

HEALTH STATUS OF CHILDREN AND ADOLESCENTS IN THE FAR EASTERN FEDERAL DISTRICT

Gritsina OP ✉, Yatsenko AK, Trankovskaya LV, Bodraya IS, Pozdeeva ES, Zmitrovich PA, Izbaskhanova VE

Pacific State Medical University, Vladivostok, Russia

It is well-known that investigation of the features of incidence among children and adolescents in certain human environment aimed at identification of promising prevention vectors in the region is a priority in the development of healthcare system and the state's social policy. The study was aimed to explore the regional features of the pediatric population health in the regions of the Far Eastern Federal District (FEFD). A retrospective analytical study was conducted; the values and structure of incidence in children and adolescents in 11 FEFD regions were assessed. It was found that classes X (Diseases of the respiratory system) and XIX (Injury, poisoning and certain other consequences of external causes) occupied the leading places in the structure of the long-term average annual incidence by disease classes in FEFD among children aged 0–14 and adolescents aged 15–17. The lowest incidence was reported for class III (Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism). Significant differences in the long-term average annual levels of the studied indicator between age groups in FEFD and significant differences from the all-Russian values were revealed. The findings can be used to predict the health status of the younger generation and determine the strategic direction of healthcare system in the macroregion.

Keywords: children, adolescents, population health, incidence, structure, prevalence

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Compliance with ethical standards: the study methodology was compiled in accordance with the guidelines of Good Clinical Practice of the Russian Federation and the World Medical Association Declaration of Helsinki, it was approved at the meeting of the Ethics Committee of the Pacific State Medical University (protocol № 7 of 27 March 2023). The study involved public statistics; the research design did not envisage inclusion of personal data.

✉ **Correspondence should be addressed:** Olga P. Gritsina
pr. Ostryakova, 2, Vladivostok, 690002, Russia; g2010o@mail.ru

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СОСТОЯНИЕ ЗДОРОВЬЯ ДЕТЕЙ И ПОДРОСТКОВ ДАЛЬНЕВОСТОЧНОГО ФЕДЕРАЛЬНОГО ОКРУГА

О. П. Грицина ✉, А. К. Яценко, Л. В. Транковская, И. С. Бодрая, Е. С. Поздеева, П. А. Змитрович, В. Е. Избасханова

Тихоокеанский государственный медицинский университет, Владивосток, Россия

Как известно, одним из приоритетных направлений развития системы здравоохранения и социальной политики государства является изучение специфики первичной заболеваемости детей и подростков в определенной среде обитания человека с целью идентификации перспективных векторов профилактики в регионе. Целью работы было исследовать региональные особенности популяционного здоровья детского населения в субъектах Дальневосточного федерального округа (ДФО). Выполнено ретроспективное аналитическое исследование, изучены уровень и структура показателей первичной заболеваемости детского и подросткового населения в 11 субъектах ДФО. Установлено, что в структуре среднемноголетней первичной заболеваемости по классам болезней в ДФО среди детей 0–14 лет и подростков 15–17 лет лидирующие позиции занимали классы X («Болезни органов дыхания») и XIX («Травмы, отравления и некоторые другие последствия воздействия внешних причин»). Наименьшую первичную заболеваемость регистрировали по классу III («Болезни крови, кроветворных органов и отдельные нарушения, вовлекающие иммунный механизм»). Установлены значимые различия среднемноголетних уровней анализируемых показателей между возрастными группами в ДФО и значимые отличия от общероссийских показателей. Полученные данные могут быть применены для прогнозирования состояния здоровья подрастающего поколения и определения стратегического направления развития системы здравоохранения в макрорегионе.

Ключевые слова: дети, подростки, популяционное здоровье, первичная заболеваемость, структура, распространенность

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✉ **Для корреспонденции:** Ольга Павловна Грицина
пр-т Острякова, д. 2, г. Владивосток, 690002, Россия; g2010o@mail.ru

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Public health, by which we mean the state of absolute biological and mental well-being associated with the balance of the vital process functioning and the components of the sub-State entities, is the most important indicator of the modern society living standards [1, 2]. Health preservation is relevant throughout human life, however, the fundamental basis of physical well-being, active longevity, and intellectual potential is provided in childhood [3, 4].

In the recent decades, both deterioration and stabilization of health indicators of the younger generation was observed globally, however, improvement was reported for some areas [1, 5]. At the same time, pediatric morbidity depends on the socio-economic and ecological-geographical characteristics, as well as on the sanitary and epidemiological condition of educational institutions and the level of medical care in each region of the country [2, 3, 6, 7]. Thus, investigation

of the features of incidence among children and adolescents in certain human environment aimed at identification of promising prevention vectors in the region is a priority in the development of healthcare system and the state's social policy.

The study was aimed to explore the regional features of the population health of children in the regions of the Far Eastern Federal District (FEFD).

METHODS

We conducted a retrospective analytical study based on assessing the data provided by the Federal State Statistics Service and its territorial bodies. The long-term average annual incidence in pediatric (under the age of 14) and adolescent (15–17 years) populations, the first diagnosed cases, by the disease classes per 1000 people was assessed as a criterion to estimate health status. The incidence among children and adolescents in 11 regions of FEFD was studied. The indicator values and structure were subject to analysis. The disease classes I–IV, VI–XIV, XVII, XIX according to the 10th revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10) for the period 2013–2020 were considered.

Statistical data processing involved comparative analysis of the long-term average annual incidence in FEFD and the Russian Federation in general, as well as comparison of the studied age groups in the macroregion and comparison with the all-Russian indicators (mean value for the assessed period (M) and error of the mean (m_p) were calculated) using Student's t -test. The data were considered significant at $p < 0.05$; the criterion values and appropriate significance levels were reported [8]. The Statistica 10.0 software package (StatSoft; USA) was used to perform statistical calculations.

RESULTS

The leading places in the structure of the long-term average annual incidence among children and adolescents by disease classes in FEFD were occupied by classes X (Diseases of the respiratory system) and XIX (Injury, poisoning and certain other consequences of external causes). Third place in children aged 0–14 years went to class XI (Diseases of the digestive system), while in adolescents it went to class XII (Diseases of the skin and subcutaneous tissue). The lowest incidence levels in children under the age of 14 were reported for classes III (Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism), IX (Diseases of the circulatory system), II (Neoplasms) (ranked 13, 14, 15, respectively); in adolescents, 13th place was occupied by the same item, 14th place went to class II (Neoplasms), 15th one went to class XVII (Congenital malformations, deformations and chromosomal abnormalities), while class IX (Diseases of the circulatory system) moved to the 12th place (Table 1).

Such ranking of incidence by the disease classes in the macroregion was generally similar to the all-Russian ranking, however, there were some differences. Thus, in children aged 0–14 in Russia, class XII (Diseases of the skin and subcutaneous tissue) occupied third place, class XI (Diseases of the digestive system) ranked fifth, 13th place was occupied by class XVII (Congenital malformations, deformations and chromosomal abnormalities), class III (Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism) ranked 12th. Distribution of the leading places and positions, for which the lowest incidence was reported, in adolescents aged 15–17 in FEFD and Russia was the same (Table 1).

Variability of the ranking positions distribution in the structure of the long-term average annual incidence by the disease classes were reported in the FEFD regions. It was found that class X (Diseases of the respiratory system) ranked first in both age groups in all the regions. In pediatric population, the second place was occupied by classes I (Certain infectious and parasitic diseases) in the Jewish Autonomous Region, XI (Diseases of the digestive system) in the Republics of Buryatia and Sakha (Yakutia), Trans-Baikal Territory, Amur and Sakhalin regions, XIX (Injury, poisoning and certain other consequences of external causes) in the Kamchatka, Primorsky and Khabarovsk Territories, Magadan region and Chukotka Autonomous Okrug. In individuals aged 15–17 of all regions, the second place was occupied by class XIX (Injury, poisoning and certain other consequences of external causes); only in the Sakhalin region this disease class ranked fourth, and the second place was occupied by class XI (Diseases of the digestive system). The third ranking position in children aged 0–14 was occupied by classes I (Certain infectious and parasitic diseases) in the Republic of Buryatia, Primorsky and Khabarovsk Territories, Magadan and Sakhalin regions, XII (Diseases of the skin and subcutaneous tissue) in the Kamchatka Territory and Jewish Autonomous Region, XIX (Injury, poisoning and certain other consequences of external causes) in the Republic of Sakha (Yakutia), Trans-Baikal Territory, Amur region. In adolescents aged 15–17, third place was occupied by classes VII (Diseases of the eye and adnexa) in the Magadan region and Chukotka Autonomous Okrug, XI (Diseases of the digestive system) in the Republics of Buryatia and Sakha (Yakutia), Trans-Baikal Territory and the Amur region, XII (Diseases of the skin and subcutaneous tissue) in the Kamchatka, Primorsky and Khabarovsk Territories, Sakhalin region and Jewish Autonomous Region.

The lowest long-term average annual incidence among children and adolescents in the FEFD regions for the assessed period was reported for classes II (Neoplasms), III (Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism), IV (Endocrine, nutritional and metabolic diseases), IX (Diseases of the circulatory system), XVII (Congenital malformations, deformations and chromosomal abnormalities). At the same time, variability of incidence for the listed above disease classes in both studied groups was reported in the FEFD regions. In children aged 0–14, class II (Neoplasms) ranked 13th in the Sakhalin region and the Chukotka Autonomous Okrug, 14th in the Republic of Sakha (Yakutia), Kamchatka and Primorsky Territories, and 15th in other regions of the macroregion. Class III (Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism) ranked 13th in the Republic of Sakha (Yakutia), Kamchatka, Primorsky and Khabarovsk Territories, Amur region and Jewish Autonomous Region and 14th in the Magadan and Sakhalin regions. Class IV (Endocrine, nutritional and metabolic diseases) ranked 14th in the Jewish Autonomous Region and Chukotka Autonomous Okrug. Class IX (Diseases of the circulatory system) occupied the 13th ranking position in the Magadan region, 14th position in the Republic of Buryatia, Trans-Baikal and Khabarovsk Territories, Amur region, and 15th position in the Republic of Sakha (Yakutia), Kamchatka and Primorsky Territories, Sakhalin region. Class XVII (Congenital malformations, deformations and chromosomal abnormalities) ranked 13th in the Republic of Buryatia and Trans-Baikal Territory, 15th in the Chukotka Autonomous Okrug. In the population of adolescents aged 15–17 of the FEFD regions, the last ranking positions were occupied by classes II (Neoplasms), III (Diseases of the blood and blood-forming organs and certain disorders involving the immune

Table 1. Long-term average annual values, ranking and comparative characteristics of incidence among children and adolescents by major disease classes

Disease class according to ICD-10	Long-term average annual values and comparative characteristics of incidence among children and adolescents by major disease classes						Comparative characteristics of incidence in appropriate age groups in FEFD and Russia	
	FEFD			Russia			0–14 years, <i>t, p</i>	15–17 years, <i>t, p</i>
	0–14 years, <i>M ± m_p</i> (rank)	15–17 years, <i>M ± m_p</i> (rank)	<i>t, p</i>	0–14 years, <i>M ± m_p</i> (rank)	15–17 years, <i>M ± m_p</i> (rank)	<i>t, p</i>		
I. Certain infectious and parasitic diseases	72.22 ± 10.56 (5)	40.86 ± 2.75 (8)	2.87; 0.004*	70.26 ± 3.37 (4)	34.29 ± 1.56 (10)	9.69; < 0.001*	0.13; 0.89	2.08; 0.04*
II. Neoplasms	5.34 ± 0.36 (15)	5.09 ± 0.26 (14)	0.56; 0.57	4.69 ± 0.11 (15)	4.89 ± 0.09 (14)	1.41; 0.16*	1.73; 0.08	0.73; 0.47
III. Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	9.76 ± 0.55 (13)	6.97 ± 0.31 (13)	4.42; < 0.001*	12.72 ± 0.8 (12)	8.79 ± 0.35 (13)	4.5; < 0.001*	3.05; 0.002*	3.89; < 0.001*
IV. Endocrine, nutritional and metabolic diseases	11.28 ± 0.61 (11)	24.1 ± 1.15 (11)	9.85; < 0.001*	15.03 ± 0.34 (11)	27.2 ± 0.8 (11)	14.0; < 0.001*	5.37; < 0.001*	2.21; 0.03*
VI. Diseases of the nervous system	34.71 ± 3.04 (8)	35.29 ± 1.87 (9)	0.16; 1.87	36.25 ± 1.5 (8)	38.48 ± 1.18 (8)	1.17; 0.24	0.45; 0.64	1.44; 0.15
VII. Diseases of the eye and adnexa	53.96 ± 2.93 (6)	54.27 ± 1.76 (6)	0.09; 0.93	55.55 ± 2.68 (6)	60.94 ± 2.15 (5)	1.57; 0.12	0.4; 0.69	2.40; 0.02*
VIII. Diseases of the ear and mastoid process	42.79 ± 2.23 (7)	28.7 ± 0.8 (10)	5.95; < 0.001*	47.23 ± 2.11 (7)	35.2 ± 0.97 (9)	5.18; < 0.001*	1.45; 0.15	5.17; < 0.001*
IX. Diseases of the circulatory system	5.63 ± 0.34 (14)	15.1 ± 0.48 (12)	16.1; < 0.001*	6.73 ± 0.35 (14)	16.16 ± 0.54 (12)	14.65; < 0.001*	2.25; 0.02*	1.47; 0.14
X. Diseases of the respiratory system	1305.01 ± 32.54 (1)	736.92 ± 7.7 (1)	16.99; < 0.001*	1150.6 ± 20.18 (1)	684.91 ± 4.52 (1)	20.18; < 0.001*	4.03; < 0.001*	5.83; < 0.001*
XI. Diseases of the digestive system	84.22 ± 6.03 (3)	76.2 ± 4.79 (4)	1.04; 0.3	67.65 ± 4.23 (5)	67.66 ± 3.79 (4)	< 0.001; 0.99	2.25; 0.02*	1.40; 0.16
XII. Diseases of the skin and subcutaneous tissue	75.73 ± 6.61 (4)	77.72 ± 5.59 (3)	0.23; 0.82	71.94 ± 3.62 (3)	75.24 ± 3.96 (3)	0.62; 0.54	0.50; 0.62	0.36; 0.72
XIII. Diseases of the musculoskeletal system and connective tissue	27.02 ± 1.61 (10)	48.36 ± 1.76 (7)	8.95; < 0.001*	31.71 ± 1.51 (9)	56.19 ± 2.14 (7)	9.35; < 0.001*	2.12; 0.03*	2.83; 0.004*
XIV. Diseases of the genitourinary system	28.78 ± 2.19 (9)	64.16 ± 3.59 (5)	8.41; < 0.001*	27.07 ± 1.22 (10)	56.99 ± 2.44 (6)	10.97; < 0.001*	0.68; 0.49	1.65; 0.098
XVII. Congenital malformations, deformations and chromosomal abnormalities	10.92 ± 0.92 (12)	2.69 ± 0.24 (15)	8.66; < 0.001*	10.6 ± 0.32 (13)	3.09 ± 0.19 (15)	20.18; < 0.001*	0.33; 0.74	1.31; 0.19
XIX. Injury, poisoning and certain other consequences of external causes	106.4 ± 4.39 (2)	191.36 ± 11.59 (2)	6.86; < 0.001*	103.59 ± 1.72 (2)	169.41 ± 4.7 (2)	13.15; < 0.001*	0.60; 0.55	1.76; 0.08

Note: * — Student's *t*-test at the significance level $p < 0.05 - p < 0.001$.

mechanism), XVII (Congenital malformations, deformations and chromosomal abnormalities).

Regions with the highest and lowest values for the disease classes were revealed. Thus, the Chukotka Autonomous Okrug was the leader by five classes in the age group of 0–14 years and by seven classes in adolescents aged 15–17. Primorsky Territory occupied the leading places by three disease classes in pediatric population and by class XIX (Injury, poisoning and certain other consequences of external causes) in adolescents. The Amur region, Kamchatka Territory and Jewish Autonomous Region demonstrated the highest values of the assessed indicator in one disease class, but in two age groups. The lowest long-term average annual incidence for some classes was many times reported in the Republic of Buryatia, Magadan region and Jewish Autonomous Region (Table 2).

Comparative analysis of the long-term average annual incidence by disease classes in the studied age groups in FEFD revealed significantly higher values of the assessed indicator in the younger age group for classes I (Certain infectious and parasitic diseases), III (Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism), VIII (Diseases of the ear and mastoid process), X (Diseases of the respiratory system), XVII (Congenital malformations, deformations and chromosomal abnormalities) and in the older age group for classes IV (Endocrine, nutritional and metabolic diseases), IX (Diseases of the circulatory system), XIII (Diseases

of the musculoskeletal system and connective tissue), XIV (Diseases of the genitourinary system), XIX (Injury, poisoning and certain other consequences of external causes). Similar differences were reported in Russia in general. Furthermore, it was found that in FEFD the long-term average annual incidence was significantly lower compared to the all-Russian indicators for classes III (Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism), IV (Endocrine, nutritional and metabolic diseases), XIII (Diseases of the musculoskeletal system and connective tissue) in both age groups, IX (Diseases of the circulatory system) in children aged 0–14, I (Certain infectious and parasitic diseases), VII (Diseases of the eye and adnexa), VIII (Diseases of the ear and mastoid process) in the group of adolescents aged 15–17. Higher values of the studied indicator in FEFD relative to Russia in general were reported for classes X (Diseases of the respiratory system) in children and adolescents and XI (Diseases of the digestive system) in the age group of 0–14 years (Table 1).

DISCUSSION

We believe that the identified features of the long-term average annual incidence by disease classes in the FEFD regions may be indicative of the unique factors involved in health formation in children and adolescents of the macroregion. Thus, diseases

Table 2. FEFD regions with the highest and lowest long-term average annual incidence by disease classes

Disease class according to ICD-10	Regions with the highest long-term average annual incidence		Regions with the lowest long-term average annual incidence	
	0–14 years; region, M ± m _p	15–17 years; region, M ± m _p	0–14 years; region, M ± m _p	15–17 years; region, M ± m _p
I. Certain infectious and parasitic diseases	Sakhalin region, 105.22 ± 7.96	Kamchatka Territory, 56.39 ± 6.02	Republic of Buryatia, 46.61 ± 3.79	Republic of Buryatia, 17.5 ± 1.1
II. Neoplasms	Chukotka Autonomous Okrug, 8.07 ± 0.62	Chukotka Autonomous Okrug, 9.66 ± 1.51	Republic of Buryatia, 2.05 ± 0.1	Republic of Buryatia, 1.98 ± 0.2
III. Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	Trans-Baikal Territory, 18.29 ± 1.42	Chukotka Autonomous Okrug, 13.78 ± 2.06	Kamchatka Territory, 5.15 ± 0.67	Khabarovsk Territory, 3.94 ± 0.24
IV. Endocrine, nutritional and metabolic diseases	Amur region, 19.25 ± 1.42	Amur region, 40.51 ± 2.29	Jewish Autonomous Region, 4.15 ± 0.38	Jewish Autonomous Region, 14.54 ± 2.71
VI. Diseases of the nervous system	Republic of Sakha (Yakutia), 48.93 ± 8.17	Republic of Sakha (Yakutia), 51.06 ± 6.64	Trans-Baikal Territory, 17.75 ± 1.49	Jewish Autonomous Region, 14.64 ± 1.38
VII. Diseases of the eye and adnexa	Chukotka Autonomous Okrug, 78.73 ± 5.7	Chukotka Autonomous Okrug, 91.89 ± 6.57	Republic of Buryatia, 37.47 ± 1.61	Jewish Autonomous Region, 34.49 ± 4.69
VIII. Diseases of the ear and mastoid process	Chukotka Autonomous Okrug, 70.66 ± 6.29	Chukotka Autonomous Okrug, 45.34 ± 2.06	Jewish Autonomous Region, 26.95 ± 3.78	Jewish Autonomous Region, 19.98 ± 1.12
IX. Diseases of the circulatory system	Chukotka Autonomous Okrug, 11.21 ± 2.95	Jewish Autonomous Region, 26.26 ± 2.74	Republic of Buryatia, 3.21 ± 0.48	Sakhalin region, 9.8 ± 1.11
X. Diseases of the respiratory system	Chukotka Autonomous Okrug, 1903.14 ± 105.49	Chukotka Autonomous Okrug, 1159.46 ± 49.15	Republic of Buryatia, 730.11 ± 7.23	Republic of Buryatia, 474.7 ± 12.53
XI. Diseases of the digestive system	Sakhalin region, 146.68 ± 8.52	Republic of Sakha (Yakutia), 123.09 ± 15.81	Magadan region, 37.73 ± 2.56	Magadan region, 26.95 ± 1.8
XII. Diseases of the skin and subcutaneous tissue	Kamchatka Territory, 92.94 ± 4.88	Kamchatka Territory, 110.69 ± 12.15	Magadan region, 38.82 ± 9.2	Republic of Buryatia, 32.64 ± 3.28
XIII. Diseases of the musculoskeletal system and connective tissue	Primorsky Territory, 43.6 ± 1.93	Chukotka Autonomous Okrug, 68.41 ± 10.64	Jewish Autonomous Region, 10.3 ± 1.08	Republic of Buryatia, 28.84 ± 2.09
XIV. Diseases of the genitourinary system	Primorsky Territory, 41.46 ± 2.76	Khabarovsk Territory, 82.76 ± 5.57	Magadan region, 13.8 ± 1.67	Republic of Buryatia, 24.93 ± 2.42
XVII. Congenital malformations, deformations and chromosomal abnormalities	Jewish Autonomous Region, 27.89 ± 3.76	Magadan region, 5.09 ± 0.84 Jewish Autonomous Region, 5.09 ± 0.57	Republic of Buryatia, 3.58 ± 0.39	Republic of Buryatia, 0.96 ± 0.19
XIX. Injury, poisoning and certain other consequences of external causes	Primorsky Territory, 153.45 ± 8.92	Primorsky Territory, 304.34 ± 15.36	Republic of Buryatia, 31.88 ± 1.78	Jewish Autonomous Region, 73.88 ± 3.39

of the respiratory system traditionally dominate among the disease classes. The highest indicator value was reported for the Chukotka Autonomous Okrug, while the lowest values were observed in the Republic of Buryatia [2]. The researchers note that the incidence of congenital malformations among children dominates in the Jewish Autonomous Region, Amur region, Trans-Baikal Territory, Republic of Buryatia [7]. Furthermore, the authors point to the lowest incidence of neoplasms in the age group of 15–17 years in the Republic of Buryatia. The data obtained for the Khabarovsk Territory are compliant with the data of the earlier studies of this region [9].

At the same time, there are a number of patterns typical for other country's administrative territorial units as well. Thus, similar studies conducted in other regions show that in the previous decade classes X (Diseases of the respiratory system), XIX (Injury, poisoning and certain other consequences of external causes), XII (Diseases of the skin and subcutaneous tissue), XI (Diseases of the digestive system), and VII (Diseases of the eye and adnexa) predominated among the disease classes in pediatric and adolescent populations [1, 4, 5, 10, 11]. At the same time, it should be noted that diseases of the digestive system that ranked second in a number of the FEFD regions ranked fourth and fifth in the Tumen region children

and adolescents, respectively [11]. Diseases of the respiratory system predominate in the structure of incidence in the Chechen Republic, while second place is occupied by diseases of the eye and adnexa, diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism rank third, diseases of the ear and mastoid process rank fourth. The authors explain the unique structure of incidence in their region by lower accessibility of primary medical care [12]. In 2017–2019, diseases of the respiratory system, injury, poisoning and certain other consequences of external causes predominated in children and adolescents of the Udmurt Republic. The only exception was the year 2018, when third place was occupied by diseases of the skin and subcutaneous tissue [13]. Diseases of the respiratory system predominated in the structure of incidence in the pediatric population of Saint-Petersburg for 20 years, followed by injury, poisoning and certain other consequences of external causes, infectious and parasitic diseases, diseases of the skin and subcutaneous tissue, diseases of the digestive system; diseases of the respiratory system, injury, poisoning, diseases of the skin and subcutaneous tissue, diseases of the genitourinary system predominated in adolescents [14]. Thus, the data obtained are confirmed by the research performed by other scientists.

CONCLUSIONS

The assumption that there are some features of incidence in pediatric population in the FEFD regions was proven. Both similarity and nuances of the pediatric and adolescent incidence ranking by certain disease classes in the macroregion relative to the all-Russian indicators were determined. Wide variability was revealed when ranking the assessed indicators in the FEFD regions. The leading regions in certain disease classes were defined along with the regions with the lowest incidence in these classes. Significant differences in the long-term average annual levels of the studied indicator between age

groups in FEFD and significant differences from the all-Russian values were revealed. The findings can provide the basis for further investigation of the regional health risk factors in children and adolescents and can be used to predict the health status of the younger generation and determine the strategic direction of the healthcare system in the macroregion. We consider it expedient to improve preventive areas in FEFD due to rather high incidence in the majority of disease classes. The identified features the incidence ranking by disease classes in the regions of the district will make it possible to base on the principle of appropriate expenditures when planning medical care provision to the population.

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