

ORIGINAL ARTICLE

Conceptual approach to improving dental care under new socio-economic conditions

Viktor Y. Yelenskyi

STATE INSTITUTION OF SCIENCE «CENTER FOR INNOVATIVE HEALTHCARE TECHNOLOGIES» STATE ADMINISTRATIVE DEPARTMENT, KYIV, UKRAINE

ABSTRACT**Aim:** To define a conceptual approach to the development of a model for improving dental care under new socio-economic conditions in Ukraine.**Materials and Methods:** The study used official statistical data from the Public Health Center of the Ministry of Health of Ukraine, the State Statistics Service of Ukraine, and the Institute for Health Metrics and Evaluation (IHME) regarding the prevalence, incidence, and burden of oral diseases (DALYs) for the period 1991–2023. A sociological survey was conducted among 413 dentists, 360 family physicians, and 368 patients. Bibliographic, descriptive statistical, and analytical methods were applied.**Results:** Negative oral health trends, including increased prevalence of dental diseases and a high disease burden, were accompanied by a reduction in public dental infrastructure, insufficient prevention and financing, and decreased access to care, particularly in rural areas. The prevalence of edentulism demonstrated the most pronounced upward trend, particularly among women: by 44% in the 15–49 age group, by 27% in the 50–59 age group, and by 8% among those aged 70 years and older. The incidence of oral diseases among the adult population overall decreased by 5% during the study period, which may indicate a low rate of healthcare utilisation. However, the incidence of edentulism increased, particularly among women aged 15–49 years (by 39%) and 50–69 years (by 18.2%). The prevalence of oral neoplasms rose by 47.5%. $43.3 \pm 2.6\%$ of family physicians consider oral health assessment exclusively the responsibility of dentists. Although $42.2 \pm 2.6\%$ report examining the oral cavity, this is confirmed by only $23.4 \pm 2.2\%$ of patients. Only $27.8 \pm 2.4\%$ provide preventive advice on oral health.**Conclusions:** Improving the accessibility and quality of dental care requires modernization of the system through diversified financing and a comprehensive conceptual framework encompassing key organizational, financial, technological, educational, preventive, and workforce components.**KEY WORDS:** oral cavity, model, organization, indicators, financing

Wiad Lek. 2026;79(8):1827-1833. doi: 10.36740/WLek/235898 DOI

INTRODUCTION

The current stage of development of the dental sector in Ukraine and worldwide is characterised by the search for optimal models of organising dental care that can ensure a balance between economic efficiency and social accessibility [1].

The World Health Organization (WHO) defines key dimensions of the health system as a foundation for ensuring equitable, timely, and effective healthcare, particularly for vulnerable population groups (AAAQ): availability (availability of qualified healthcare professionals, functional infrastructure, and essential medicines); accessibility (access to healthcare facilities and services for all without financial or geographical barriers); acceptability (healthcare services should respect medical ethics and be responsive to gender and life-course requirements of the population); and quality (services must be safe, effective, patient-centred, timely, efficient, and equitable) [2].

In most countries, dental services require substantial co-payments, resulting in high out-of-pocket expenditures for patients. Therefore, socio-economic status is a key determinant of access to dental care, although other factors such as geography, age, and comorbidities may also hinder access and influence outcomes. Furthermore, in most oral healthcare systems, service coverage is predominantly treatment-oriented, with less emphasis on preventive care [3]. This is why the guiding principle of the World Dental Federation (FDI) Vision 2030 programme is the integration of oral health into general health.

To achieve this, three main action areas have been identified: (1) recognition of the need for universal coverage of oral healthcare services, with a focus on prevention and early detection of diseases, bringing dental care closer to patients' places of residence, improving oral health outcomes at lower cost, and creating inte-

grated platforms to increase oral health awareness; (2) recognition that untreated oral diseases constitute a significant share of the burden of noncommunicable diseases; (3) planning resources in oral healthcare in collaboration with governments, educators, and oral health professionals [4].

The transformation of the healthcare system in Ukraine is taking place under conditions of unprecedented socio-economic challenges caused by full-scale military aggression, migration processes, and the transition to a new financing model through the Medical Guarantees Programme. Therefore, the conceptual goal of creating a model for improving dental care for the adult population should be to improve both its accessibility and quality.

AIM

To define a conceptual approach to developing a model for improving dental care under new socio-economic conditions in Ukraine.

MATERIALS AND METHODS

The materials of the study to assess the state of oral health and analyze the performance indicators of dental care institutions, statistical data from the Department of Medical Statistics of the Center for Public Health of the Ministry of Health of Ukraine, the State Statistics Service of Ukraine were used. In this study, data from the Institute for Health Metrics and Evaluation (IHME, USA) were selected and analyzed on the prevalence, primary morbidity and DALY burden of oral diseases (permanent caries, periodontal diseases, adentia) in the world and in Ukraine for the period 1991–2023. The study used a sociological method: to analyze the need, accessibility and quality of dental care, 413 dentists from public and private medical institutions were interviewed; to analyze the interaction between the patient and the family doctor regarding the prevention and treatment of dental diseases, 360 family doctors and 368 patients were interviewed. The analyzed data of the questionnaire survey using specially developed questionnaires by the author allowed to determine the need to improve the model of providing dental care to the adult population in view of the new socio-economic conditions. The work also used bibliographical, descriptive statistical and analytical methods.

ETHICS

During the preparation of the article, the principles of bioethics were observed in accordance with the require-

ments of the Declaration of Helsinki and the legislation of Ukraine, which was confirmed by the conclusion of the Bioethics Commission of the State Scientific Institution “Center for Innovative Healthcare Technologies” of the State Administration of Health Affairs.

AI STATEMENT

The ChatGPT 5.3 artificial intelligence (AI) tool was used in this work for the formation and formatting of the bibliography under the authors’ control. All sections using AI were reviewed and edited personally by the authors. The scientific statements, conclusions, and results are the authors’ own intellectual contribution.

FRAMEWORK

The research was conducted as part of the scientific project «Medical and social justification, development and implementation of a modern model of a system for continuous improvement of the quality of integrated medical care in the work of a multidisciplinary healthcare institution» (state registration number 0122U000232; term: 2022–2024) and «Medical and social justification, development and implementation of the «Center of innovative healthcare technologies» model based on the trinity of science, education and practice in the work of a multidisciplinary healthcare institution and determining its role in the formation of a single medical space» (state registration number 0125U000318; term: 2025–2029). The organization and conduct of the study did not require additional funding.

RESULTS

Among the key factors necessitating a revision of the current model of dental care delivery is, first of all, the unsatisfactory state of oral health.

The prevalence of permanent dental caries among the adult population in Ukraine increased across all age and sex groups over the period 1991–2023, with the highest rates observed among women aged 15–49 years (378.0‰) and the lowest among women aged over 70 years (252.3‰). The prevalence of edentulism demonstrated the most pronounced upward trend, particularly among women: by 44% in the 15–49 age group, by 27% in the 50–59 age group, and by 8% among those aged 70 years and older. The incidence of oral diseases among the adult population overall decreased by 5% during the study period, which may indicate a low rate of healthcare utilisation. However, the incidence of edentulism increased, particularly among women aged 15–49 years (by 39%) and 50–69

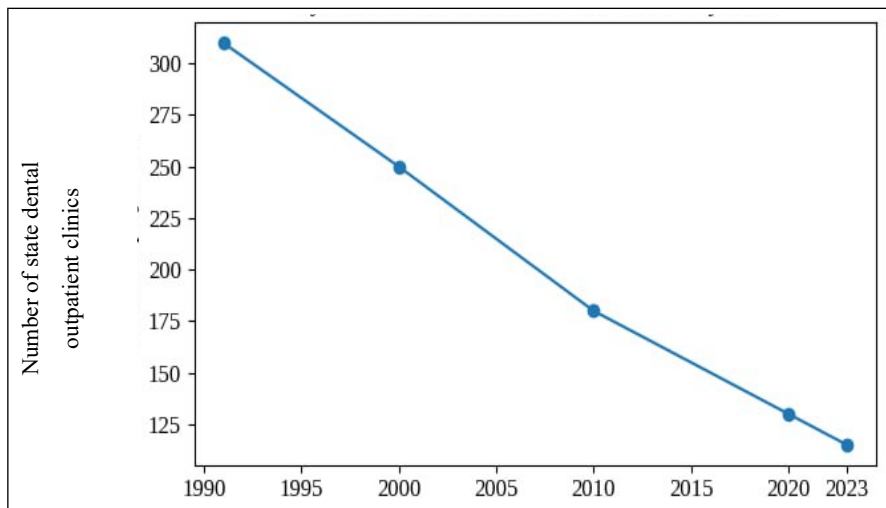


Fig. 1. Dynamics of reduction of state dental outpatient clinics in Ukraine in 1991–2023
Picture taken by the authors

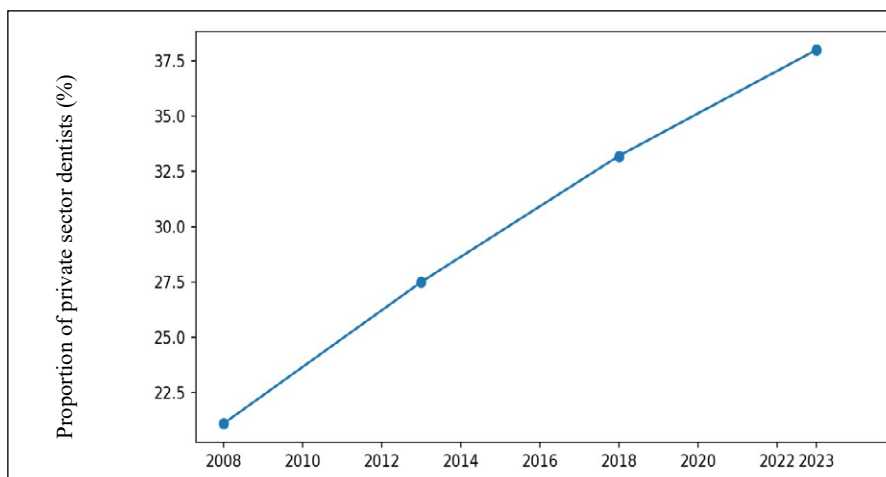


Fig. 2. Growth in the proportion of private sector dentists in 2008–2023
Picture taken by the authors

years (by 18.2%). The prevalence of oral neoplasms rose by 47.5%. The burden of disease due to edentulism remains significant, continuing to result in the loss of years of healthy and quality life to a greater extent than lip and oral cavity cancer (DALY values in Ukraine exceed global estimates by 39.7% and 50.1%, respectively) [5].

Undoubtedly, the increase in dental morbidity in Ukraine has been driven, among other factors, by the reduction and centralisation of dental facilities (Fig. 1), which has negatively affected the territorial and social accessibility of dental care [6]. In recent decades, a significant structural transformation of the dental care network has taken place. As of early 2024, dental care in Ukraine was provided by 1119 public institutions, of which only 115 functioned as independent polyclinics. Over the period 1991–2023, the number of independent public polyclinics decreased 2.7-fold, and the number of public institutions with dental departments or offices decreased 4.7-fold [7].

At the same time, the private sector (Fig. 2) expanded to 3552 facilities (390 dental outpatient clinics and 3162 dental offices) and now dominates the dental care market. However, between 2008 and 2023, the number

of private dental outpatient clinics declined by 13.9%, and private dental offices by 4.1% [7].

Structural changes in the sector have also been reflected in the workforce. The number of dentists working in public institutions decreased 2.1-fold, while in the private sector it increased by 5% between 2008 and 2023. The proportion of dentists employed in the private sector rose from 21.1% to 38%. The level of provision of dentists to the population decreased 1.6-fold, reaching 2.3 dentists per 10000 population; for prosthodontists, the decrease was 2.03-fold [7].

In 2021 the frequency of dental visits amounted to 9.5 visits to dentists in public institutions and 9.8 in private institutions per 100 surveyed household members. For urban residents, the respective figures were 9.3 and 10.3, and for rural residents 9.9 and 8.8. The higher utilisation of private dental services in urban areas may be explained by their greater accessibility and perceived quality, despite higher costs. According to official statistics, the total number of visits to private institutions is 2.1 times lower than to public ones. The number of visits per capita to public institutions decreased by 80% to 0.2 per year, and to private institutions by 9.1% to 0.1

per year. The most critical situation regarding access to dental care is observed in rural areas due to the elimination of dentist positions at the primary care level [7].

Against the background of increasing prevalence of edentulism in Ukraine, both the accessibility and the volume of prosthodontic care have declined: the number of individuals receiving dental prostheses (per 100 population) in public institutions decreased by 71.4%. Evidently, prosthodontic care is more accessible to urban populations than to rural populations (2.5 times higher in public institutions and 1.7 times higher in private institutions) [7].

When discussing access to prosthodontic care, it is also important to consider patients' ability to pay, particularly among the elderly, as well as their mobility and transport logistics to remote dental facilities.

Another important factor necessitating improvements in the dental care system is the insufficient level of public healthcare financing (only 2.6% of gross domestic product is allocated to healthcare compared to the WHO-recommended 6.4%), which results in high service costs. According to 75.3±2.1% of dentists and 64.4±2.5% of family physicians, the main barrier preventing patients from visiting a dentist is the high cost of services. However, 60.3±2.4% of dentists consider the cost of services to be adequate for the financial capacity of most patients, whereas 82.2±2.0% of family physicians regard it as excessively high.

Another pressing issue is the critical state of preventive care. In 2023, population coverage with preventive examinations remained extremely low: only 5.3% of the population underwent planned check-ups. Among those examined, 60.6% required oral sanitation/treatment, but only 61.7% received it [7].

The new financial and social mechanisms ensure free access only to emergency dental care for adults, while the minimal base tariff (consultation) for dental services (1,94 – 4,84 Euro) discourages private clinics from contracting with the National Health Service of Ukraine. A positive exception is the pilot project on dental prosthetics for Ukraine's defenders, under which 275 dental care providers were contracted in 2024 (93% of them public and municipal institutions) [8].

The development of dental services is hindered by the lack of widespread implementation of modern technologies based on evidence-based medicine, limited capacity to adhere to clinical protocols, outdated reporting indicators – particularly in public institutions – and the outflow of qualified specialists to the private sector [9].

At the center of a model for improving dental care should be the patient and the health of his oral cavity, since patient-centricity, as a measure of high-quality

medical services, is a focus on respecting the individual preferences, needs and values of the patient.

The search for optimal solutions to ensure a balanced coexistence of the public and private dental sectors, and their further regulation at the legislative level, should remain a priority for state authorities. The most likely policy options include [1, 10–12]:

- permitting revenue-generating activities within official working hours to compensate for service volumes and high-cost technologies not covered by budget funding, as well as staff remuneration;
- transitioning to lease-based management of dental facilities by staff collectives, with provision of a defined volume of services to preferential population groups under agreements with local authorities (state procurement), alongside legally regulated paid services for other population groups;
- corporatisation of dental institutions (preferably closed joint-stock companies) with preferential access to state contracts and deferred buyout of fixed assets;
- contracting private companies to manage and operate existing public or municipal healthcare facilities (franchising);
- introduction of universal health insurance.

The proposed model for improving dental care includes informational and analytical, technological, educational and methodological, preventive and health-improving components.

The fundamental block that can ensure optimal accessibility of dental care may be considered the resource and personnel support block, in which three segments should be distinguished: private, public, and family medicine. Private dentistry, as an alternative healthcare sector, creates healthy competition and contributes to improving quality; however, it also exacerbates inequalities by effectively dividing patients according to their financial capacity. Private dental institutions have significantly greater opportunities to utilise modern, high-cost technologies and equipment compared to public facilities.

An important approach is the involvement of family physicians in the prevention and early detection of oral diseases. However, there is often a lack of awareness regarding their role in monitoring and prevention, compounded by insufficient knowledge of dental pathology and preventive care. According to the survey data, it was established that 43.3±2.6% of family physicians consider oral health assessment exclusively the responsibility of dentists. Although 42.2±2.6% report examining the oral cavity, this is confirmed by only 23.4±2.2% of patients. Only 27.8±2.4% provide preventive advice on oral health. For regular visual examination of the oral cavity by family physicians, appropriate conditions

(e.g., lighting and mirrors) must be ensured, along with continuous professional training in oral health.

DISCUSSION

Disparities in oral health reflect inequalities in access to dental care, particularly between urban and rural populations and among low-income communities, due to geographic isolation and financial constraints. These challenges are especially acute for people with special needs. Limited access to dental services significantly contributes to these disparities. Integrating oral health into general medical education and primary healthcare can improve preventive measures and screening, leading to better treatment outcomes and reduced healthcare costs [13–15]. Patient-centred care represents a mutually beneficial partnership between healthcare professionals and patients, enabling shared decision-making [16]. Although most patient visits still occur in public institutions, approximately 10% of citizens have no access to dental care, particularly prosthodontic services. Therefore, new organisational models are required, including public–private partnerships [17, 18].

Accessibility of dental care is reflected in utilisation rates: 24% in India, 20% in Saudi Arabia, 24% in China, and around 20% in developing European countries. In the United States, the presence of health insurance schemes increases utilisation to 92.9% [19]. Resource mobilisation through universal health coverage enables financial risk-sharing across population groups, which is particularly important for low-income populations for whom treatment costs are often prohibitive [20]. Improving dental care is closely linked to the implementation of advanced management technologies that provide analytical information in four key areas: healthcare delivery, staff, patients, and finances [12].

Globally, healthcare quality control systems have evolved into comprehensive quality management systems, encompassing the organisation of care delivery and resource provision (technical, human, financial), and the implementation of modern standards and clinical protocols as essential conditions for ensuring high-quality dental services [21]. Higher education

institutions should primarily train general dental practitioners (family dentists), with opportunities for further specialisation after 2–3 years of practice [22]. The FDI promotes the integration of dental care into primary healthcare and universal health coverage to overcome barriers, particularly for low-income, vulnerable populations and refugees [23].

Integration of oral health into primary healthcare represents a strategic approach to improving access, reducing costs, and managing oral diseases as part of overall health, recognising the bidirectional relationship between oral and systemic diseases [24]. Educational efforts are essential to equip all healthcare professionals, particularly family physicians, with the knowledge, skills, and competencies required for effective prevention and management of oral diseases, as well as to improve oral health literacy among patients [4]. In the current context of healthcare reform in Ukraine, the conceptual approach to improving dental care should be based on the principles of patient-centredness, integration, intersectoral collaboration, and social justice. Experience from European Union countries shows that integrated models of dental care involving health insurance mechanisms and public–private partnerships contribute to reducing inequalities in access to dental services and improving population oral health indicators [25–27].

CONCLUSIONS

The state-managed dental care system requires modernisation; however, particularly in wartime conditions, the state lacks sufficient budgetary resources to equip dental facilities with modern equipment, materials, instruments, and technologies. Therefore, additional sources of financing are required, including out-of-pocket payments, employer contributions, and insurance mechanisms. Economic challenges, largely driven by the war, have affected the availability of dental care, especially for low-income groups and rural residents. A conceptual approach to the development of a model for improving dental care will help improve its accessibility and, consequently, its quality.

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CONFLICT OF INTEREST

The Author declare no conflict of interest

CORRESPONDING AUTHOR

Viktor Yu. Yelenskyi

Center of innovative healthcare technologies

5 Verkhnia St., 01014 Kyiv, Ukraine

e-mail: yelenskyi@gmail.com

ORCID AND CONTRIBUTIONSHIP

Viktor Yu. Yelenskyi: 0000-0002-7605-8001      

 – Work concept and design,  – Data collection and analysis,  – Responsibility for statistical analysis,  – Writing the article,  – Critical review,  – Final approval of the article

RECEIVED: 10.03.2026

ACCEPTED: 27.07.2026

