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O.I. Koval, O.A. Kaniura  
Bogomolets National Medical University, Kyiv

## ORGANIZATION OF DENTAL CARE FOR UKRAINIAN CHILDREN DURING MARTIAL LAW

e-mail: Okoval78@ukr.net

The war changed the lives of Ukrainians and presented them with new challenges. Not all children can receive proper medical, including dental care, at their place of residence due to constant shelling and systematic destruction of critical infrastructure. The humanitarian disaster has increased the risk factors for the growth of dental morbidity among children. This sets new tasks for the children's dental service to organize the provision of dental care to children under martial law in Ukraine. We have analyzed the dental care experience of children in Ukraine during martial law. We studied the organization and provision of medical and advisory assistance, including to children of Internally Displaced Persons; training in oral hygiene for children with disabilities, children of Internally Displaced Persons, low-income families, etc.; sanitary and educational work on the dental health of children among parents. Also, we access the Organization of Emergency Medical Care for children of Ukraine who were forced to cross the border, as well as the Organization of Humanitarian Assistance of medical direction directly to children (personal hygiene products, etc.) and medical institutions. In martial law, the priority is the choice of conditions for rehabilitating the oral cavity under general anesthesia, for the smooth operation of which strategic reserves of material and technical support are necessary.

**Key words:** martial law, dental sanitation, children, general anesthesia, humanitarian aid.

O.I. Коваль, О.А. Канюра

## ОРГАНІЗАЦІЯ СТОМАТОЛОГІЧНОЇ ДОПОМОГИ ДІТЯМ УКРАЇНИ В ПЕРІОД ДІЇ ВОЄННОГО СТАНУ

Війна змінила життя українців та поставила їх перед новими викликами. Не всі діти можуть отримати належну медичну, в тому числі стоматологічну допомогу за місцем проживання внаслідок постійних обстрілів та системного руйнування критичної інфраструктури. Гуманітарна катастрофа посилила фактори ризику зростання стоматологічної захворюваності серед дітей. Це ставить нові завдання перед дитячою стоматологічною службою щодо організації надання стоматологічної допомоги дітям в умовах дії Воєнного стану в Україні. Нами проведено аналіз досвіду стоматологічної допомоги дітям України в період дії Воєнного стану, а саме: організації та надання лікувально-консультативної допомоги, в тому числі і дітям внутрішньо переміщених осіб; навчання гігієни порожнини рота дітей з інвалідністю, дітей внутрішньо переміщених осіб, малозабезпечених сімей, тощо; санітарно-просвітницької роботи щодо стоматологічного здоров'я дітей серед батьків; організації надання невідкладної медичної допомоги дітям України, які були вимушені перетнути кордон а також організації гуманітарної допомоги медичного напрямлення безпосередньо дітям (засоби індивідуальної гігієни, тощо) та медичним закладам. За результатами досліджень: в реаліях Воєнного стану пріоритетним є вибір умов проведення санації порожнини рота під загальним знеболенням, для безперебійної роботи якого необхідні стратегічні запаси матеріально-технічного забезпечення.

**Ключові слова:** воєнний стан, стоматологічна санація, діти, загальне знеболення, гуманітарна допомога.

*The study is a fragment of the research project "Clinic, prevention and treatment tactics of oral cavity diseases in children against the background of combined pathology", state registration No. 0122U000493.*

The war changed the lives of Ukrainians and presented them with new challenges. Active military operations in the southeastern regions of our country and constant shelling of several border regions forced a large number of the population to leave their places of permanent residence. The Annual Report of the Commissioner for Human Rights of the Verkhovna Rada of Ukraine (2022) states that almost 70 % of Ukrainian children were forced to leave their homes and move within the country or abroad. Children were most affected in the Donetsk, Kharkiv, Kyiv, Mykolaiv, Zaporizhzhia, Kherson, Chernihiv, Luhansk and Dnipropetrovsk regions. Not all children can receive proper medical, including dental care, at their place of residence due to constant shelling and systematic destruction of critical infrastructure [8]. The humanitarian disaster has increased the risk factors for the growth of dental morbidity among children. This

sets new tasks for the children's dental service to organize the provision of dental care to children under martial law in Ukraine.

However, the analysis of literary sources proved that there are currently only a small number of publications on this topic [1, 7]. Other domestic authors' publications cover mainly questions about the state and prospects of military dentistry's development, its reform, analysis of the prevalence of major dental diseases among military personnel, and improvement of providing them with dental care in peacetime. Most foreign publications analyze the issue of damage to the maxillofacial area during military operations and the improvement of their surgical treatment [11].

Therefore, the issue of providing dental care to children during Martial Law is relevant.

**The purpose** of the study was to determine the need for a variety of dental care for children during Martial Law and to analyze the provision of dental care in different formats.

**Materials and methods.** According to the current legislation, dental care was provided to the Ukrainian population practically from the first days of the war [4, 6]. It included:

1. Organization and provision of medical and advisory assistance, including to children of internally displaced persons (IDPs) based at the Bogomolets Dental Medical Center of NMU (1,108 children from all corners of Ukraine (radius of patients' treatment – more than 830 km)). The group of children included children of Internally Displaced Persons (411), children with disabilities (184), children from families of military personnel (236) and others (277).

2. Oral hygiene training for children with disabilities, IDPs, low-income families, orphans, etc., was carried out at the bases of National Clinical Hospital Okhmatdyt, Municipal Non-Commercial Enterprise "Center of Primary Health Care No. 2 of Kyiv, Center for Development of Children with disorders of the autistic spectrum "I believe in you", general education schools of Kyiv (over 1,600 children in total).

3. Sanitary and educational work on children's dental health among parents (online lectures) and support for parents during migration (care recommendations, recommendations on providing primary care for dental injuries, compiling a dental travel first aid kit, etc.).

4. Organization of emergency medical care for children of Ukraine who were forced to cross the border.

5. Organization of humanitarian aid for medical referrals directly to children (individual hygiene products, etc.) to the University Clinic and Dental Medical Center of Bogomolets NMU.

**Results of the study and their discussion.** 1,558 operations were performed, mainly surgical operations (715 operations). 534 operations were performed for therapeutic manipulations and 309 – comprehensive dental rehabilitation of therapeutic and surgical directions (Fig. 1).

After surgical manipulations, each patient (legal representative) was given recommendations for repeated examinations (after 2–7 days, followed by dispensary supervision every three months), oral care with an individual selection of personal hygiene products, and orthodontic support of a dental patient to prevent the development of maxillofacial anomalies. 37 % followed recommendations (not in full) due to the migration of children abroad and the remoteness of their place of residence.

Therefore, we believe it is appropriate to perform oral cavity sanitation under general anaesthesia during martial law.

Implementing preventive measures is essential to reducing the prevalence and intensity of the main dental diseases, both among children and adults. Much attention is paid to sanitary and educational work issues and dental hygiene education for children and their parents to preserve and maintain dental health.

It is known that rational oral hygiene is the basis of dental prevention. That is why we conducted oral hygiene lessons for children from different socioeconomic strata. We discussed the leading causes of dental caries, the importance of proper and regular oral hygiene care, and the need to visit the dentist at least twice a year to prevent this disease. The children were shown on a model how to brush their teeth correctly, which aroused great interest in them. At the end of the lesson, the children received gifts (toothbrushes, toothpaste, motivational colouring pages, personal hygiene products, etc.) (Fig. 2). A children's drawing competition dedicated to preventing dental diseases (online) was held for World Children's Day to motivate children to participate in dental health.

This type of assistance in dental literacy causes positive emotions in children, which are imprinted in their memory for a long time after a difficult period of life. In this way, a positive stress perception of dental care is formed, forming a positive thinking and attitude towards dental treatment in the future. According to the survey results, 89 % of children could reproduce the provided information in their memory after three months, thanks to positive emotions. The children remembered that oral care is an essential component of health.

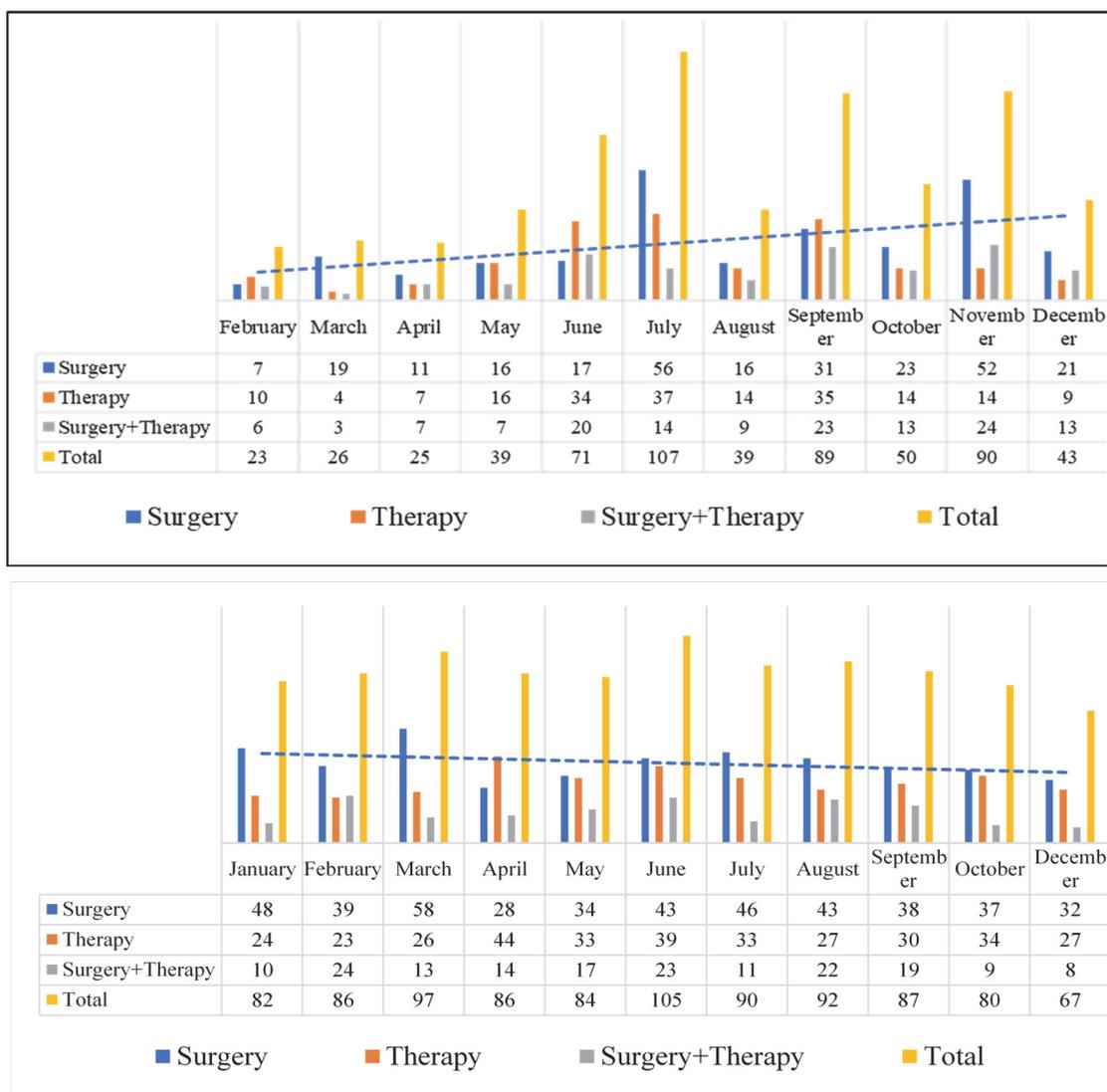


Fig. 1. The number of operations performed by the directions of the performed manipulations: surgical, therapeutic, therapeutic+surgical. A – Operations performed in 2022, B – Operations performed in 2023.

When providing medical and advisory assistance, we surveyed parents regarding the importance of individual oral hygiene, treatment of temporary teeth, formation of a physiological bite, etc. According to the results of the survey:

- Parent's awareness of the rules of individual oral care amounted to 32 %;
- Possession of practical oral care skills of children of younger preschool age – 16.7 %;
- Awareness of the prevention of dental diseases – 24.5 %;
- Awareness of orthodontic support for the prevention of maxillofacial anomalies with high intensity of caries and its complications – 44.1 %;
- Awareness of the formation of the child's dental-maxillofacial system – 34.4 %.

Considering parents' low level of knowledge regarding the formation of a physiological bite of healthy teeth in children, it was decided to conduct sanitary and educational work among parents in an online mode, which is regulated by current legislation. Taking into account the population's migration, recommendations have been developed for the care of the oral cavity in the case of various infectious diseases and the provision of first aid for dental injuries. All information was provided to parents (legal representatives) online, where the central positions regarding urgent care for children with various dental diseases, compiling a dental travel first aid kit, etc., were highlighted. Separately, lectures on oral care were held for parents (legal representatives) of children with disabilities. The features of individual hygiene at home, considering the primary disease, were highlighted.

According to the survey results, 98 % of parents (legal representatives) considered the lecture valuable material for their everyday lives.

The next urgent issue we tried to solve was providing dental care to Ukrainian children abroad. The forced immediate migration of children, the language barrier, the lack of knowledge of the structure

of dental care provision, and the high intensity of caries – all formed the need of Ukrainians for support. In the Annual Report of the Commissioner for Human Rights of the Verkhovna Rada of Ukraine (2022), most of the population migrated to Poland, Germany, France, and Norway.



Fig. 2. Teaching oral hygiene to children of different population groups.

With the support of volunteer organizations and by monitoring health programs for refugees in different countries of the world, we highlighted clinic addresses and the logistics of dental support abroad in online lectures. The coordinates of Ukrainian doctors were also left for feedback (a Telegram channel was created).

According to the application results, about 324 children under 18 applied for urgent dental care abroad in 2022 based on our recommendations.

Therefore, supporting the population in the feedback mode provides a sense of confidence and security and reduces stress in forcibly displaced persons.

To ensure uninterrupted dental care for children from the first days of martial law's introduction, we independently organized the provision of humanitarian aid by medical referral (Fig. 3). In particular, four new breathing apparatuses were delivered from Germany, which were used to equip the ambulances of the University Clinic of Bogomolets NMU. A new 4-phase generator was delivered from Hungary to ensure uninterrupted dental care operation for children under general anaesthesia. The delivery of consumables, medicines, tools, personal hygiene products, vitamins, etc. was also organized.



Fig. 3. Organization of humanitarian aid.

Considering the high level of caries intensity in children ( $8\pm 0.79$ ), their unsatisfactory psycho-emotional background and social-living conditions, and forced migration, which made it impossible to carry out high-quality dental treatment in a short period of time, we preferred to provide dental care under general anesthesia [2, 5, 10].

Therefore, our data regarding the complexity of organizing dental care for the population during the period of martial law coincide with those of other authors [1, 3, 4, 7, 8]. Also, in the literature, there are data that relate to the psychological balance of the population in such a difficult time [5]. On the other hand, the psychological state of the population, particularly children, at a dental appointment or visit, which causes stress for children during the imposition of a stressful situation related to military actions, has not been studied.

Also, the literature does not cover data on the organization of providing dental care to the population of children during the Martial Law period, including not only psychological aspects but also material and technical support, the absence of which justifies the creation of strategic reserves to ensure the uninterrupted work of children's dentists.

Thus, the lack of a structure for the provision of dental care to the population during the period of martial law motivates the development of recommendations for the provision of emergency and planned dental care in the conditions of martial law, which can be widely used in medical institutions of our country.

### Conclusions

1. In martial law, the priority is the choice of conditions for rehabilitating the oral cavity under general anesthesia, for the smooth operation of which strategic reserves of material and technical support are necessary.

2. The lack of sanitary and educational work at various levels contributes to high caries intensity in children, leading to the risk of dental and jaw anomalies. Therefore, to improve the population's dental health, it is necessary to conduct consultations on individual oral hygiene, including using the possibilities of modern technologies.

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