THE ROLE OF THE SCHOOL MEDICAL OFFICE

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Abstract

INTRODUCTION: Health care provided in educational establishments has a prophylactic component, at both individual and community level, as well as a curative component, at an individual level, through the examinations in acute conditions and first aid in emergencies.

OBJECTIVES: The study aims to highlight the role that the medical office from educational establishments has in supervising the health of children and young people.

MATERIALS AND METHOD: The school medical office we analyzed is responsible for 91 preschoolers and 2113 students that attend a kindergarten with extended program and 3 theoretical lyceums, each with grades ranging from the preparatory class up to the XIIth grade.

The study is retrospective, we analyzed the activity of the school's medical office over the last 5 years, starting with the school year 2014/2015, to date.

Certain aspects were followed: health check exams, acute illness incidence, chronic disease prevalence, epidemiological triage, food surveys, controls in educational settings, and health promotion actions.

RESULTS AND DISCUSSIONS: The school medical office provides medical care for 92 preschoolers and 2091 students, on average.

In the five school years we analyzed on average 24 preschoolers (26.08% of total) and 598 students (28,6% of total) had a yearly health check exam.

In the epidemiological triage, done after all 4-5 school holidays, an average of 7844 students were examined each year, with an average of 62 new disease cases identified. The most frequent diseases identified during the epidemiological triage were acute respiratory infections, acute tonsillitis and pediculosis.

An average of 1438 examinations were done for acute illnesses / school year, and first aid was given in 222 accidents and traumas / school year.

The total prevalence of chronic diseases in the school medical office is on average 45.42%. The most frequent are the refraction errors (18.21%), followed by spinal disorders due to bad posture (8.45%), obesity (5.96%), asthma (3%), cardiovascular diseases (2.52%) and underweight (2.22%).

The food survey was conducted 3 times a year, the conditions of hygiene in the school, the canteen and in the accommodation areas were controlled, and health promotion actions were carried out.

CONCLUSIONS: The school's medical office is of particular importance in overseeing the health of a community. The scope of activity is very wide and the responsibilities are high.

KEYWORDS: **medical office, school, children's health**

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INTRODUCTION

Health care provided in educational establishments has a prophylactic component and a curative component, its role being both individual and collective level. A child spends 4 to 8 hours per day at school, and ensuring an optimal environment, including from a health point of view, is extremely important.

School medicine exists in almost all countries in Europe and in the United States. WHO recognizes the important role of school medicine in supervising the health of children and young people.

It is considered that school medicine has a privileged position, being a medical interface between school, family and the health system [1].

In Romania, the medical assistance of preschoolers, pupils and students is regulated by the Joint Order of the Ministry of Health (MH) and the Ministry of Education, no. 5298/1668/2011 and MH Order no. 653/2001.

According to the MH Order no. 1955/1995, each educational establishment must have a medical office.

The attributions of the medical staff in educational establishments refer to [2]:

a) services to ensure a healthy environment for the preschool and / or school community – identification and management of risks to community health, management of functional circuits, verification of compliance with public health regulations;

b) individual and collective health care services – immunizations under special epidemiological conditions, epidemiological triage;

c) services for examining the health status of pupils – assessment of health status, monitoring the children with chronic diseases, issuing the necessary medical documents;

d) services for ensuring the individual health status – providing medical care for current illnesses, granting medical exemptions;

e) services for ensuring the health status – curative medical actions, provision of medical examinations on request, issuing special referrals and free prescriptions, and giving first aid in case of emergency;

f) health education activities and promotion of a healthy lifestyle.

School medical offices are structures administered by the local public authorities, according to the Emergency Ordinance 162/2008.

OBJECTIVES

The study aims to show the role of the medical office from the educational institutions in the supervision of children's health by presenting the activity of a school medical office in Cluj-Napoca during the last 5 years.

MATERIAL AND METHOD

The school medical office we analyzed is responsible for 91 preschoolers and 2113 students that attend a kindergarten with extended program and 3 theoretical lyceums, each with grades ranging from the preparatory class up to the 12th grade.

The medical staff working there consists of one pediatric general practitioner, with school medicine competences, and three senior nurses.

From the four educational establishments two have their own medical offices, from which one is accredited while the other is not, even though it has an examination room, a treatments' room and a waiting room. The kindergarten, situated in the building of the high school which has the accredited medical office, does not have its own medical office, nor an isolator or a filter. The third high school does not have its own medical office but the children go, in case of acute illnesses, to the accredited medical office from the other high school, considering their very close location to each other.

The study is retrospective, we analyzed the activity of the school's medical office over the last 5 years, starting with the school year 2014/2015, to date.

Certain aspects were followed: health check exams, acute illness incidence, chronic disease prevalence, epidemiological triage, food surveys, controls in educational settings, and health promotion actions.

RESULTS AND DISCUSSIONS

The school medical office provides medical care for 92 preschoolers and 2091 students, on average. (Table no. 1).

	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	Average
Preschoolers	96	98	87	89	91	92
Students	2094	2039	2085	2127	2113	2091

Table 1. Total number of preschoolers and students in each school year.

The health check exams are carried out by the physician in order to evaluate the health status of younger preschoolers and of the students from grades I, IV, VIII and XII. The health check exam is one of the main activities of a school medical office, its purpose being to early detect health problems. Following a health check exam, the children that have been identified with different problems are sent to a specialist for a diagnosis confirmation, and afterwards, if confirmed, they are specially monitored regarding the evolution and complications of their health problem.

In the five school years we analyzed, on average 24 preschoolers (26.08% of total) and 598 students (28,6% of total) had a yearly health check exam. Their distribution per grade and per school year is presented in Table 2.

	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
Preschoolers	24	26	23	24	24
Ist grade	165	121	183	129	160
IVth grade	142	169	101	148	93
VIIIth grade	142	119	124	124	141
XIIth grade	173	171	160	140	166
TOTAL	**646**	**606**	**591**	**565**	**584**

Table 2. Yearly health check exams

The epidemiological triage has the role of early detection of contagious diseases in the community, isolating patients and applying specific measures in the community to prevent the spread of diseases [3]. In schools, the epidemiological triage takes place after each school holiday, or whenever it is needed.

In the medical office we analyzed the epidemiological triage took place after all 4-5 school holidays, an average of 7844 students were examined each year, with an average of 62 new disease cases identified (Table 3). The most frequent diseases identified during the epidemiological triage were acute respiratory infections, acute tonsillitis and pediculosis. It should be noted that the detection of each case of parasitosis requires daily triage in the classrooms, until the epidemiological criteria no longer require it.

	2014/2015	**2015/2016**	**2016/2017**	**2017/2018**	**2018/2019**
Students	6790	6834	7186	9058	9352
Detected cases	60	66	44	90	53

Table 3. Epidemiological triage in schools

Another important action in limiting the spreading of infectious diseases is the surveillance of respiratory infections during the cold season. Case reporting is done weekly at the county Public Health Department, starting in October and until May.

In special epidemiological situations, such as the flu epidemic in the 2018-2019 winter, the triage was performed and reported on a daily basis, the good collaboration with teachers being essential in the proper management of the situation.

The incidence of acute diseases.

Although children that come to school are in good health, during school hours different signs and symptoms might appear and make them attend the

school's medical office. The most frequent acute illnesses encountered in the school's medical office are represented (Table 4) by respiratory diseases (acute tonsillitis, upper respiratory tract infections), digestive disorders (dyspeptic syndromes, painful abdominal syndromes) genital and urinary disorders (dysmenorrhea, cystitis) and infectious and parasitic diseases (enterocolitis, skin infections, viral infections).

Emergency first aid is another important role of the school's medical office, the presence of medical staff in educational establishments provides the safety of rapidly providing first-aid and qualified assistance in accidents, traumas, faintness, or other medical-surgical emergencies [4].

In our medical office, first aid was given on average for 222 accidents and traumas / school year.

	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
Infectious and parasitic diseases	83	132	81	86	74
Endocrine, metabolic and nutritional diseases	26	37	48	25	35
Eye diseases	13	31	18	23	22
Otic disorders	8	11	6	5	3
Cardiovascular diseases	5	8	4	1	5
Respiratory diseases	653	607	536	563	578
Digestive disorders	365	303	245	214	194
Diseases of the skin and subcutaneous tissue	28	26	28	23	21
Genital and urinary disorders	133	112	98	102	107
Accidents, traumas	179	243	225	192	272
Other acute symptoms (headache, back pain)	83	27	72	98	77
Total	**1576**	**1537**	**1361**	**1332**	**1388**

Table 4. The incidence of acute diseases

The prevalence of chronic diseases in children in educational establishments is on the rise, so the role of the doctor and of the nurse is very important in providing preventive health care, in early identification of issues, and in first aid in case of aggravation [5].

Tables 5, 6 and 7 show the prevalence of chronic diseases for each cycle of education over the 5 years our study analyzed.

	2014/2015	**2015/2016**	**2016/2017**	**2017/2018**	**2018/2019**
Total number of enlisted children	**788**	**783**	**771**	**801**	**785**
bad posture	29	36	28	40	29
other diseases of the locomotor system	8	6	6	11	8
asthma	24	25	25	22	28
cardiovascular diseases	13	14	8	13	10
digestive disorders	2		2	1	3
kidney diseases	1	2	1	2	3
epilepsy	1	1	4	0	1
behavioral and school adaptation disorders	5	1	1	1	4
speech disorder	1	11	16	22	22
refractive errors	79	97	100	131	96

	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
other visual disorders	8	6	8	3	2
hearing loss	1	1	1	1	
thyroid disorders	2	1	4	1	
diabetes mellitus type 1					
underweight	2	6	16	15	8
obesity	24	42	39	38	46

Table 5.The prevalence of chronic diseases from preparatory grade to IVth grade.

	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
Total number of enlisted children	**561**	**534**	**591**	**593**	**633**
bad posture	35	47	57	80	70
other diseases of the locomotor system	14	8	5	9	6
asthma	27	28	22	23	19
cardiovascular diseases	12	16	17	9	9
digestive disorders	1				
kidney diseases	6	4	3	1	2
epilepsy	5	6	0	4	1
behavioral and school adaptation disorders	6	3	2	2	3
speech disorder	0	2	5	4	4
refractive errors	89	108	106	119	159
other visual disorders	2	2	2	4	4
hearing loss	1				1
thyroid disorders	2	1		3	4
diabetes mellitus type 1	1	1			1
underweight	6	7	13	19	23
obesity	21	26	32	34	48

Table 6. The prevalence of chronic diseases from grades Vth to VIIIth.

	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
Total number of enlisted children	**739**	**722**	**723**	**733**	**695**
bad posture	52	86	108	95	92
other diseases of the locomotor system	14	7	3	12	6
asthma	17	22	18	16	29
cardiovascular diseases	28	33	38	27	16
digestive disorders	4	3	2	1	1
kidney diseases	3	5	5	3	2
epilepsy	2	2	4	5	4

	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
behavioral and school adaptation disorders	7	4	2	2	1
speech disorder	0	3	3	5	4
refractive errors	135	161	167	176	182
other visual disorders	3	3	2	3	1
hearing loss	1	2	2	1	1
thyroid disorders	4	8	5	6	9
diabetes mellitus type 1	1	1	1	1	1
underweight	20	28	30	22	18
obesity	45	67	61	53	47

Table 7. The prevalence of chronic diseases from grades IXth to XIIth.

The total prevalence of chronic diseases in the school medical office is, on average, 45.42%, well above the national average prevalence of 16.56% reported by the National Public Health Institute for the school year 2017/2018, but comparable to the 42.82% prevalence reported in Cluj county in the school year 2017/2018 [6,7].

From the total of chronic disease, we found the refraction errors (myopia, hypermetropia, astigmatism) to be the most prevalent in our study, with an average of 18.21%, varying from 14.51% in the 2014/2015 school year to 20.68% in the school year 2018/2019.

The second most prevalent diseases, in all school years, are the spinal disorders due to bad posture (kyphosis, scoliosis, hyperlordosis, vicious attitudes of the spine), with an average of 8.45%, varying from 5.56% in the school year 2014 / 2015 to 10.11% in the school year 2017/2018.

Obesity is the third most prevalent chronic disease at 5,96%.

Asthma is the fourth most prevalent chronic disease from our medical office at 3%, followed by cardiovascular diseases (congenital heart malformations, valvulopathy, heart rhythm disorders, hypertension) at 2,52% and underweight at 2,22%.

	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
Total number of enlisted children	**2088**	**2039**	**2085**	**2127**	**2113**
Bad posture (%)	5,56	8,29	9,26	10,11	9,04
other diseases of the locomotor system (%)	1,72	1,03	0,67	1,50	0,95
asthma (%)	3,26	3,68	3,12	2,87	3,60
Cardiovascular diseases (%)	2,54	3,09	3,02	2,30	1,66
Digestive disorders (%)	0,34	0,15	0,19	0,09	0,19
Kidney diseases (%)	0,48	0,54	0,43	0,28	0,33
epilepsy (%)	0,38	0,44	0,38	0,42	0,28
Behavioral and school adaptation disorders (%)	0,86	0,39	0,24	0,24	0,38
Speech disorders (%)	0,05	0,78	1,15	1,46	1,42
Refractive errors (%)	14,51	17,95	17,89	20,03	20,68
Other visual disorders (%)	0,62	0,54	0,58	0,47	0,33
Hearing loss (%)	0,14	0,15	0,14	0,09	0,09
Thyroid disorders (%)	0,38	0,49	0,43	0,47	0,62

	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
Diabetes Mellitus type 1 (%)	0,10	0,10	0,05	0,05	0,09
underweight (%)	1,34	2,01	2,83	2,63	2,32
Obesity (%)	4,31	6,62	6,33	5,88	6,67
TOTAL chronic diseases (%)	36,59	46,25	46,71	48,90	48,65

Table 8. Total percentage prevalence of chronic diseases

Although, as a percentage, the chronic diseases in the studied medical office are much more frequent than the national average, the order of their frequency is the same as at national level: 1. Refractive errors, 2. Bad posture, 3. Obesity, 4. Asthma [6]. The large differences in the prevalence of chronic diseases at national level can be explained by the unequal reporting from different counties in the country.

According to the Cluj county Public Health Department's Activity Report, the most frequent diseases reported from the educational establishments are: – bad posture (15.64%), – refractive errors (8.10%), – non-endocrine obesity (1.89%) , – asthma (1.65%) – speech disorders (1.10), – other chronic diseases of the cardiovascular system (1.01%), – behavioral and school adaptations disorders (0.98%), – apparent weight hypotrophy (0.97%) [7].

Considering the high number of chronic diseases, the school's medical office plays an important role in their supervision, in health promotion, and in the collaboration with school management to try to improve the health of children and young people.

Thus, the appropriate lighting conditions, as well as school furniture adapted to the age and height of the children, can somehow prevent the accentuation of refraction errors and of spinal disorders due to bad posture. At the same time, the existence of sports halls, as well as a balanced menu in school canteens can prevent the nutritional disorders of children and young people [8,9,10].

In two of the three high schools that we analyzed, there are, in each of them, two sports halls and a sports ground in the school yard, and there is also a fitness room where children can perform medical gymnastics under the guidance of a specialist.

The school canteen that exists in one of the high schools serves in a catering system the other high school where a dining room is arranged. The menus are prepared in collaboration with the staff of the school medical office, which also conducts the food survey in February, May and October, according to Law 153/2008.

In addition to the shortcomings in providing dairy products, eggs and sugar products, due in particular to the fact that legislation is not being updated to the principles of healthy eating, the menu served in the school canteen provides the calorie requirements and food principles recommended for age and sex.

Controls in the educational spaces are carried out according to the MH Order 1955/1995 (11), and their conclusions are marked in notebooks specially designed for this purpose.

Health promotion is constantly being pursued with every action of the medical staff from the school medical offices. Every health check-up, every epidemiological triage, and all examinations for acute diseases are opportunities to talk to students, teachers and parents about disease prevention measures.

In addition, in the school years 2015/2016 and 2016/2017, actions were carried out within the project "Life", promoting a healthy lifestyle for children in kindergartens and students in the preparatory classes. Also in these years the first aid measures were explained to students involved in a school project.

Starting with the school year 2017/2018 nurses can early detect amblyopia in children aged 4-6 attending kindergartens as part of the EUSCREEN project [12].

CONSLUSIONS:

The school's medical office plays an important role in supervising the health of children and young people in the community.

The activity carried out in the school's medical office is complex, comprising elements of hygiene, epidemiology, pediatrics, nutrition, sports medicine.

Sustained collaboration between healthcare staff from school medical offices, families, leadership

of educational establishments, family doctors and doctors of other specialties is needed in order to improve children's health.

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