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## MUMPS IN POLAND IN 2011

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### ABSTRACT

**INTRODUCTION.** In 2011, similarly to previous years a decline was observed in the number of recorded cases of mumps. This favourable epidemiological situation is a result of mumps vaccination program, which from 2003 became mandatory given as two dose schemes with MMR vaccine (mumps, measles, and rubella).

**AIM.** The aim of this work was to assess mumps epidemiological situation in Poland in 2011, in comparison to previous years.

**MATERIAL AND METHODS.** The assessment of mumps epidemiological situation in Poland in 2011 was conducted by using the results of analyzed data for infectious diseases published in a yearly bulletin "Infectious diseases and poisoning in Poland in 2011" and in yearly bulletin "Preventative immunisation in Poland in 2011" Czarkowski MP and in, Warsaw, NIZP- PZH and GIS. Also used "Case definitions for infectious disease developed for epidemiological surveillance in the years 2009-2011" (Department of Epidemiology, NIZP-PZH), as well as Preventative vaccination program 2011.

**RESULTS.** In 2011 there were 2585 reported cases of mumps. Incidence of mumps was lower 6.7/100 in comparison with 2010 (7.2/100), as well as almost twice lower than a median for the years 2005-2009. The highest incidents rate of mumps 52.0/100,000 was recorded among children at the age 5-9 years of age. Incidence in women was lower (5.6) than in men (7.9). In 2011, 24 people were hospitalized due to mumps.

**CONCLUSION.** Systematic implementation of vaccination program against mumps as according to Inoculation Calendar has resulted in a significant decline in the number of reported cases.

**Key words:** *mumps, epidemiology Poland, 2011*

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### INTRODUCTION

Observed in the last decade, the number of mumps cases is concurrent with the implementation of the Inoculation Calendar; however there are still more than 2000 mumps cases reported every year.

### AIM

The aim of this study was assess the mumps epidemiological situation in Poland in 2011, compared to previous years.

### MATERIALS AND METHODS

The assessment of mumps epidemiological situation in Poland in 2011 was conducted by using the results

of analyzed data for infectious diseases published in a yearly bulletin "Infectious diseases and poisoning in Poland in 2011" and in yearly bulletin "Preventative immunisation in Poland in 2011" Czarkowski MP and in, Warsaw, NIZP- PZH and GIS. Also used "Case definitions for infectious disease developed for epidemiological surveillance in the years 2009-2011" (Department of Epidemiology, NIZP-PZH), as well as Preventative vaccination program 2011.

### RESULTS

In 2011 there were 2585 registered mumps cases which is 6.1% less than in 2010 and almost twice less than the median for the years 2005-2009. Overall incidence was 6.7/100,000, and it was lower by 6.9% than the previous year. In 2011 as well as in the previous year, most cases were reported in Śląskie voivodeship

Table I. Mumps in Poland in 2005-2011. Number of cases and incidence per 100,000 population by province and number and percentage of hospitalization

Province	Median 2005-2009		2010		2011	
	number of cases	incidence rate	number of cases	incidence rate	number of cases	incidence rate
POLAND	4147	10.9	2754	7.2	2585	6.7
1. Dolnoslaskie	265	9.2	158	5.5	209	7.2
2. Kujawsko-pomorskie	220	10.6	174	8.4	162	7.7
3. Lubelskie	418	19.3	140	6.5	141	6.5
4. Lubuskie	115	11.4	124	12.3	108	10.6
5. Lodzkie	199	7.8	171	6.7	163	6.4
6. Malopolskie	277	8.4	221	6.7	190	5.7
7. Mazowieckie	412	7.9	335	6.4	317	6.0
8. Opolskie	164	15.8	94	9.1	92	9.1
9. Podkarpackie	116	5.5	107	5.1	102	4.8
10. Podlaskie	103	8.6	96	8.1	82	6.8
11. Pomorskie	137	6.2	123	5.5	110	4.8
12. Slaskie	453	9.7	411	8.9	376	8.1
13. Swietokrzyskie	1019	79.8	99	7.8	72	5.6
14. Warminsko-mazurskie	99	6.9	101	7.1	75	5.2
15. Wielkopolskie	349	10.3	295	8.6	284	8.2
16. Zachodniopomorskie	167	9.9	105	6.2	102	5.9

(376), Mazowieckie (317) and Wielkopolskie (284), which together accounted for over 1/3 of the total number of registered cases. The least reported cases were Świętokrzyskie region (72). The largest increase in the number of cases has been reported in the lower Silesian region (by 32.2%), and the largest decrease in the Świętokrzyskie region (by 27.2%) (Table 1. Mumps in Poland 2005-2011. Number of mumps cases and incidence of the disease per 100,000 population according to regions, as well as a number and percentage of hospitalized individuals).

The most mumps cases were reported in the 2<sup>nd</sup> quarter (710 cases, i.e. 27.5% of all registered cases, the least in the 3<sup>rd</sup> quarter (572 cases, i.e. 22.1% of all registered cases). It should be noted, that the observation during the last fifteen years confirms an extension of mumps epidemic cycle, as well as progressive 7year decline in mumps cases in all age groups (Table 2. Mumps in Poland 1995-2011. The number of mumps cases per 100 000 population according to age group). In 2011 as well as in the previous year the most recorded cases were among children and teenagers up to 14yro- 1890 total of 73% of all number of cases.

Cases among children between the ages 5-9 predominated with 942 cases total of 36.4% of all recorded incidences (52.0 per 100,000). Cases in a age group 0- 4 and 10- 14 were respectively 17.3% (446 cases, 21.6 per 100 000 incidences) and 19.4% (502 cases, 25.7 per 100,000 incidences) of the total number of all registered cases. In a group above the age of 44 the incidence was less than 1 per 100,000, and cases in this age group accounted for 4.8% of all total. (Table 2. Mumps in Poland in 2010- 2011. Incidence of mumps and percentage of cases according to age group)

Table II. Mumps in Poland in 2010-2011. Incidence per 100,000 and percentage in age groups

Age group	2010		2011	
	incidence rate	%	incidence rate	%
0 - 4	28.4	20.4	21.6	17.3
0	5.0	0.8	4.3	0.7
1	8.2	1.2	12.0	2.0
2	26.2	3.8	17.8	3.0
3	41.3	5.7	29.4	4.8
4	67.0	8.9	45.1	6.9
5 - 9	53.9	34.9	52.0	36.4
5	72.4	9.4	69.7	10.2
6	59.9	7.6	58.5	8.2
7	56.9	7.2	51.0	7.0
8	42.4	5.5	46.9	6.4
9	38.6	5.2	32.9	4.6
10 - 14	26.3	19.2	25.7	19.4
15 - 19	11.5	10.3	11.5	10.6
20 - 29	3.0	6.7	3.5	7.7
30 - 39	1.6	3.4	1.7	3.8
40 +	0.7	4.9	0.7	4.8
Total	7.2	100.0	6.7	100.0

In 2011 there were 1478 cases of mumps recorded among males (7.9 per 100,000), this is about 33.5% more than in females (1107 cases, 5.6 per 100,000). Similarly to the previous year, the most recorded cases of mumps in age group above 40 were among females.

In 2011 the incidence of mumps was lower in a city 6.5 per 100,000, than in a rural areas 7.0 per 100,000. High proportion of cases were in the cities >100,000 population (719 cases, 6.6 per 100,000). In the cities with population 50 000- 99 000 were the least recorded incidences (204 cases, 6.3 per 100,000). Incidence of mumps according to age group taking into account living environment did not differ significantly.

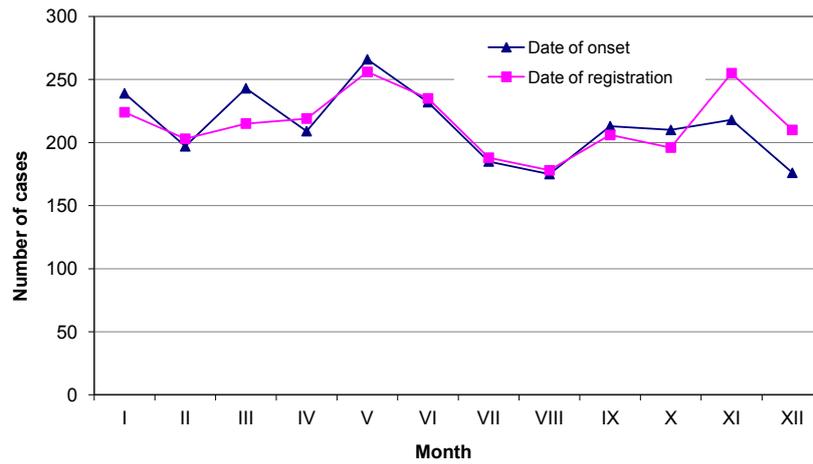


Fig. 1. Mumps in Poland in 2011. Number of cases by months

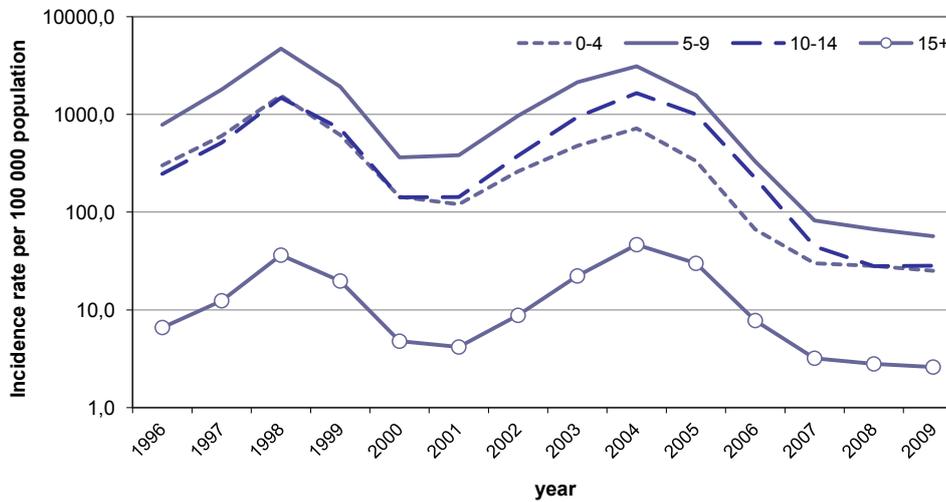


Fig. 2. Mumps in Poland, 1995 - 2011. Incidence per 100 000 population by age group.

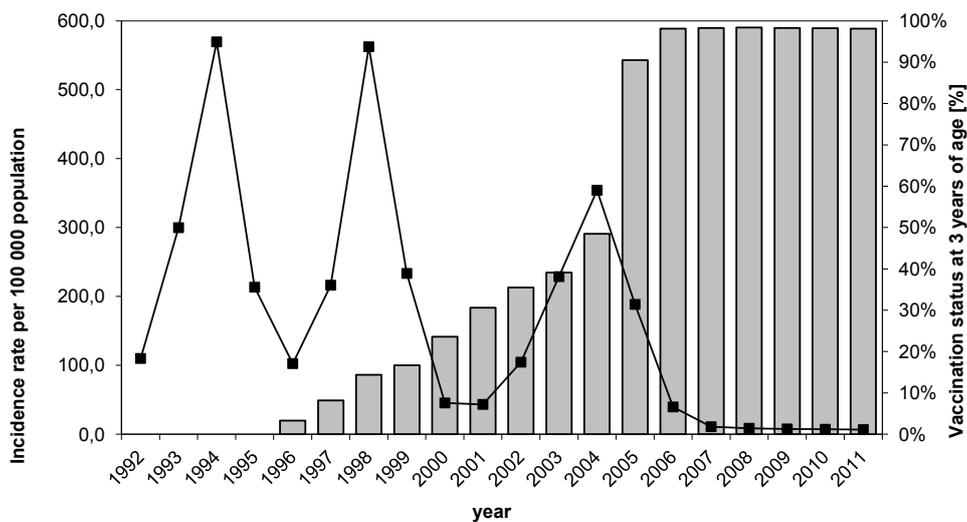


Fig. 3. Mumps in Poland in 1991-2011. Incidence per 100 000 population and vaccine coverage among 3-year old children

In 2011, 24 individuals were hospitalised due to mumps, representing 0.93% of all registered cases. The most this is 5 individuals were hospitalised in Lower Śląskie voivodeship.

**Vaccinations against mumps.** In 2003 vaccination against mumps (MMR- measles- mumps- rubella) was introduced into the Vaccination Calendar as mandatory. Before 2003 vaccination of children against Mumps was optional. Since the introduction of mandatory Mumps vaccination periodical increase of cases appeared on average every 3- 4 years. It is noted that at the moment there is a lengthening of the break in periodical epidemiological intensity (Fig. 3. Mumps disease in Poland 1991- 2011. Incidence of mumps per 100,000 populations, and inoculation status in children 3years of age). According to current Inoculation Calendar the vaccination program is as follows: first dose is given to children between 13- 14 months of age, and booster at 10 years of age. In 2011 the level of immunised children at the age of 3 reached 98.1% on a national scale ( Fig.2. Mumps disease in Poland 1995- 2011). Incidence of Mumps per 100,000 population according to age). The highest percentage of immunised individuals stands at 99.8% in Warminsko- Mazurskie voivodeship , and the lowest in Mazowieckie voivodeship (96.7%) and Małopolskie voivodeship (96.9%).

Among 2585 registered mumps cases, 616 (23.8%) individuals were not immunised against mumps, 1248 (48.3) received only one dose, and only 156 (6.0%) individuals received both doses. Among 565 (21.9%) mumps patients there was lack of information regarding their immunisation status.

## CONCLUSION

There is a decreasing trend in number of mumps cases which is stable since the mandatory mumps immunisation program has been introduced, although the dynamics of this process is yielding to slow down.

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