

HABILITATION THESIS ABSTRACT

TITLE: PUBLIC HEALTH. General approaches. Experiences and applied researches in dental health

Field: MEDICAL SCIENCE

Conf. dr. Daniela MĂNUC

The habilitation thesis on public health in Romania aims to clarify some basic concepts (1.1.) and deals with European issues and the harmonisation of Community trends in public health (first part of subch. 1.2-1.5, *Health 2020 – The new European health policy*). Further, Ch. 2 – *Monitoring in public health with the specificity of the dental field*), the author presents a synthesis of the present and future preoccupations with public health as specific research, either at the level of the activity in the field related to the public responsibility functions or as a university lecturer at the “Carol Davila” University of Medicine and Pharmacy of Bucharest.

Part II presents the outcome of applied research conducted by the author in the domain under study as well the dissemination of personal experience acquired both as research and as manager of projects and programmes of national research receiving European funding.

Part III presents the author’s vision concerning the academic and research career in relation to the quality of doctoral thesis coordinator.

Below I present the synthesis of the above-mentioned issues, which show Daniela Mănuć’s qualification for the habilitation exam.

1. Health 2020 – The new European health policy

1.1. *Importance of safety and health at work managerial approach in the public health sector.* The paper aims at presenting the importance of the occupational health and safety (OHS) management approach in the public health sector, occupational health and safety management system (OHSMS) as a tool that combines policy, people and means to improve continuously the performance of the organization. The approach takes into consideration the reference of EN ISO 9004:2010, EN 15224:2013 and ISO IWA 1:2009 promoting the adoption of a quality management system in order to develop and improve the public health sector organizations and develop the protection and prevention policies on occupational injuries and accidents.

1.2. *Application of specific models and software for identification, assessment and prevention of occupational risks in the Romanian healthcare sector.* The chapter describes the application of specific model and software to identify, assess and prevent the occupational health and safety risks in the Romanian health care sector – EVASAN, developed in the POSDRU/81/3.2/S/48872 project COMPEFSAN by the National Research and Development Institute on Occupational Safety "Alexandru Darabont" Bucharest, in partnership with the University of Medicine and Pharmacy "Carol Davila" Bucharest, the Romanian Institute on Economical – Social Research and Polls IRECSO and Academy of Economic Studies of Bucharest. The model and software application aims at raising the efficiency of assessing the risks of occupational injuries and diseases in hospitals and other health care institutions (clinics, nursing homes, treatment and recovery centers etc.), in accordance with Law No. 319/2006 and GD no. 1425/2006 and represents easy to use tools for the personnel in the health care sector and occupational health and safety inspectors, in order to assess workplaces in the medical facilities.

1.3. *Increasing the performance in the public health sector through approach of the Europe 2020 strategy – social responsibility according to ISO 26000.* The paper aims at presenting the importance of the management approach of ISO 26000 in the public healthcare sector, according to Health European Strategy 2020. An organization's performance in relation to the society in which it operates and to its impact on the environment has become a critical part of measuring its overall performance and its ability to continue operating effectively. The perception and reality of an organization's performance on social responsibility should consider minimum two fundamental practices of social responsibility: recognizing its social responsibility within its sphere of influence, and identifying and engaging with its stakeholders.

1.4. *Increasing the performance in the public health sector through approach of the Europe 2020 strategy – social responsibility according to ISO 26000.* The Europe Strategy 2020 and the guidance for social responsibility, ISO 26000 (ISO 26000, 2010), published in 2010, set objectives for an intelligent, sustainable and inclusive growth, that resonate strongly with social responsibility and expressed the need to renew the EU strategy to promote social responsibility. Promoting good health is an integral part of Europe 2020 Strategy, the EU's 10-year economic-growth strategy.

According to WHO Strategy – Health for All, the aim of public health is to promote healthcare by disease prevention, health maintenance, disease, morbidity and their consequences control, regaining health.

Romania chose for public medical system reform, the German model of health insurance. Changes in recent years have not resolved the problems the medical services provided, the system currently in place is a hybrid, even calling into question the need to pass health insurance.

1.5. *Managerial approach of occupational safety and health according to ISO 45001 in the public health sector.* The paper aims at presenting the importance of the occupational health and safety (OHS) management approach in the public health sector, occupational health and safety management system (OHSMS), according to ISO 45001 – a tool that combines policy, people and means to improve continuously the performance of the organization. It promotes the adoption of an integrate management system in order to develop and improve the public health sector organizations and develop the protection and prevention policies on occupational injuries and accidents.

2. Monitoring in public health

2.1. *Multisensor for clinical analysis with impact on public health evaluation.* The objective of this paper was to study the suitability of multi gate ion sensitive field effect transistors (ISFETs) for clinical work with specific requirements in the public health evaluation. The obtained sensors were used in a flow cell assembly provided by Bellhouse Medical Products. As in our previous work [1], the sensors were intended for use in the analysis of biological fluids, where the concentrations of specifications as sodium, potassium and calcium are of critical importance. The electrochemical characteristics for use in clinical chemistry were established.

2.2. Improvement of health status monitoring and evaluation capacity in the framework of health care system reform – PHARE Project

The European Union within the Community Public Health Program 2003-2008 set down the objectives of establishing and operating a sustainable health monitoring system. The system aims at producing comparable information on health and health-related behavior of the population, on disease and health systems. The system will continue the work of the previous community health programs and should be complementary to the activities of the Community Statistical Program and to work underway in Community agencies and in international organizations such as World Health Organization (WHO) and Organization for Economic Co-operation and Development (OECD). Most of the actions supported by the program of Community action on health monitoring were in relation to the development of indicators. Currently non communicable diseases represent 43% of the global burden of disease. By the year 2020 this figure is expected to rise to 60% with non communicable diseases (NCDs) representing 70% of all deaths. This prediction that results from recently gathered country level data indicates the emerging epidemic of NCDs. Better surveillance at country level provides better health information and thus better opportunities for Ministry of Health in each country to improve the health of their population. Surveillance offers a systematic approach to data collection and it constitutes an important basis for monitoring and evaluation of emerged patterns and trends of diseases. In that sense, the European Phare Project RO/2002/ 000586.04.11.03, "Improvement of HEALTH Status Monitoring and Evaluation Capacity in the Framework of Health Care System Reform" was implemented on the 2nd of March 2004 and ended on 27th October 2005. Ministry of Public Health of Romania was the main beneficiary.

The objective of the project was providing support to the health care reform within the priority domains of public health there were identified by the National Program of Prevention and Control of Non Communicable diseases.

2.3. Increasing of the occupational safety and health performances, according to ISO 45001, with respect of the regulation (EC) no. 1907/2006 on the registration, evaluation, authorisation and restriction of chemicals (REACH). This paper aims to presenting issues related to the increasing of the occupational safety and health (OSH) performances, according to ISO 45001, of the organizations manufacturing or importing chemicals, with respect of the Regulation (EC) No 1907/2006 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), amounts between 1 and 100 tonnes per year. Specific chemical risks assessment methods are presented in order to ensure workers protection through suitable protective and preventive measures.

3. Public health- dental health

3.1. International perspectives on correlation of socio-behavioural risk factors with dental caries. Diseases have as determinants the complex chain of environmental and behavioral events which are shaped by broader socioeconomic ones. Most studies of socio-behavioral risk factors of dental health have been carried out in industrialized

countries, but such reports from low- and middle-income countries have been published in recent years. World Health Organization (WHO), international collaborative studies and other international studies related to social factors in dental caries using the same methodology, provide empirical evidence of social inequality in oral health across countries and across oral health care systems. The paper highlights the challenges to dental public health practice, particularly the importance of risk assessment in estimating the potential for prevention. In future public health programs, systematic risk factor assessment may be therefore used as an instrument in the planning and surveillance of oral health promotion and oral disease intervention programs.

3.2. *Hypodontia associated with troubles of eruption – case report.* Transposition of teeth is a severe problem, which usually affects the cuspid-first premolar area. It is frequently associated with other dental anomalies such as tooth agenesis, peg-shaped maxillary lateral incisors, retained deciduous teeth, malpositions of the adjacent teeth and other teeth malformations. This paper describes the orthodontic management with fixed appliances of a case of bilateral upper cuspid- first premolar transposition associated with congenital absence of an upper lateral incisor and a lower second premolar and a peg-shaped upper lateral incisor.

3.3. *Original study. Research on the dimensional changes determined by disjunction in the median area.* To evaluate and compare the changes occurred in the anterior area, at the molar and premolar level, after the disjunction has been made by breaking of the palatine suture. The trial group of the study was divided into 5 age groups, as follows: 6-8 years: 3 patients, 1 girl and 2 boys ; 9-11 years: 12 patients, 7 girls and 5 boys; 12-14 years: 6 patients, 4 girls and 2 boys ; 15-17 years: 6 patients, 3 girls and 3 boys ; 18-20 years: 5 patients, 2 girls and 3 boys. After establishing the diagnosis on the trial mould of the patients measurements of the permanent upper jaw incisors were carried out. The values of the incisor sum thus determined were introduced in Pont's table, obtaining the corresponding values of the inter-premolar distance and inter-molar distance. The achieved values were compared to the ones resulted from direct measurement, at the level of classical benchmarks. The patients received subsequently a breaker type device fitted with a disjunction screw with the capacity of 11 mm. After the completion of the disjunction, measurements were repeated. The values obtained after the disjunction were compared to the ones before the disjunction. The study quantified the changes determined by disjunction in the upper jaw, transversally, on a sample of 30 patients, 17 girls and 13 boys. The analysis of the data obtained after the disjunction brings several interesting elements : percentagewise, the value of I.P. in I.M. increases after disjunction, compared to the value before the beginning of the treatment, the percentage of I.P. in I.M. displays an almost linear variation pattern. The greatest widening was obtained in the anterior area (the most affected by the lack of space), confirming thus the hypotheses concerning the ways of breaking of the palatine suture, as well as the ones on the movement of jaw fragments during the disjunction.

3.4. *Study of biochemical level for mg and CA-MG imbalance in patients with oral cancer and potentially malignant disorder and their prostetical and dsss treatment.* In the last decade it has been noticed a significant increase of indicators of oral cancer and oral potentially malignant disorders frequency, which led to the integration of this pathology among the primary problems of public health regarding dental medicine. It seems that besides the essential role of magnesium and calcium in the functions of human body, the changes of serum and salivary levels of magnesium and calcium may play a role in the pathogenesis of oral cancer and oral potentially malignant disorders. The aim of the study was to measure the serum levels of magnesium and calcium in patients with oral cancer and oral potentially malignant disorders. The serum and saliva levels of magnesium in oral cancer were higher than in healthy controls subjects. There are no significant statistic differences between the serum variations of total calcium and salivary calcium in the studied groups, compared to the controls.

3.5. *An algorithm to identify the Kennedy classes in partial reduced edentation.* The Kennedy classes identification plays an important role in finding the oral diagnosis and the therapeutical solutions in the area of partial reduced edentation. The physician doesn't always need to record the Kennedy classification in the computerized patient's file. Therefore, we achieved an algorithm in Visual FoxPro which, starting from the diagnosis on teeth recorded in a database, establishes the Kennedy class for each patient, as well as the frequencies distribution for the Kennedy classification on the whole database. The algorithm was written in order to be used on databases that contain the dental image using the WHO model established in the WHO Center of the faculty in 2002. The advantage of this model was that it allowed to record in a very precisely and refined manner the diagnosis at the level of each teeth, without further analysis. Based on this model, the algorithm allows detailing these analyses, and finds supplementary information for the patient as well as for the whole database. The using of this algorithm proved to be very useful, especially on large databases designed mainly for clinical purposes.