the last 12 months, %			
Among all family members	9.7	9.8	9.8
In urban area	10.5	10.3	10.3
In rural areas	7.8	8.7	8.6
Number of sample population (number of an average family members surveyed)			
Total	38549	38391	38105

\*The table shows the indicators calculated on the basis of statistical data published by the State Statistics Committee of Ukraine in the directories "Self-assessment of the population's health status and the level of availability of certain types of medical care" for 2018-2020.