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THE CHARACTERISTICS OF THE PEDIATRIC MODEL FOR COUNTERACTING OBESITY IN SERBIA

Summary: Basic data on the establishment, features and results of the health care system for children and adolescents in the Republic of Serbia during the period 1950–1990 are given in the introductory remarks. Enormous pressure for the change of the health sector ownership and the profile of physicians in the primary pediatric care in the last decade of 20th century and at the beginning of 21st century is also emphasized. The destructive consequences of the sanctions of international community (1992–1995), NATO aggression (1999) and the change of the political system in Serbia (2000) caused the huge loss of gross domestic product, increase of the unemployment and poverty rates, and the decrease of the health expenditure rate to unsustainable levels (200–300 USD per capita).

In spite of all misfortunes, Pediatric Association of Serbia, in response to the global obesity epidemic, offered in 2007 to the Ministry of health and the National Institute for health insurance the Project “The prevention and treatment of obesity in children and adolescents in Serbia”, as the pediatric chapter for future National strategy for counteracting obesity. The Project, ie the pediatric model for counteracting obesity is funded on the features of the health care system for children and adolescents in our country. The solidarity of the society and the continuous education of health care workers, adolescents and their parents about the significance of obesity epidemic are, in our conviction, key factors for the strengthening of adolescents' conscience on individual responsibility for own health as the prerequisite for successful control of obesity epidemic in adolescents.

I

Modern pediatrics in the Republic of Serbia, i.e. former SFRY was established at the end of 50th years of 20th century. The experiences on the organization of the

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systems of population health care in Canada and USSR were used in the construction of new socialized health care system. In accordance with the political and economic characteristics in our country, the centralized health care system with complete coverage of population was built up. The health sector was exclusively state – owned, but mandatory health insurance was funded through contributions of employees and employers.

Health care of children and youth, according to the Law on health care, is complete, free of charge and cover population from 0 – 18 years. The system was organized at three levels: primary, secondary and tertiary. At the primary level preschool and school dispensaries within health centers were present in every municipality throughout the Republic.

Aiming at better quality of health care for this sensitive population it was decided that preventive (immunization, mandatory check – ups, etc) and therapeutic services at primary level should be provided by specialists pediatricians. Professional training of pediatricians includes, in addition to 5 or 6 years of medical school, 4 years of specialization in pediatrics carried out at primary level (2 years) and secondary and tertiary levels (2 years) facilities. Compulsory immunization programs against major communicable diseases (DiTePer; OPV) were carried out from the very beginning with the high coverage of 85 – 95% of pediatric population throughout the Republic. Thanks to the established system of primary pediatric care, as well as the economic development of the country after the World War II, epidemiological transition in this population group (reduction of extremely high neonatal and infant mortality rates) and successful control over the most frequent causes of infant and under five mortality were achieved during the period 1950 – 1990. The accomplished results in reduction of high infant mortality rates in developed (AP Vojvodina, Central Serbia), as well less developed (AP Kosovo and Metohija) regions of Serbia are comparable with the data in other countries (Table 1, Table 2).

Table 1.

INFANT MORTALITY RATE IN THE REPUBLIC OF SERBIA *
1950-1990. YEAR

	1950	1960	1970	1980	1990
AP Vojvodina	145.1‰	73.4‰	35.7‰	19.1‰	14.1‰
Centralna Srbija	101.7‰	68.7‰	39.9‰	23.5‰	17.2‰
AP Kosovo and Metohija	141.3‰	132.5‰	96.3‰	57.7‰	34.4‰
REPUBLIC OF SERBIA	118.1‰	86.2‰	56.3‰	33.9‰	23.2‰

Data source: National Institute for Statistics

* Total population:	1950	6.734.000
	1990	9.923.000

Table 2.

INFANT MORTALITY RATE ACCORDING TO ETHNIC GROUPS IN ISRAEL,
1950-1990. YEAR

	1950	1960	1970	1980	1990
Jews	45.6‰	27.2‰	18.9‰	12.1‰	7.1‰
Nonjews	67.4‰	49.2‰	41.0‰	24.4‰	15.0‰

Data source: Katz M. Infant Mortality Rate in Israel: An Overview, *International Child Health: A Digest of Current Information*, 1995, 6 (2): 57-62

The development of pediatric facilities at secondary and tertiary levels of health care (municipality departments, regional hospitals, pediatric university clinics and institutes), and successful cooperation with primary pediatric level enabled introduction of modern preventive programs (neonatal screening etc.) and therapeutic methods and techniques (pediatric cardiosurgery, bone – marrow transplantation), as well the early rehabilitation procedures in chronic diseases of childhood (insulin – dependent diabetes mellitus, neurologic and muscular disorders).

Mass neonatal screening program for congenital hypothyroidism was introduced in all maternity hospitals in Central Serbia in 1983. During last 30 years 1.443.492 newborns were tested and 367 cases of congenital hypothyroidism confirmed with the incidence of this congenital disease of 1 : 3.933 newborn babies.

In accordance with the doctrine of pediatric rehabilitation the Department for education, treatment and rehabilitation of children and adolescents with insulin – dependent diabetes mellitus (IDDM) was opened in 1989. in “Bukovicka Banja”, Arandjelovac. During the past 20 years around 3.500 children and adolescents from Central Serbia, AP Vojvodina and neighboring countries were treated there. Almost complete coverage of newly discovered cases of insulin – dependent diabetes mellitus on the territory of Serbia (around 200 – 250 children and adolescents with IDDM per year) was achieved in the last few years. Once very frequent episodes of diabetic ketoacidosis in children and adolescents with IDDM, thanks to the activity of this Department, are almost eliminated with beneficial influence not only in medical, but as well in economic aspect.

The deep changes in morbidity and mortality structure of pediatric population present at the end of 20th century (increased significance of congenital anomalies and developmental delay in early childhood; epidemic of “new morbidity” among youth) stimulated introduction of the new preventive programs and activities in primary pediatric health care (counseling units for infants and under five in preschool dispensaries and counseling units for adolescents in school dispensaries).

II

Collapse of the socialistic system in the USSR in the last decade of the 20th century marked the end of the long lasting “cold war” and bipolar balance between ideologically, economically and militarily opposed blocks of countries. The only remaining superpower, the winner of the cold war, the USA, started implementation of their geopolitical vision – “the new World order“.

The socialized health care and insurance systems in former socialistic countries presented at that moment very attractive goal for manufacturers of expensive and sophisticated medical technology, pharmaceutical industry and insurance companies from the West. The World Bank has provided in The World Development Report 1993 (*Investing in Health*) an analysis of global economic and demographic trends, suggesting the importance and enormous possibilities of investment, i.e. profit in the health sector. Globalization was used as an excellent opportunity to develop new markets through privatization of state-owned health sectors and introduction of market mechanisms in health care and insurance services in ex-socialistic countries. The main objective of these undertakings is undoubtedly the profit-based interest of manufacturers of expensive medical technology and insurance companies. Necessity of privatization and competition in the health sector is justified by alleged achievement of more effective health care under the terms of free market and private property, although such assertion is not confirmed by any evidence whatsoever.

WHO Regional Office for Europe supported unfortunately the intention of the World Bank. Contrary to *The Declaration on Primary Health Care* (Alma Ata, 1978), where the profile of physicians providing primary health care of children and adolescents is not specified, WHO Regional Office in its document *Health for All in 21st Century* enacted in 1998 presented the requirement that in primary health care of children and adolescents in all European countries family doctors, i.e. general practitioners instead of specialist pediatricians must be introduced. Such a demand was explained by the necessity for rationalisation of pediatric systems. Special pressure was applied in ex-socialistic states where primary health care for children and adolescents were provided by pediatricians for decades. Many of these countries carried out such “reform”, evidently damaging the quality of health care of their youngest generations. The WHO Regional Office for Europe furthermore expressed their disapproving position on pediatrics in the document entitled *European Strategy on Child and Adolescent Health and Development*, 2005. The 19-page long text does not mention pediatrics even once. The position on the profile of physicians providing primary health care of children and adolescents is expressed with only one sentence: “The importance of suitably trained staff cannot be overstated!”

Besides the mentioned pressures for the change of the health sector ownership and profile of physicians in primary pediatric care, the health care system of children

and adolescents in Serbia has endured during the last decade of 20th century and at the beginning of 21st century enormous temptations:

Long term (1992 – 1995) sanctions of “international community” imposed upon the population of Serbia with huge loss of gross domestic product, per capita income and decreasing of the health expenditure rate (around 200 USD per capita in 1993),

NATO aggression on Serbia and Montenegro in 1999 took numerous human casualties and caused enormous destruction and losses,

The change in the political and economic system in Serbia in 2000 followed closely by privatization and closing down of many banks and enterprises, enormous increase of unemployment rate and poverty has endangered social welfare and health care systems, especially health care of children and adolescents.

In that difficult and terrible time pediatricians in Serbia thanks to their professionalism and enthusiasm, as well the priority given to health care of children and youth in the distribution of very limited resources of the Institute for public health insurance, overcame all pressures and temptations. Key pediatric preventive programs (immunization, check – ups, screening programs) were preserved, no epidemic of major contagious diseases were recorded, and, although very slow, further reduction in infant and under five mortality rates was achieved (Table 3, Table 4).

Table 3.

INFANT MORTALITY RATE IN THE REPUBLIC OF SERBIA
1991-2000. YEAR

	1991	1992	1993	1994	1995
AP Vojvodina	12,3‰	13,8‰	15,2‰	14,4‰	10,6‰
Central Serbia	15,4‰	16,9‰	17,3‰	15,7‰	15,0‰
AP Kosovo and Metohia	33,7‰	34,4‰	33,3‰	24,9‰	23,6‰
REPUBLIC OF SERBIA	21,6‰	22,3‰	22,3‰	18,6‰	17,2‰

Data source: National Institute for Statistics

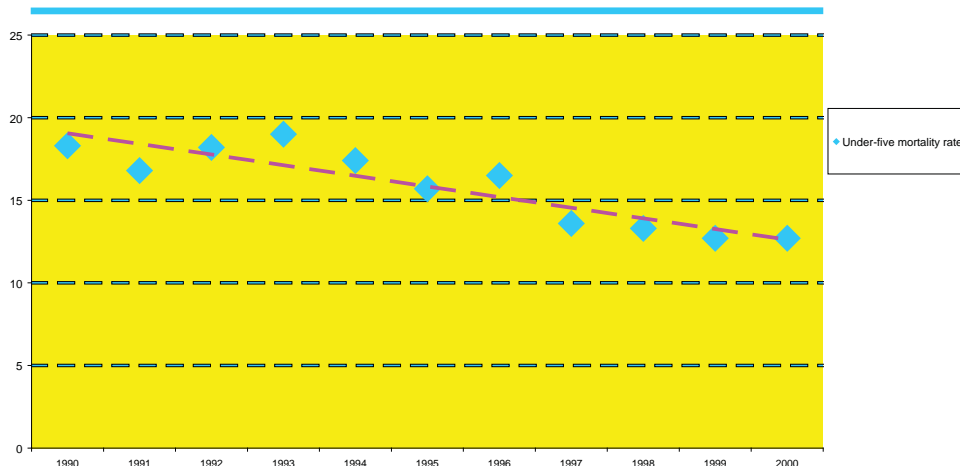
1996	1997	1998	1999	2000
12,8‰	12,0‰	9,7‰	10,2‰	10,5‰
15,3‰	12,1‰	12,2‰	11,2‰	10,7‰
15,9‰	18,2‰	-	-	-
15,1‰	14,3‰	11,6‰*	11,0‰*	10,6‰*

* Data for AP Kosovo and Metohia not included

Table 4.

Under five mortality

Source: Statistical Office of the Republic of Serbia



The pressures from different lobby groups for change of the pediatric model in primary health care of children and adolescents in Serbia continued up to December 2005 when the new Law on health care and insurance were adopted, confirming not only socialized character of health care system, but as well the role of pediatricians in primary level of children and adolescents health care.

III

Obesity epidemic in children and adolescents, and the other forms of “new morbidity” in youth became at the beginning of 21st century the leading cause of morbidity and mortality in adolescents in all European countries. The alarming trend of epidemic expansion, particularly the rise in annual prevalence rate in adolescents, as well the frequent association with other disease gave the obesity epidemic in this population group exceptional, not only medical, but as well economic and demographic significance.

In response to obesity challenge WHO Regional Office for Europe proposed at the meeting of the Ministerial conference of the WHO European region countries in Istanbul 2006 *European Charter on Counteracting Obesity*. *The Charter* in an optimistic tone calls for international action to carry out the vision of the healthy life styles in nutrition and physical activity as a social norm. WHO European region countries, including the Republic of Serbia, accepted the obligation to produce National strategies for counteracting obesity.

The financial and economic crisis which started in 2008 in USA and soon spread over many European countries endangered the achievement of the *Charters* vision and production of national strategies for counteracting obesity. Obesity epidemic, as well the other forms of “new morbidity” in youth are essentially caused by deep crisis of capitalistic system and modern materialistic culture which obviously demand radical changes of political and economic relations in European countries.

Pediatric association of Serbia, taking into account the mentioned facts, and in accordance with its professional and ethical obligations toward preservation and promotion of children's and adolescents health in our country wrote at the beginning of 2007 Project “*Prevention and treatment of obesity in children and adolescents in Serbia*”. Project, as one of the key parts of future National strategy for counteracting obesity in Serbia, was sent to Ministry of health and Institute for public health insurance of Serbia. Ministry of health accepted the Project as a important public health program in the field of pediatrics and gave its patronage and support for educational activities of the Project. Institute for public health insurance approved in the spring of 2008 21 day program each year for treatment and rehabilitation of every obese adolescent 12 – 18 years with BMI > 97th percentile (>2 SD). This right for obese adolescents was reduced in length at 10 days in 2012 because of economic crisis, but nevertheless saved.

The Project “*Prevention and treatment of obesity in children and adolescents in Serbia*” is based on following fundamental characteristics:

- The system of socialized state – owned population health care with complete and free of cost care for children and youth,
- Health care of this population group organized at three functionally integrated levels and pediatricians as the providers of services,
- Education, treatment and rehabilitation of children and adolescents with chronic diseases are provided through successful cooperation between three levels of pediatric care and the development of the network of regional rehabilitation centers,
- Strengthening of adolescents's conscience on individual responsibility for their own health (which is the basic goal and key element of the program for prevention, treatment and rehabilitation of obese adolescents) deserves full support and solidarity of the society.

The Project was carried out in several fields and through following activities:

- The promotion of medical and social justification of the prevention and treatment of obesity in children and adolescents for media and the public (in the period from November, 2007 to October, 2008 three promotive meetings for media were organized and numerous public statements and interviews were given by the authors of the Project),

- The education for pediatric health care workers (since November, 2007 to October, 2008 six continuous medical education (CME) seminars were organized for pediatricians and associates from preschool and school dispensaries within health centres with 287 participants, fulfilling the plan that 25 – 30% of all pediatricians from primary pediatric care are informed about the Project's goals; thanks to the support of UNICEF Office in Serbia Handbook for pediatricians (*Prevent obesity, save the health of children and adolescents*) was published in 2008 and distributed to all pediatricians and general practitioners in primary pediatric care in our country; from 2010 to 2012 three symposiums on adolescent obesity for pediatricians and associates in primary pediatric care were held in the Special Hospital "Zlatibor" with participation of the lecturers from our country and distinguished guests from Italy, Russian Federation and Turkey. All lectures from these symposiums are published in "Medical Journal" of the Special hospital "Zlatibor"),
- The goal to introduce the lecture on prevention and treatment of obesity in children and adolescents into obligatory curriculum in elementary and secondary school in the country, in spite of the persistent effort of the Project's authors, up to now has failed.

In accordance with the pediatric rehabilitation doctrine on development of regional centers for chronic diseases the Center for prevention, treatment and rehabilitation in adolescents was opened in August, 2008 in the Special hospital "Zlatibor" (wherein the commercial program for obesity treatment in adults "Chigota" is in function since 1989). Public – health multidisciplinary program for obese adolescents named "Chigotica" is organized in accordance with "*Medical rule book of the Special hospital "Zlatibor"*" which was written by the Project's authors in 2010. The guide – book with key educational recommendations for adolescents and their parents was also written and published as a brochure and distributed to participants of "Chigotica" program.

Exceptional interest for the participation in "Chigotica" program demonstrated in latest several years by obese adolescents and their parents throughout the Republic of Serbia and neighboring countries, as well the first results in body mass reduction in obese adolescents are very encouraging. However, the real test for scientific value of the pediatric model for counteracting obesity in Serbia should be a longterm controlled study which has to establish the objective influence of this program on strengthening adolescents's conscience on individual responsibility for own health. It is our conviction that such a study which should confirm or negate medical effectiveness and economic efficiency of the "Chigotica" program has a full justification taken into consideration medical, economic and demographic significance which present population of children and adolescents have for the future of our country.

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