Guest Editorial

Oral Health Systems in Europe - an overview

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Oral diseases are important components of noncommunicable diseases (NCDs). Notably, oral diseases afflict people of all ages. They often involve pain and discomfort, loss of oral functioning, impair quality of life, and they may lead to loss of work or school hours [1]. The predominant diseases and conditions of the mouth are dental caries, periodontal disease, loss of natural teeth, and oral cancer.

Oral diseases are often associated with the major chronic diseases because of common risk factors, primarily an unhealthy diet rich in sugars, use of tobacco, and excessive consumption of alcohol [2,3]. In addition, social determinants in oral health and health care are strong [1].

Oral diseases are a major public health problem to all countries in Europe. However, as for other NCDs, oral diseases vary extensively across countries and within countries. Social inequities in oral health status and use of oral health services are universal. Substantial variations in oral health care by education, family income and geographical areas are established among children, adolescents, adults, and older people throughout the European Region. Availability and access to oral health systems are important factors in people's oral health status. The purpose of the present article is to outline the diversity of oral health systems in Europe; particularly, the variety of public and private involvement in health care is described. Additionally, the report provides important international statements on challenges to oral health systems development. The work is built on a regional survey carried out by the author among all European Chief Dental Officers 2018-2019. This survey was based on a World Health Organization structured questionnaire prepared for self-administration. Experts in oral health services research reviewed the final summary of answers.

Oral health systems in Europe

Traditionally, delivery models for oral health care have been organized separately from general health care. Oral healthcare differs from medical care in that most care is provided within the primary health care sector while hospital based oral health care is limited. Across the Region, delivery models are different as financing systems for oral health care range from public to private schemes, and provision of clinical care, disease prevention and health promotion depends on the structure of services and number and type of personnel available [4,5].

In the Nordic countries (Denmark, Iceland, Finland, Norway, and Sweden), the state has an authoritative role in providing oral health care. The public sector is largely school-based and serves pre-school children, school-aged children and adolescents who are all eligible to comprehensive oral health care free-of-charge. Salaried personnel are financed through national or local taxation. In the Nordic countries, private dental practitioners offer oral health care to adults delivered on a fee-per-item basis subsidized partly by a national health insurance. Meanwhile, Iceland has no public sector for oral health. Preventive programmes offered by the public and the private sectors are advanced. Special public health programmes exist for care of vulnerable groups and older people. Community involvement, family engagement, mass communication, various media, and public health events are vital in population directed health education for the development of healthy lifestyles.

In the United Kingdom, the National Health Service (NHS) is responsible for general oral health care to the population. Oral health care is offered free-of-charge to children, pregnant women and nursing mothers, and subsidized care exists for adults. The NHS is financed through general taxation and mainly general dental practitioners deliver oral healthcare. In addition, oral healthcare is delivered to special target groups, such as vulnerable or disabled people. The service is complemented by a community service for children conveyed by salaried dentists. Dentists under private contracts deliver now a growing part of oral healthcare outside the NHS. Preventive programmes and health promotion in relation to schoolchildren, adolescents, and adults are organized.

In Ireland, a new National Oral Health policy outlines a reoriented HSE Public Health Service, where general practitioners or local dentists provide most primary healthcare, including prevention, routine primary care and complex care for all ages. Advanced oral healthcare will take place in dental or general hospitals or other approved centers. Vulnerable children and adults, including people with disabilities and the very old elderly, will receive additional support from community health services. Reimbursement of payments in practice will also transform from a predominantly fee-per-item system to a mixed general dental practitioner payment scheme covering prevention and clinical care. Both public and private insurance systems are in place.

Countries like Germany, France, the Netherlands, Belgium, Luxembourg, Austria and Switzerland provide oral healthcare from the long-established statutory sickness insurance systems offering reimbursement of patient costs. Employers and employees contribute financially to healthcare and the sickness funds negotiated about the level of fees with the dental associations. Services rely upon private dental practitioners, as a public sector with salaried dentists is negligible.

In Southern Europe, private dental practitioners provide oral healthcare on demand for children, adolescents and adults. The involvement of governmental resources or third party payment systems are only limited; insurance schemes exist though for distinct population groups. Public services may offer some treatment for children, primarily dental emergency care. Oral health services are predominantly treatment oriented and public health initiatives are limited.

The oral health systems of Eastern Europe and Central Asia have gone through a major transition from a state delivery service towards systems based on a mixture of state and private provision [5]. Public service for oral health provided by salaried dentists/ stomatologists is particularly available for child populations. Private services based on demand for care with private and/or public insurance are increasingly introduced for adult people. Throughout the years, the restorative care approach has been dominant among dental professionals of these countries though the philosophy of disease prevention and health promotion is now being adapted slowly. A number of Eastern European countries being new member states of the European Union are in process of establishing clinical preventive care, whereas the importance of population-based prevention and health promotion is less recognized, especially in the Commonwealth of Independent States (CIS).

Workforce for oral health

Dentists provide clinical care in terms of dental health examinations, early detection of disease, prevention and restorative dental care, periodontal care, complex dental treatment involving fixed crowns, bridgework, dental implants, treatment with removable dentures, and minor oral surgery. In general, advanced oral surgery and orthodontic care are specialties. Throughout Europe, chairside assistants or dental nurses assist dentists in their clinical work while oral hygienists – when available – are involved with preventive care.

Delivery of care depends on availability and type of oral health personnel. The density of practicing dentists in countries varies from 65.5 dentists per 100 000 population in the European Union to 34.8 dentists in the Commonwealth of Independent States, and to 21.1 dentists in the Central Asian Republics [6]. In the EU/EEA countries, the ratio of population to oral hygienist is low on average approximately 13,500:1; figures are not available from CIS and Central Asia.

Population coverage

Unequal distribution of oral health professionals implies that access to primary oral health services is low in certain areas of Europe. Dental coverage to primary oral health care facilities varies by country from 18% to 99% in schoolchildren, 35% to 75% among adults, and from 20% to 90% in older people [7]. In parallel, significant differences within countries are reported for the proportion of people attending for immediate healthcare in case of problems with teeth or mouth, from 55.4% to 96.1%. The attendance rate for oral healthcare is high in many Western countries where a substantial number of people generally attain preventive and curative care [4]. The population coverage for preventive services is particularly high in the Nordic countries [8]. In contrast, substantial amounts of people remain uncovered by care in countries in Eastern Europe and Central Asia [5,7], primarily due to shortage of oral health personnel or important cost factors.

The economic burden

Oral healthcare is costly as treatment in European countries overall involves out-of-pocket payments. The proportion of oral health expenditures ranges from 22% in the Netherlands to 98% in Spain [9]. Spending on oral health care may be catastrophic to households and is heavily concentrated among poor and disadvantaged population groups, including older people and those suffering from chronic disease. The experience of a heavy financial burden of oral healthcare often leads to a high level of unmet need for treatment [10].

Patient safety and quality of care

Treatment is complex in patients with severe disease manifestations and management is becoming more challenging with the greater use of advanced technologies for dental care. The financial load to patients depends on the complexity of the treatment. Major harm to oral health is often due to the outcome from inappropriate diagnostic procedures, low quality of record keepings, and poor patient communication. Quality in dentistry is measured by considering consequences of clinical care and satisfaction by people with

care received. The European Regional Organization of the World Dental Federation (ERO-FDI) has prepared a self-assessment tool for improvement of quality in dental practice and work for optimal outcome of the health care delivery system [11].

New technologies and the Minamata Treaty

Across the world, dentists have used dental amalgam as a key restorative material to treat dental caries. Though effective for dental care, the work with dental amalgam may potentially release mercury into the external environment. Recently, the United Nations Environment Programme jointly with WHO [12] strengthened the efforts for protecting the environment from hazards. The so-called *Minamata Convention* emphasizes the need for phasing-down the use of dental amalgam through substitution of restorative materials with new or use of other dental supplies whenever possible. Across all countries, *Best Management Practices* of dentistry are crucial to manage potential hazards from clinical care and the use of dental amalgam. However, it is worth emphasizing that dental caries prevention is the best way to avoid the use of dental amalgam, and WHO has underlined clinical and public health strategies for such preventive work [1].

Public health action against risk factors

Oral health should be an integral part of the national health systems within which oral health professionals may contribute to intervention against the risk factors of chronic diseases, particularly consumption of sugars, use of tobacco, and alcohol prevention.

An unhealthy diet and poor nutrition affect oral health during development and later during the life-course. The WHO Guideline on Sugars Intake for Adults and Children [13] includes a strong recommendation that the intake of free sugars be reduced in both children and adults. It is a strong recommendation that the intake of free sugars shall not exceed 10% of the total energy intake. To protect oral health throughout the life course, WHO also suggests a further reduction to below 5% of the total energy intake. WHO further suggests how oral health professionals jointly with national health authorities may contribute to reducing sugar consumption [14]. Tobacco is a major cause of periodontal disease, premature tooth loss, ulceration, and oral cancer. Oral health professionals play a special role in tobacco prevention [15]. Advantages of involving dentists in tobacco prevention are:

- they are knowledgeable about tobacco cessation;
- they may encourage patients to stop using tobacco;
- they play a professional role in early detection of tobacco-induced oral conditions;
- they can inform patients about the benefits of tobacco cessation, and
- they form an integral part of a national cancer prevention programmes.

Effective use of fluoride in Europe

Dental caries is preventable through limiting the intake of sugars and effective use of fluoride. According to WHO, water, salt, milk, and toothpaste are important vehicles for the administration of fluoride [16]. The evidence on the use of fluoride for the prevention of dental caries is strong; importantly, the effective use of fluoride for prevention reduces inequities in dental caries. In Europe, the preventive effect of fluoridated water is shown in Ireland; the beneficial effect of fluoridated salt is confirmed in Switzerland, while the positive outcome of milk fluoridation is demonstrated in Bulgaria [16].

Continuous development of oral health systems

Effective oral health systems shall match the population needs and ensure that all people requiring care are covered by essential and financially fair oral health care. Moreover, the number and work experiences of oral health personnel in countries should be adequate and enable establishing outreach care, oral disease prevention and health promotion. Southern Europe and countries in Eastern Europe and Central Asia should strengthen population reach and preventive dentistry; the introduction of oral hygienists may facilitate such progress. Moreover, community directed activities should be recognized, as they are successful in raising the awareness of oral health among people and the significance of personal care for avoiding diseases of the mouth and promoting healthy lifestyles.

Important target groups

Oral health professionals give care to patients of all ages. Across Europe, children and adolescents, pregnant women, older people and vulnerable individuals are key target groups for oral health. In certain Western countries, community or school services offers dental care to children and adolescents. The Nordic countries have implemented advanced programmes encompassing systematic dental treatment, preventive dental care and promotion of healthy lifestyles in line with the WHO concept of Health Promoting Schools [17]. Thus, the national programmes are financed from public health resources and cover all children and adolescents. In countries in Southern Europe, school oral health programmes are rare and private dental practitioners then serve children and young people. Systematic schemes for oral health should be developed. In Eastern Europe, school dental services existed over decades but such programmes have closed down in some countries over

the past years. Hence, school oral healthcare should be revitalised or renovated for provision of systematic dental care and disease prevention of these target groups [17].
Evidence is readably available from European countries about the extraordinary high needs for oral health care of older people. Consequently, public health intervention for oral health of older or defenseless people should be established by building age-friendly and financially fair primary oral healthcare [18].

Surveillance

Just a few European countries have introduced oral health surveillance systems for the assessment of the population oral health, evaluation and the appropriate adjustment of the national oral health systems. In particular, surveillance systems are required in Southern Europe and countries of Eastern Europe and Central Asia. Countries should build integrated oral health surveillance systems to examine at what level national and regional oral health targets are achieved. The case of Ireland illustrates recently the significance of surveillance data for reforming oral health systems. Comprehensive national and regional oral health data were used for a complete reformulation of health policies and revitalization of the national oral health system according to the primary health care model. WHO policies were instrumental in reorienting the system towards disease prevention and health promotion of all target groups. Importantly, WHO has designed assessment tools for the surveillance of key population groups [19].

International response for public health

Recently, WHO as well as the United Nations have called upon national health authorities to improve their oral health systems. In 2021, the WHO World Health Assembly confirmed a Resolution (A74.5), which calls upon Member States to integrate oral health systems with general health systems and to deliver preventive services and health promotion. The WHO Regional Office for Europe has strengthened its work for prevention and control of noncommunicable diseases (NCDs) in Europe; the principles are described in the 2016 *"Action plan for the prevention and control of noncommunicable diseases in the WHO European Region"* [20]. The NCD action plan provides strategies for the incorporation of oral disease prevention and health promotion in national health programmes, which may guide countries in their work for better health [2,3]. Moreover, the strategic plan incorporates the concern for chronic disease risk factors and for breaking the inequalities in oral health across and within countries [10]. The 2019 United Nations policy statement (A74/L4) on Universal Health Coverage (UHC) emphasizes that countries improve the availability, access, affordability, quality and efficiency of health services. The political declaration on achieving UHC was confirmed by all Member States and the declaration applies to oral health systems.

Conclusions

In conclusion, the prevalence of oral diseases continues to be high in Europe and they afflict people of all ages. The burden of disease is extraordinary among the underprivileged population groups and those who are uncovered by oral health care. Across Europe, it is vital to reduce the continuing financial burden of dental services. Oral diseases are avoidable. In Western European countries, the concept of prevention has gained firm attention and the load of disease is reduced markedly among children and adolescents over the past 20 years. In Central and Eastern Europe, restorative care or disease treatment remains the governing philosophy in oral health care and for these countries, further efforts should be made to introduce population-directed disease prevention. In all European countries, it is essential that national health authorities jointly with dental professionals would strengthen intervention against the risk factors such as consumption of sugars, tobacco, and harmful alcohol. The establishment of national surveillance schemes of the key WHO population groups is useful for measuring population progress in disease intervention and the accomplishment of targets for oral health.

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