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## CHICKENPOX IN POLAND IN 2013\*

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### ABSTRACT

**BACKGROUND.** A large number of chickenpox cases, occurring especially in children, indicates the rationale for the use of chickenpox vaccinations. In Poland since 2002, chickenpox vaccination is included in the National Immunisation Programme as recommended.

**AIM.** To assess epidemiological situation of chickenpox in Poland in 2013 in comparison to previous years.

**METHODS.** The descriptive analysis was based on data retrieved from routine mandatory surveillance system and published in the annual bulletins “Infectious diseases and poisonings in Poland in 2013” and “Vaccinations in Poland in 2013” (Czarkowski MP i in., Warszawa 2014, NIZP-PZH i GIS). National Immunisation Programme for year 2013 was also used.

**RESULTS.** In 2013, 178 501 cases of chickenpox were registered in Poland. The incidence was 463.6 and was lower than in 2012 (540.5). The highest number of cases was reported in mazowieckie voivodeship, the lowest in podlaskie voivodeship. The highest incidence was recorded in children aged 4 years (6 545.1 per 100,000). The chickenpox incidence among men (491.7) was higher by 12.4% comparing to women (437.3). The incidence among rural residents (497.2) was higher than among urban residents (441.7). Number of cases hospitalized due to mumps was 1 184. Number of people vaccinated against chickenpox was 57 168.

**SUMMARY.** In 2013, there was decrease in the incidence of chickenpox in Poland with small fluctuations. Since 2002 the number of people vaccinated against chickenpox increased. The increase in the number of people vaccinated against chickenpox would help maintain the downward trend in subsequent years.

**Keywords:** *chickenpox, varicella, epidemiology, Poland 2013*

### INTRODUCTION

Number of chickenpox cases reported each year, occurring especially in children in age of 0-4, indicates the rationale for the use of chickenpox vaccinations. In Poland since 2002, chickenpox vaccination is included in the National Immunisation Programme as recommended. In order to vaccinate people at risk of chickenpox infection two doses of chickenpox vaccine should be given in accordance with the current National Immunization Program.

### MATERIAL AND METHODS

The descriptive analysis of epidemiological situation of chickenpox was based on data retrieved from routine mandatory surveillance system and published

in the annual bulletin “Infectious diseases and poisonings in Poland in 2013”. Vaccination coverage was assessed based on data published in the annual bulletin “Vaccinations in Poland in 2013” (Czarkowski MP i in., Warszawa 2014, NIZP-PZH i GIS). Detailed recommendations for vaccination against chickenpox come from National Immunisation Programme for 2013.

### RESULTS

#### **Epidemiological situation of chickenpox in 2013.**

From 2002, in Poland, an increasing trend with small fluctuations is observed (Fig.1)

In 2013, 178 500 cases of chickenpox were registered in Poland, i.e. 16.7% more than in the previous year. However in two voivodships (mazowieckie and małopolskie) number of cases increased (18 445 and

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Table 1. Chickenpox in Poland in 2007-2013. Number of cases and incidence per 100,000 population and number and percentage of hospitalized cases by voivodeship

Voivodeship	Median 2007-2011		2012		2013			
	number of cases	incidence per 100 000	number of cases	incidence per 100 000	number of cases	incidence per 100 000	hospitalization	
							number	%
POLAND	160 174	370.7	208 276	540.5	178 501	463.6	1 184	0.66
1 Dolnoslaskie	11 226	348.7	12 335	423.1	8 488	291.6	57	0.67
2 Kujawsko-pomorskie	10 363	535.6	15 882	757.1	12 648	604.0	100	0.79
3 Lubelskie	7 252	311.0	10 593	488.5	9 967	461.3	75	0.75
4 Lubuskie	5 645	457.6	5 852	572.0	4 452	435.5	17	0.38
5 Lodzkie	7 998	315.1	11 417	451.5	10 496	416.9	121	1.15
6 Malopolskie	13 967	384.2	15 848	473.0	18 445	549.5	87	0.47
7 Mazowieckie	20 649	398.7	25 308	478.1	27 421	516.7	270	0.98
8 Opolskie	4 857	450.7	6 657	657.6	5 086	505.1	27	0.53
9 Podkarpackie	6 105	274.8	7 626	358.2	6 451	303.0	42	0.65
10 Podlaskie	4 478	355.4	4 908	409.1	3 686	308.1	32	0.87
11 Pomorskie	7 304	336.6	15 224	665.7	11 112	484.7	117	1.05
12 Slaskie	23 499	482.0	29 741	643.7	25 151	546.0	55	0.22
13 Swietokrzyskie	6 323	502.8	7 004	549.1	5 683	447.4	30	0.53
14 Warminsko-mazurskie	6 865	408.8	8 063	555.3	4 372	301.9	21	0.48
15 Wielkopolskie	17 360	499.9	21 821	630.9	18 323	529.0	116	0.63
16 Zachodniopomorskie	4 755	280.9	9 997	580.5	6 720	390.8	17	0.25

27 421, respectively) in comparison with 2012 (15 848 and 25 308 cases). In other voivodships decrease in number of the cases was registered, and the lowest number occurred in podlaskie voivodeship (3 686 cases) (Tab I).

In 2013, the highest number of cases was recorded in December (23 658 cases), the lowest in September (2 678) (Fig. 2).

The incidence of chickenpox decreased in 2013 and was 463.6 per 100 000, and was lower by 16.5% comparing to 2012. The lowest incidence was registered in dolnośląskie voivodeship – 291.6 and the highest (but lower in comparison with 2012) in kujawsko-pomorskie voivodeship – 604.0. The Incidence did not decrease only in two voivodeships: malopolskie and mazowieckie – 549.5 and 516,7 (in 2012- 473.0 and 478.1) (Tab.I).

In 2013, the highest number of chickenpox cases was recorded in children and adolescents under 14 years

of age – 162 845 cases, which accounted for 90.7 % of the total number of registered cases. The number of cases in children aged 0-4 years and 5-9 years was 79 846 and 68 635, respectively. This was 44.5% and 38.2% of the total number of registered cases, respectively. Four years old children were mostly affected. In people over 20 years of age chickenpox cases accounted for only 6.2% of the total number of cases (Tab. II).

In 2013, chickenpox incidence in males was 491.7 per 100,000 and was higher by 12.4% compared to incidence in females (437.3). There were no significant differences in incidence between males and females in age groups. A slightly higher incidence in women compared with men was recorded in age group 20-34 years.

Incidence in rural population was 497.2 per 100,000 and was higher by 12.6% compared to incidence in urban population (441.7). The highest incidence was observed in the cities with population of 20-49 thous.

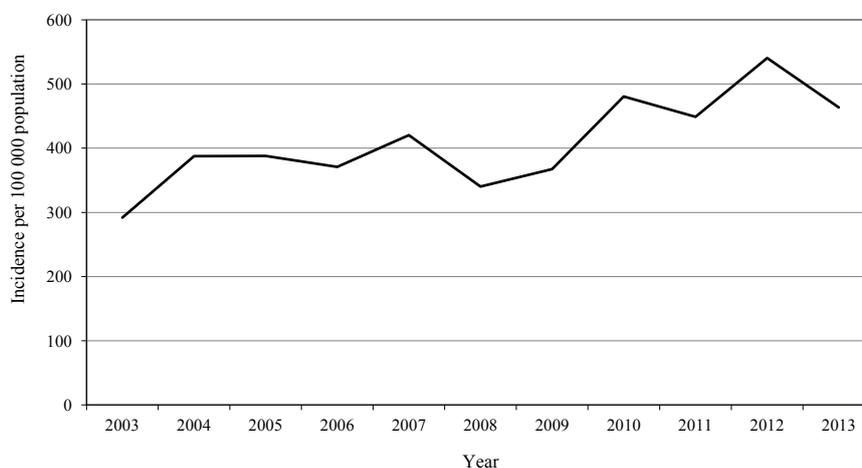


Fig. 1. Chickenpox in Poland in 2003-2013. Incidence per 100,000 population

Table 2. Chickenpox in Poland in 2012-2013. Number of cases, incidence per 100,000 population and percentage in age groups

Age group	2012			2013		
	number of cases	incidence rate	%	number of cases	incidence rate	%
0-4	93 225	4514.7	44.8	79 846	3946.7	44.7
0	7 051	1834.9	3.4	6 207	1687.7	3.5
1	11 171	2757.1	5.4	9 505	2422.0	5.3
2	14 602	3442.8	7.0	11 833	2917.3	6.6
3	28 561	6595.4	13.7	23 960	5647.4	13.4
4	31 840	7611.5	15.3	28 341	6545.1	15.9
5-9	79 450	4310.1	38.1	68 635	3599.1	38.5
5	28 911	7333.0	13.9	26 428	6320.3	14.8
6	20 995	5569.9	10.1	18 344	4655.5	10.3
7	13 086	3596.2	6.3	10 912	2897.3	6.1
8	9 187	2588.8	4.4	7 483	2058.0	4.2
9	7 271	2057.4	3.5	5 468	1541.9	3.1
10-14	18 201	957.9	8.7	14 364	775.6	8.0
15-19	5 109	225.4	2.5	4 417	203.4	2.5
20-29	5 087	85.7	2.4	4 550	79.1	2.5
30-39	5 210	85.9	2.5	4 827	78.1	2.7
40 +	1 994	10.8	1.0	1 862	10.0	1.0
Total	208 276	540.5	100.0	178 501	463.6	100.0

(512.9 per 100,000), the lowest in the cities with population of  $\geq 100,000$  (398.4). In children aged 0-4 years, a higher incidence was observed in cities (4 344.8 vs. 3 398.5), in children aged 5-9 years in the rural population (3 472.3 vs. 3 761.6).

In 2013, number of cases hospitalized due to mumps was 1 184, representing 0.7% of the total number of all registered cases. The highest number of hospitalized cases was in mazowieckie (270) and łódzkie (121) voivodeship. The lowest number of hospitalized cases was in lubuskie and zachodniopomorskie voivodeships – 17 in each (Tab. I).

**Vaccinations against chickenpox in 2013.** In Poland, there are two types of vaccine against chickenpox. Monovalent vaccine contains attenuated live strain of varicella-zoster virus and polyvalent vaccine, combined with measles, mumps and rubella. The use of monova-

lent vaccine is recommended for those aged above 9 months, and for post exposure prophylaxis. Polyvalent vaccine is recommended for children from 11 months to 12 years of age. Since 2010, two doses chickenpox vaccination scheme is recommended in Poland. Two doses of vaccine should be given with an interval of at least 6 weeks.

Since 2002, vaccination against chickenpox belongs to a group of recommended vaccinations. Vaccination is mandatory for those who are especially vulnerable for the infection.

This group includes children before the age of 12 years old, whose immunity is impaired and as a result there may be a high risk of severe course of disease, for example: infected with HIV, with acute lymphoblastic leukemia in remission and before immunosuppressive therapy or chemotherapy.

Vaccination against chickenpox is also mandatory for children aged above 12 years who did not have chickenpox and are household contacts of those mentioned above. According to the National Immunization Program for 2013, chickenpox vaccination is recommended for those who have not had chickenpox and have not been vaccinated, and women who have not had chickenpox and are planning to become pregnant.

In 2013, 57 168 people were vaccinated against chickenpox in Poland. This number was higher by 1% compared to 2012 (56 213). Among those aged 0-19 years, 55 284 individuals were vaccinated, which accounted for 96.7% of all people vaccinated against chickenpox in 2013. The highest number of vaccinated individuals was recorded in mazowieckie (13 353) and the lowest in świętokrzyskie voivodeship (697).

## SUMMARY AND CONCLUSIONS

Since 2003, an increasing trend of chickenpox incidence is observed in Poland. However, the epidemiological situation of the disease was better in 2013,

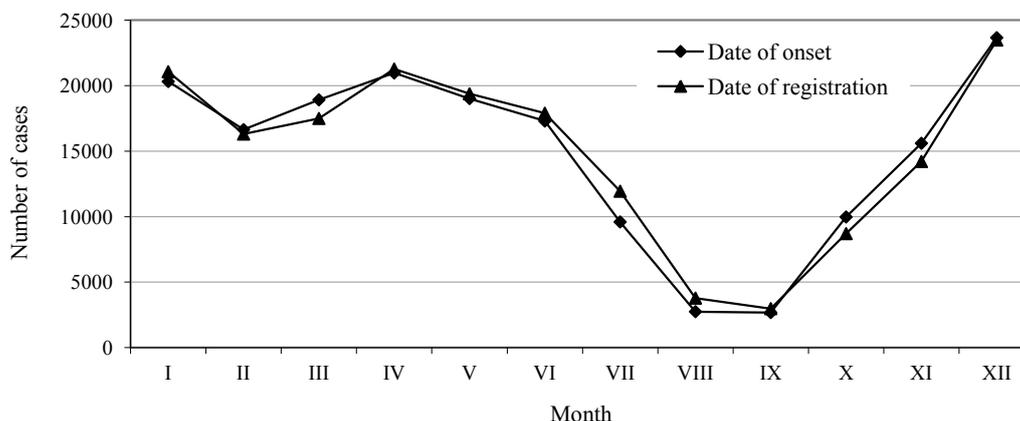


Fig. 2. Chickenpox in Poland in 2013. Number of cases by month

when the number of registered cases of chickenpox decreased. The number of people vaccinated against chickenpox increased by 1% comparing with 2012. It is still important to educate the public on the prevention of illness by vaccination.

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