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INFECTIOUS DISEASES IN POLAND IN 2012

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ABSTRACT

The aim of the study is to assess the epidemiological situation for infectious and parasitic diseases in Poland in 2012.

MATERIALS AND METHODS. The main source of data for this study are statistical overviews contained in the annual bulletins "Infectious Diseases in Poland in 2012," and "Immunizations in Poland in 2012" (NIPH-NIH, Warsaw 2013) and data contained in the articles presented in this issue of Przegląd Epidemiologiczny. Information on deaths due to infectious and parasitic diseases registered in Poland in 2012 and earlier years is based on the data of the Department for Demographic Research of Central Statistical Office.

RESULTS. Upper respiratory tract infection classified as "influenza and influenza-like illness" were reported in 2012 in a total number of 1 460 037 cases. In comparison with 2011, it was an 26.2% increase of incidence, and as compared to the median of 2006 - 2010 of 286.1%.

In 2012, with still the clear predominance of salmonellosis among intestinal bacterial infections, downward trend in the incidence of intestinal infections of this etiology persisted. In 2012 reported number of intestinal infections caused by *Salmonella* was, 8 267 (21.5/100 000), which represents incidence decrease of 4.5%.

Foodborne infections of viral etiology were reported in 39462 cases (102.4/100 000). Most frequent were caused by rotaviruses - 23 692 (61.5/100, 000).

In 2012, there were 4 684 reported cases of pertussis (12.2/100 000), which means an increased incidence compared with the previous year by 180 %.

In 2012, there was an increase in the number of cases of mumps by 7.5% (from 2 585 to 2 779 cases), and of rubella by 46.0 %, but compared to the median of the years 2006 to 2010 it was a decrease of 52.9%. In 2012, there was not any case of congenital rubella . Number of measles cases was 70 (0.18/100 000).

In 2012, there was an increase in the number of cases of invasive disease caused by *H. influenzae* from 31 in 2011 to 36 in 2012.

Number of infections caused by *Streptococcus pneumoniae* remained in 2012 as compared to 2011, on almost the same level: 436 in 2012 and 430 in 2011. However, there was a 36% increase in the number of sepsis cases caused by this organism.

The incidence of tuberculosis in total (all forms of TB) in 2012 decreased compared to the previous year from 22.0 to 19.6 /100000, and pulmonary tuberculosis from 20.5 to 18.2 .

In 2012, were reported 1 093 cases of HIV infections (2.84/100 000), compared with the previous year, it was a fall in incidence of 2.4%.

21 cases of malaria occurred in people, who infection acquired abroad in malaria endemic areas.

In 2012, there were no cases of diphtheria, poliomyelitis, rabies and viral haemorrhagic fevers outside of dengue, of which 5 cases of infections acquired in endemic areas were reported to National Sanitary Inspection.

Total number of people who died in Poland in 2012 due to infectious and parasitic diseases,was \ 2 774. The share of deaths from these causes in the total number of deaths was 0.72%, and the mortality rate - 7.2/100 000. Out of all those deaths 41.1% were due to sepsis.

Keywords*: infectious diseases, epidemiology, public health, Poland, 2012*

PURPOSE OF THE STUDY

The aim of the study is to assess the epidemiological situation of infectious and parasitic diseases covered by epidemiological surveillance in Poland in 2012 as compared to 2011 and the years 2006 to 2010.

MATERIAL AND METHODS

The source of data for this study are statistical overwiews contained in the annual bulletin "Infectious Diseases in Poland in 2012," and "Immunizations in Poland in 2012" (NIPH-NIH, CSI, Warsaw 2013) and data contained in the articles of Epidemiological Chronicle presented in this issue of Przegląd Epidemiologiczny, in which the authors made a detailed discussion of issues relating to selected infectious diseases. Data on deaths due to infectious and parasitic diseases registered in 2012 and in selected previous years were obtained from the Department for Demographic Research CSO.

RESULTS AND DISCUSSION

Table 1, "Infectious diseases in Poland in the years 2006-2012. Number of cases, incidence per 100 000 and the number of deaths" contains the data for selected diseases which are notifiable under epidemiological surveillance.

Infections of the upper respiratory tract. Upper respiratory tract infection classified as "influenza and influenza-like illness" - in 2012, were reported in the number of 1 460 037 - 3789.0/100 000, as compared with 2011, it was an increase of 26.2%, and to the median of 2006-2010 of 286.1%. As in previous years, the incidence of influenza and influenza like illness was highest in children in the age group 0-14, which amounted to 12 096.2/100 000. In 2012 4 persons died from influenza, while in 2011 it were reported 95 deaths from flu. The problem is the low percentage of confirmed diagnoses of influenza. In 2012, only 133 cases had laboratory-confirmed diagnosis of influenza.

Foodborne infections. In 2012, among foodborne bacterial infections like in the last decades dominated infections caused by *Salmonella* with continued downward trend with regard to both incidence and fractional share of salmonellosis among diseases of different etiologies, especially viral infections. Most viral infections were caused by rotavirus, which occured primarily in children. In 2012, there were reported 23 692 rotavirus infections (61.5/100 000), a decrease of 23.0% compared to the previous year and an increase of 12.3% compared to the median of 2006-2010. Total number of reported viral gastrointestinal infections was 39 462 cases (102.4 /100 000). In comparison with the previous year it was the drop, but an increase of 19.9% from the median of 2006-2010.

Foodborne infections are a particular threat to children at the age of up to 2 years of age. In this age group they can often lead to severe dehydration and electrolyte imbalance . In 2012, as the "viral and other intestinal infections" in children under 2 years were reported 18 066 cases (2 288,4/100 000), and the "probably infectious diarrhea" under 2 years, 14 201 (1,798.9/100 000).

Noroviral infection, occurring more frequently in adults, are also an important issue. In 2012, were 5.2% more of these infections than in 2011. In relation to the median of 2006-2010 there was an increase of 36.7%. Low percentage of laboratory confirmed diagnoses of diseases in which the primary symptom is diarrhea casuses low sensitivity of the diagnosis of noroviral infections. It is highly probable that there are much more of those than it is identified under epidemiological surveillance. The same problem applies to other bacterial infections such as campylobacteriosis, which in Poland is recognized much less frequently than salmonellosis, but in Western European countries nearly equaly often.

In 2012, there have been only 13 cases of bacterial dysentery reported in Poland. A limited number of laboratory tests performed to confirm the etiology of gastrointestinal infections makes the number of cases of diarrhea of different etiology such as *Yersinia sp*. undereported.

Diseases covered by the obligatory vaccination program (PSO). Surveillance of this group of diseases is particularly important because that the data on the incidence of these diseases have a direct impact on vaccination policy.

Regarding the diseases that can be prevented by vaccination of particular concern is the increase in the incidence of pertussis that occurred in 2012. There were 4 684 cases reported with incidence (12.2/100 000). This was the highest incidence of the disease since 1971. Significant differences in the incidence of whooping cough between the provinces can at least to a large extent depend on the differences in the sensitivity of the capture of cases, and fraction of laboratory confirmations.

In 2012, the incidence of mumps has increased by 7.5% which is not a significant change. In relation to the median of the years 2006-2010 it is a decrease of 16.0%. An increase in the incidence of rubella in 2012 was more pronounced. Compared with the previous year it increased of 46.0%. Older birth cohorts of men who were not vaccinated against rubella form a reservoir of this disease and until the time of vaccination coverage of the total population of teenagers and young adults, such fluctuations of incidence may be repeated. The introduction in 2003 of universal vaccination with MMR

Table I. Infectious diseases in Poland 2006-2012. Number of cases, incidence per 100 000 population and number of deaths by disease and year

Disease		Categories of International Classification of Diseases (ICD-10)	Median in years 2006-2010			2011			2012		
			number of cases	incidence*	number of deaths**	number of cases	incidence*	number of deaths**	number of cases	incidence*	number of deaths**
1		2	3	4	5	6	6	8	9	10	11
Cholera [EU]		A00	0	0	0	0	0	0	0	0	0
Typhoid fever [EU]		A01.0	3	0.008	0	2	0.005	0	2	0.005	0
Paratyphoid fevers A, B, C [EU]		A01.1-A01.3	2	0.005	0	2	0.005	0	5	0.013	0
Salmonella infections	total	A02	9 732	25.5	4	8 813	22.9	3	8 444	21.9	7
	Salmonella Enteritis [EU]	A02.0	9 549	25.0	2	8 652	22.5	1	8 267	21.5	1
	parenteral infections	A02.1-A02.9	136	0.36	2	161	0.42	2	177	0.46	6
Shigellosis [EU]		A03	33	0.09	0	18	0.05	0	13	0.03	0
Other bacterial intestinal infections	total	A04	6 595	17.3	14	6 539	17.0	75	7 046	18.3	167
	enteropathogenic, enterotoxigenic, enteroinvasive *E. coli*	A04.0-A04.2	1 191	3.12	0	650	1.69	0	532	1.38	0
	enterohaemorrhagic *E. coli* [EU]	A04.3	4	0.010	0	5	0.013	0	5	0.013	0
	other intestinal *E. coli*	A04.4	908	2.38	0	860	2.23	0	845	2.19	0
	campylobacteriosis [EU]	A04.5	270	0.71	0	354	0.92	0	431	1.12	0
	yersiniosis [EU]	A04.6	206	0.54	0	238	0.62	0	201	0.52	0
	other specified and unspecified	A04.7-A04.9	4 078	10.7	13	4 432	11.5	75	5 032	13.1	167
Other bacterial intestinal infections in children under 2 years		A04	2 846	369.9	0	2 160	263.0	1	2 119	268.4	0
Other bacterial foodborne intoxications	total	A05	2 740	7.2	4	2 195	5.7	0	1 787	4.6	12
	staphylococcal	A05.0	217	0.57	0	283	0.73	0	147	0.38	0
	botulism [EU]	A05.1	46	0.12	0	35	0.09	0	22	0.06	2
	Clostridium perfringens	A05.2	4	0.010	1	24	0.062	0	5	0.013	0
	other specified	A05.3-A05.8	125	0.33	0	53	0.14	0	52	0.13	2
	unspecified	A05.9	2 347	6.2	3	1 800	4.7	0	1 561	4.1	8
Other bacterial foodborne intoxications in children under 2 years		A05	109	13.2	1	112	13.6	0	72	9.1	0
Giardiasis /lambliasis/ [EU]		A07.1	2 945	7.7	0	1 736	4.5	0	1 655	4.3	0
Cryptosporidiosis [EU]		A07.2	0	0	0	1	0.003	0	2	0.005	0
Viral and other specific intestinal infections	total	A08	32 559	85.4	2	44 906	116.6	4	39 462	102.4	5
	rotaviruses	A08.0	20 902	54.7	0	30 769	79.9	2	23 692	61.5	1
	noroviruses	A08.1	1 068	2.8	0	1 402	3.6	0	1 475	3.8	0
	other specified and unspecified	A08.2-A08.5	7 711	20.2	2	12 735	33.1	2	14 295	37.1	4
Viral and other specific intestinal infections in children under 2 years		A08	15 260	1901.7	0	21 250	2587.8	1	18 066	2288.4	0
Diarrhoea in children under 2 years, NOS, presumed of infectious origin		A09	11 096	1389.2	1	13 068	1591.4	1	14 201	1798.9	0
Tuberculosis [EU, 1)]	total	A15-A19	8 236	21.6	743	8 478	22.0	640	7 542	19.6	630
	respiratory	A15-A16; A19	7 654	20.1	727	7 879	20.5	617	7 018	18.2	620
Plague [EU]		A20	0	0	0	0	0	0	0	0	0

1		2	3	4	5	6	6	8	9	10	11
Tularaemia [EU]		A21	3	0.008	0	6	0.016	0	6	0.016	0
Anthrax [EU]		A22	0	0	0	0	0	0	0	0	0
Brucellosis (new cases) [EU]		A23	2	0.005	0	0	0	0	0	0	0
Leptospirosis [EU]		A27	6	0.016	1	4	0.010	1	2	0.005	0
Listeriosis [EU]		A32; P37.2	33	0.09	2	64	0.17	4	54	0.14	8
Tetanus [EU]		A33-A35	19	0.05	5	14	0.04	5	19	0.05	4
Diphtheria [EU]		A36	0	0	0	0	0	0	0	0	0
Whooping cough [EU]		A37	1 987	5.2	0	1 669	4.3	0	4 684	12.2	0
Scarlet fever		A38	11 179	29.3	0	18 267	47.4	0	25 421	66.0	0
Meningococcal disease [EU]	total	A39	296	0.78	18	296	0.77	16	241	0.63	11
	meningitis and / or encephalitis	A39.0; A39.8/G05.0	190	0.50	2	193	0.50	0	165	0.43	1
	sepsis	A39.1-A39.4	190	0.50	14	192	0.50	15	146	0.38	9
Erysipelas		A46; O86.8	4 805	12.6	13	3 425	8.9	11	4 241	11.0	9
Legionellosis [EU]		A48.1-A48.2	28	0.07	0	18	0.05	0	10	0.03	0
Syphilis (total) [EU, 2)]		A50-A53	932	2.44	2	955	2.48	3	993	2.58	4
Gonorrhoea [EU, 2)]		A54	330	0.87	0	298	0.77	0	733	1.90	0
Other sexual transmitted diseases caused by *Chlamydia* [EU, 2)]		A56	627	1.64	0	319	0.83	0	314	0.81	0
Lyme disease		A69.2	8 255	21.7	3	9 157	23.8	1	8 784	22.8	4
Ornithosis		A70	1	0.003	0	0	0	0	0	0	0
Q fever [EU]		A78	0	0.003	0	0	0	0	0	0	0
Typhus fever, spotted fever and other rickettsioses		A75; A77; A79	0	0	0	2	0.005	0	3	0.008	0
Acute poliomyelitis [EU]	acute paralytic poliomyelitis, wild virus	A80.1; A80.2; A80.4;	0	0	0	0	0	0	0	0	0
	acute paralytic poliomyelitis, vaccine-associated (VAPP, cVDPV)	A80.0; A80.3-9	0	0	0	0	0	0	0	0	0
Spongiform encephalopathy	Creutzfeldt-Jakob disease (CJD)	A81.0	13	0.03	19	21	0.05	21	17	0.04	23
	variant Creutzfeldt-Jakob disease (vCJD) [EU]	A81.0	0	0	0	0	0	0	0	0	0
Rabies [EU]		A82	0	0	0	0	0	0	0	0	0
Viral encephalitis	total	A83-A86; G05.1	514	1.35	19	399	1.04	11	376	0.98	4
	tick-borne viral encephalitis	A84	294	0.77	2	221	0.57	1	189	0.49	1
	other specified	A83; A85; B00.4; B02.0	41	0.11	4	37	0.10	1	47	0.12	4
	unspecified	A86	167	0.44	13	141	0.37	10	111	0.29	2
Viral meningitis	total	A87; G02.0	1 167	3.06	4	1 039	2.70	5	1 285	3.33	3
	enteroviral	A87.0	37	0.10	0	23	0.06	2	102	0.26	0
	other specified and unspecified	A87.1-A87.9; B00.3; B02.1	1 130	2.96	4	1 016	2.64	3	1 166	3.03	3
Dengue fever [EU]		A90-A91	4	0.010	0	5	0.013	0	5	0.013	0
Yellow fever [EU]		A95	0	0	0	0	0	0	0	0	0
Lassa fever [EU]		A96.2	0	0	0	0	0	0	0	0	0

1			2	3	4	5	6	6	8	9	10	11
Crimean-Congo haemorrhagic fever [EU]			A98.0	0	0	0	0	0	0	0	0	0
Disease caused by Marburg or Ebola virus [EU]			A98.3; A98.4	0	0	0	0	0	0	0	0	0
Varicella			B01	141 349	370.7	1	172 855	448.7	0	208 276	540.5	1
Measles [EU]			B05	100	0.26	0	38	0.10	0	70	0.18	0
Rubella [EU]	total		B06; P35.0	13 146	34.5	0	4 290	11.1	0	6 263	16.3	0
	congenital rubella		P35.0	1	0.24	0	0	0	0	0	0	0
Viral hepatitis	total		B15-B19	4 104	10.8	229	3 995	10.4	259	3 933	10.2	288
	type A [EU]		B15	155	0.41	0	65	0.17	0	71	0.18	1
	type B [EU, 3)]		B16; B18.0-B18.1	1 475	3.9	68	1 583	4.1	49	1 583	4.1	52
	type C /case definition from 2005/ [EU, 3)]		B17.1; B18.2	2 353	6.2	137	2 338	6.1	194	2 292	5.9	217
	other specified and unspecified		B17.0; B17.2-B17.8; B18.8-B18.9; B19	60	0.16	23	39	0.10	16	20	0.05	18
AIDS [EU, 4)]			B20-B24	167	0.44	123	184	0.48	130	156	0.40	118
Newly diagnosed HIV infections [EU, 4)]			Z21	838	2.20	x	1 120	2.91	x	1 093	2.84	x
Mumps [EU]			B26	3 271	8.6	0	2 585	6.7	0	2 779	7.2	0
Malaria [EU]			B50-B54; P37.3-P37.4	22	0.06	1	14	0.04	0	21	0.05	0
Echinococcosis [EU]			B67	36	0.09	2	19	0.05	1	28	0.07	1
Trichinellosis [EU]			B75	51	0.13	0	23	0.06	0	1	0.003	0
Pneumococcal invasive disease [EU]	total		B95.3/ inne	273	0.72	.	430	1.12	.	436	1.13	.
	meningitis and / or encephalitis		B95.3/ G04.2; G00.1	161	0.42	8	192	0.50	15	145	0.38	8
	sepsis		A40.3	116	0.30	5	188	0.49	6	256	0.66	6
	other specified and unspecified		B95.3/ inne; J13	64	0.17	9	123	0.32	20	128	0.33	22
Haemophilus influenzae, invasive disease [EU]	total		B96.3/ inne; A41.3	31	0.08	.	31	0.08	.	36	0.09	.
	meningitis and / or encephalitis		B96.3/ G04.2; G00.0	23	0.06	4	11	0.03	2	11	0.03	0
	sepsis		A41.3	15	0.04	1	14	0.036	2	15	0.039	0
Bacterial meningitis and / or encephalitis		other specified	G00.2-G00.8; G04.2	149	0.39	9	139	0.36	19	128	0.33	24
		unspecified	G00.9; G04.2	424	1.11	74	353	0.92	77	310	0.80	60
Meningitis other and unspecified			G03	395	1.04	38	493	1.28	41	597	1.55	31
Encephalitis other and unspecified			G04.8-G04.9	92	0.24	70	96	0.25	48	117	0.30	48
Influenza and influenza-like illness [EU]			J10; J11	374 042	981.3	18	1 156 357	3 001.5	95	1 460 037	3 789.0	4
Congenital toxoplasmosis [EU]			P37.1	7	1.87	2	4	1.03	1	10	2.59	0
Persons bitten by animals suspected of having rabies or contamination of saliva of these animals after which it was taken vaccination against rabies				7 102	18.6	.	7 842	20.4	.	7 999	20.8	.

* incidence, respectively per 100 000 population total, children under 2 years and live births (congenital disease); ** number of deaths according to data from the Demographic Surveys and Labour Market Department-CSO; EU - disease under European Union surveillance ; 1) data from Institute of Tuberculosis and Lung Diseases; 2) data from Centre for Health Information Systems (CSIOZ); 3) number of cases and incidence total (including mixed infections with HBV + HCV); 4) data from Department of Epidemiology, NIPH -NIH by date of diagnosis of infection / disease

over time is expected to further improve epidemiological situation of rubella.

For several years, are observed small outbreaks measles in different age groups, usually associated with importation of this disease to our country. It also involves the migration to Poland people who do not vaccinate their children. In 2012 there were reported 70 cases of measles, but in 2011 only 38. The increase in incidence as compared with the previous year was 84.2 %, but compared with the median of 2006-2010 it was a decrease of 30.8 %. At low incidence, even small outbreaks of measles cause significant changes in the percentages of incidence, which, even if of no great epidemiological importance, indicate problems with vaccination against measles of people from certain ethnic or social groups.

In 2012, invasive disease caused by *H. influenzae* occurred in the number of 36, with five cases more than in the previous year. The improvement of the epidemiological situation regarding infections caused by *Haemophilus influenzae* type b (Hib) may indicate the effectiveness of vaccination against Hib .

Tuberculosis. The incidence of all forms of tuberculosis in 2012 decreased compared to the previous year from 22.0/100 000 to 19.6/100 000 and regarding pulmonary tuberculosis from 20.5/100 000 to 18.2/100 000. As in previous years there has been large, in extreme cases, tripling the differences in incidence between different provinces. The most serious epidemiological situation of tuberculosis is in Lubelskie, Świętokrzyskie and Śląskie. Differences in the incidence of tuberculosis between the provinces are the hallmark of not only the epidemiological situation in these regions, but also the demographic problems and living conditions of the population. During the last decade it was seen a downward trend in the incidence of tuberculosis in Poland.

Other infectious and parasitic diseases. At the present time a serious problem represent invasive infections caused by *Streptococcus pneumoniae*. Number of reported cases of S. pneumoniae infections in total amounted to 436 (1.13/100 000). In 2012, at least 36 of these cases were fatal; 8 in the course of meningitis, 6 due to sepsis, and 22 deaths occurred in the course of other diseases caused by this microorganism. There are strong indications that the number of *S. pneumoniae* infections that occurin Poland is much higher than the number of notifications for epidemiological surveillance.

The year 2012 was another year in which was seen the increase in the incidence of scarlet fever. There were 25 421 cases reported, incidence (66.0/100 000) which as compared to the previous year, was an increase of 39.1%, and compared with a median of 2006 – 2010 was an increase of 124.9% . There were no deaths due to scarlet fever.

In 2012, there were reported 241 cases of invasive meningococcal disease (0.63/100 000). In relation to the median of the years 2006-2010 it was a decrease of 19.4%.

Since 2002, it is observed growing trend of newly diagnosed HIV infections. In 2012, the reported number was 1 093 (2.84/100 000). It is an increase of 29% to the median of the years 2006-2010. These data indicate low efficiency of preventive measures. Despite the scarcity of information about risk factors of new infections, there are some indications that the cause of the observed increase in incidence are unprotected sexual contacts, mainly between men.

Important public health problem are viral hepatitis C and B. Of these, the most serious epidemiological problem is hepatitis C against which there is no effective vaccine. In 2012, the number of reported new cases was 2 292, and the incidence was 5.9/100 000. Compared with the previous year, this is a decrease of 2%, and compared to the median of 2006-2010 by 3.6%. The reversal of the increasing trend in the incidence of hepatitis C gives hope for further improvement related to hygiene and sterilization quality in medical institutions.

However, due to the fact that it is a chronic disease having sometimes serious consequences such as cirrhosis and primary liver cancer after many years, the annual increase of newly detected infections accumulate to the level of very serious public health problem.

The epidemiological situation of hepatitis B differs because of the possibility of active immunization. In 2012, the number of reported cases of hepatitis B was 1 583 (4.1/100 000). The incidence since the previous year has not changed. But among obligatorily vaccinated children in age group 0-14 there were not any cases of infection.

For many years Poland is a country with very low endemicity of hepatitis A. Few dozens occurs annually, rarely more than one hundred cases (in 2012 there were 71). Cases are usually associated with the arrival of people infected with HAV from abroad and with the occurrence of small outbreaks.

The incidence of Lyme borreliosis had a clear upward trend from 1998 to 2009, but in the years 2010-2012 incidence of this disease has not changed significantly. In the year 2012, there were 8 784 cases (22.8/100 000), which in relation to the median of the years 2006 to 2010 was the increase in the incidence barely of 5.3%.

In 2012, number of reported cases of echinococcosis was 28, by 47.3% more than in the previous year, but in relation to the median of the years 2006 to 2010 it was a decrease of 22.9%.

Outbreaks of trichinosis, which were quoted several times in previous years, especially after the consumption of wild boar meat in 2012, did not occur. Only one

affected person was reported. This is probably related to better veterinary supervision over the meat of hunted animals, especially wild boar.

Endemic malaria does not occur in Poland, but some cases are imported from endemic regions. In 2012 there were 21 cases of malaria diagnosed in people who have acquired an infection abroad.

In 2012, there were reported 189 cases (0.49/100 000) of tick-borne encephalitis. This was a decrease of 14.5% compared with the previous year . Due to the fact that 111 cases of encephalitis were diagnosed without determining the etiological factor, number of encephalitis cases transmitted by ticks could be higher.

1 285 cases (3.33/100000) of viral meningitis were reported. This increased incidence of 23.7% from the previous year.

In 2012, there were reported 34 cases of flaccid paralysis in children aged 0-14 years, which gives the incidence of 0.59/100 000 Distribution of notifications from individual provinces is uneven. Of the three provinces: Opolskie, Podkarpackie and Podlaskie there were no reports. In contrast, the value of the expected incidence ≥ 1/100 000 was obtained in only four provinces: Kujawsko-Pomorskie, Małopolskie, Warmińsko-Mazurskie and Świętokrzyskie.

Reporting of flaccid paralysis is an important and objective test of the sensitivity of the epidemiological surveillance and unfortunately for a number of years the results of these reports give us a bad certificate

In 2012, there were no cases of especially dangerous infectious diseases: plague, anthrax, diphtheria, poliomyelitis, rabies and viral haemorrhagic fevers except for dengue, of which 5 cases acquired in endemic areas reported to the epidemiological surveillance system.

Deaths and mortality from infectious diseases. Data provided by the Department of Demographic Studies of the Central Statistical Office indicate that in 2012, due to infectious and parasitic diseases died in Poland 2 774 people. It takes into account the deaths caused by some forms of meningitis and encephalitis, and flu (symbols: G00 - G05 and J10 - J11 of International Classification of Diseases, ICD- 10). The share of deaths from infectious diseases in the total number of deaths in Poland in 2012 (384 788 deaths) was 0.72%, and the mortality rate 7.2 /100 000. In comparison with the analogous indicators recorded in the previous year (respectively 0.91% and 8.8) values for 2012 were significantly lower - respectively 20.6% and 18.6 %. Thus, the upward trend in mortality from infectious diseases observed in Poland after 1998 was halted, especially in the last 5 years (Figure 1 Mortality from infectious diseases per 100 000 population and the percentage of deaths due to infectious diseases in general number of deaths in Poland in the years 1983-2012).

A clear reduction in mortality from infectious diseases recorded by the CSO, was the effect of a sharp reduction in the number of deaths in which the cause was streptococcal or another septicemia, most often "not specified" (meningococcal and neonatal sepsis excluded - codes A40 and A41 by ICD-10). In 2012, we recorded 1 141 such cases (the year before 1 773), which meant a decrease of 35.6% compared with the previous year.

So sharp decline from year to year in the number of deaths from sepsis could not be due to the improvement of the epidemiological situation or result from a reduction in sepsis mortality. It occurred in consequence of the verification of the death certificates done at the request of the Department of Epidemiology, NIPH-NIH to the Department for Demographic Research CSO. In requesting a verification Department of Epidemiology pointed out that the observed in Poland in recent years increase in the number of deaths due to sepsis may indicate a departure from recommended by ICD-10 coding first of all the conditions preceding sepsis, leading to it.

As a result of such verification the number of deaths, for which sepsis was identified as a cause decreased by

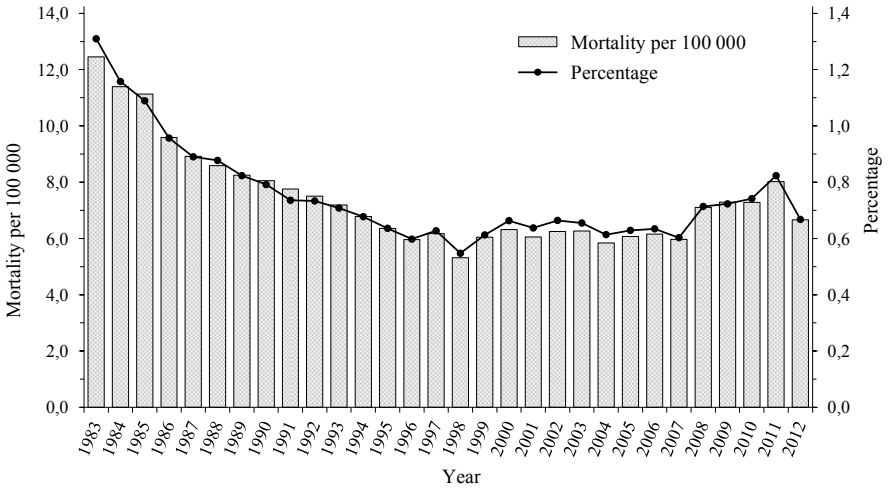

Fig. 1. Infectious diseases mortality per 100 000 population and deaths from infectious diseases as percentage of all deaths by year - Poland 1983-2012

nearly half (from 2 034 before verification to 1 141). Sepsis still, as in previous years, remains the most common cause and account for 41.1% of all deaths due to infectious diseases (previous year 52.0%).

Among the infectious diseases that have caused the greatest number of deaths in 2012, except for sepsis were: tuberculosis and its late sequelae (640 deaths, 23.1% of all deaths due to infectious and parasitic diseases), viral hepatitis and their long-term effects (all types together - 296 deaths, 10.7%), intestinal infection caused by *Clostridium difficile* (127 deaths, 4.6%), bacterial meningitis and / or encephalitis (122; 4.4%), and AIDS (118; 4.3). The above-mentioned diseases together (including sepsis) were the cause of almost 90% of all deaths from infectious diseases in 2012

Draws attention growth in the number of deaths from intestinal infections caused by *Clostridium difficile,* which prior to 2008 were recorded in Poland only occasionally (from 0 to 3 deaths per year). Increased number of laboratories performing its detection, only partially explains the increase, and therefore it should be noted that *Cl. difficile* was in 2012, the pathogen that caused the most outbreaks of nosocomial infections reported to surveillance (82 outbreaks, 27% of all reported outbreaks).

Differences in mortality recorded between provinces in 2012, as compared to the differences observed in the previous year increased significantly. The ratio of the highest to the lowest was 4.7:1. The share of deaths from infectious diseases in the total number of deaths ranged from 0.24% in Podlaskie and 0.34% Kujawsko-Pomorskie to 1.07% in the Zachodniopomorskie and 1.12% in Pomorskie; and mortality from infectious diseases from 2.3/100 000 in Podlaskie and 3.3 in Kujawsko-Pomorskie to 10.3 in the Zachodniopomorskie and 10.9 in Mazowieckie.

The share of infectious and parasitic diseases in the causes of death for men in 2012 (0.77%; mortality rate 8.3/100 000), as in previous years, surpassed that in women (respectively 0.67% and 6.2). Male mortality rate from infectious diseases was 35.0% higher than the mortality rate of women and it was higher for all age groups except 10-14 years old. In the age group 5-9 years difference to the disadvantage of men was almost 5-fold (but related to six deaths in total), in the group of 30-34 years - 4-fold, and in the 15-19 age group - almost four times. (Fig.2. Mortality from infectious diseases (per 100 000 population) in Poland in 2012, by gender and age)

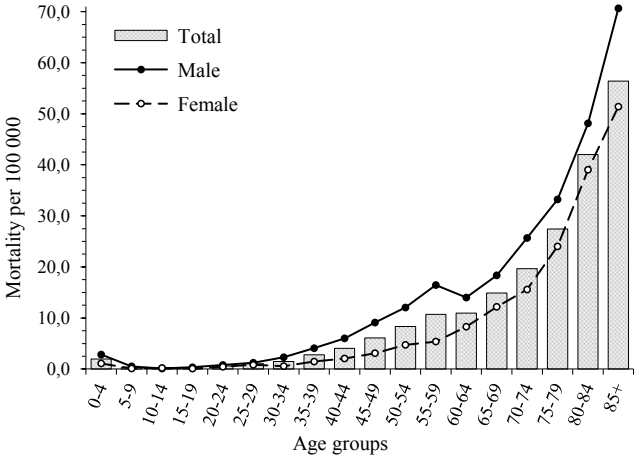

Fig. 2. Infectious diseases mortality per 100 000 population by gender and age group - Poland 2012

According to the long-term trend, the proportion of infectious and parasitic diseases in the causes of death of urban residents was significantly higher than that of rural residents. In the cities, infectious and parasitic diseases were the cause of 0.84% of the total deaths, while in rural areas 0.54%. Overall mortality from infectious diseases in urban areas (8.4/100 000) was higher than the mortality rate in rural areas (5.4) by 57.0% and in only one age group (15-19 years), this difference was reversed. The biggest difference to the detriment of the city, almost 4-fold - occurred in the age group 30-34 years. (Figure 3 Mortality from infectious diseases (per 100 000 population) in Poland in 2012, according to the environment and age)

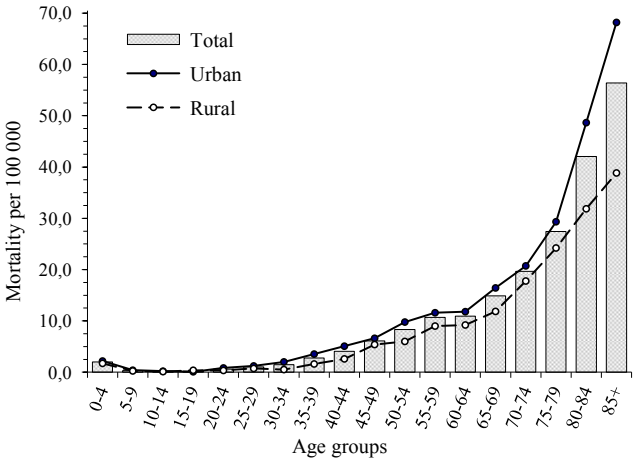

Fig. 3. Infectious diseases mortality per 100 000 population by location (urban/rural) and age group - Poland 2012

Most deaths due to infectious and parasitic diseases was noted among the elderly 80-84 years old and the highest mortality from these diseases among the oldest people over the age of 84 years (56.4 per 100 000). However the largest percentage of infectious diseases as a causes of death, occurred in children under the age of 9 and adults aged 30 - 44. In the group of children 0-4, this share was 1.9 % , including infants 1.1% (5.2 deaths per 100 000), in children 2 years old - 3.8%, in 3 years old - 10.3%, 4 years old - 5.8% and 5 years old - 7.5%); while in the group of children aged 5-9

years - 2.9%. Among the causes of adult deaths in the age group of 30-34 years old the proportion of deaths due to infectious diseases was 1.6%, in the group of 35-39 years old - 2.0% in the group 40-44 years old - 1.7%. Thus, verification of death certificates reported to the CSO as initially deaths from sepsis, resulted not only in a reduction in the total number of deaths due to infectious diseases recorded in 2012, but has also lead to reduction of the differences in the share of infectious diseases in total mortality int different age groups.

SUMMARY

Epidemiological situation of infectious diseases in Poland in 2012, except for a large , 180% increase of the incidence of pertussis, did not show a dramatic change compared with the previous year. Increases occurred in some diseases that can be prevented by vaccination: measles, rubella, and invasive *Haemophilus influenzae* type b, but in the case of measles increased incidence of 84.2% concerned the small number of cases from 38 in 2011 to 70 in 2012.

In 2012, it was continued the tendency of decline in the incidence of food poisoning and infections of bacterial etiology with an increase in the incidence of the disease of viral etiology.

In 2012, there was no significant improvement in terms of the largest problem of epidemiological surveillance in Poland, which is a low percentage of laboratory confirmation of diagnoses of illnesses and infections.

With the continuing high level of mandatory vaccinations coverage, percentage of people undergoing the recommended vaccination is not improved. There is also increasing the number of conscious refusals of obligatory vaccination (1-2%).

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