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MEASLES – ARE WE DEALING WITH A NEW EPIDEMY IN POLAND?

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Abstract

Introduction: In the past few years, a group of parents avoid mandatory vaccination of children has increased. One of the effects of this action is increasing incidence of measles among unvaccinated people. The knowledge of current trends enables us to design and develop education programs for parents and to deny the distortion inherent myths about vaccinations.

Objective: The objective of the research is the analysis of the current epidemiological situation of measles incidence.

Material and method: Research material used for the analysis of measles incidence was taken from reports „Choroby zakaźne i zatrucia w Polsce w 2016 roku" and „Szczepienia

ochronne w Polsce w 2016 roku" prepared by National Institute of Hygiene. Material was analysed by epidemiological descriptive method.

Results: In 2007 measles vaccination coverage in Poland was 99,7% and in 2014 it was only 95,5%. In analysed period percentage of incidence among unvaccinated population was 54%, among vaccinated was 18% and in 28% there was no information about vaccination. Furthermore, the greatest incidence occurs among unvaccinated population of children aged 0-4 years, which one is particularly exposed to severe complications.

Conclusion: General trends show that there has been a considerable decrease of measles vaccination coverage in Poland. Moreover, more than half of cases of measles incidence concern unvaccinated population. This indicates the necessity of implementation of new education programs directed to parents and need to intensify efforts to eliminate harmful myths regarding vaccination.

Keywords: measles, vaccinations, epidemiology

Introduction

In recent months, there have been many press reports suggesting that we are dealing with a relapse of the measles epidemic in Poland. The increase in incidence with this infectious disease was combined with the increasing potential of the anti-vaccination movements, and consequently a decrease in the number of people (especially children) vaccinated against this disease. Measles is a highly infectious childhood viral disease caused by measles-containing paramyxovirus. So far, 21 strains of this virus have been identified [1]. In Poland, before 1975, when mandatory vaccination against the measles was introduced, about 200 000 cases were reported each year and about 100 deaths [2]. As a result of the vaccination, which has been done at different ages in different years, there is a significant decrease in the number of cases, up to 38 in 2011 [3]. In the same year, Poland was the closest to fulfilling WHO criteria for eradication.

These criteria are as follows [4]:

- more than 95% vaccination rate in a given year,
- the incidence of no more than 1 case per 1 million inhabitants,
- at least one case of rash on 100 thousand population subjected to a serological test for measles.

In recent years, however, we have seen an increase in the number of measles cases and a decrease in the vaccination rate. Due to the high infectiousness of this disease and numerous

serious complications that threaten particularly those with impaired immune systems, it is important to find out the causes of such a condition.

Objective

The objective of the research is the analysis of the current epidemiological situation of measles incidence.

Material and method:

Research material used for the analysis of measles incidence was taken from reports „Choroby zakaźne i zatrucia w Polsce w 2016 roku" and „Szczepienia ochronne w Polsce w 2016 roku" prepared by National Institute of Hygiene. Material was analysed by epidemiological descriptive method.

Results

Measles incidence is a subject to mandatory registration under the Law of Control of Infectious Diseases. In Poland statistics regarding measles incidence and vaccination rate are provided by National Public Health Institute – National Institute of Hygiene.

The current epidemiological situation in Poland is presented in Fig. 1 and Fig. 2.

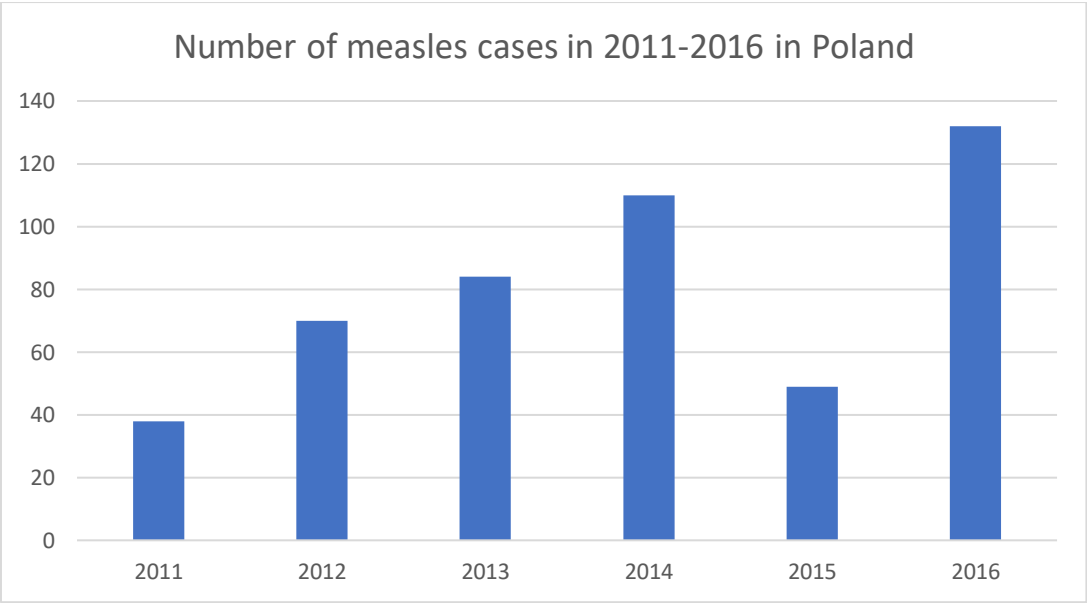

Fig. 1 Number of measles cases in 2011-2016 in Poland

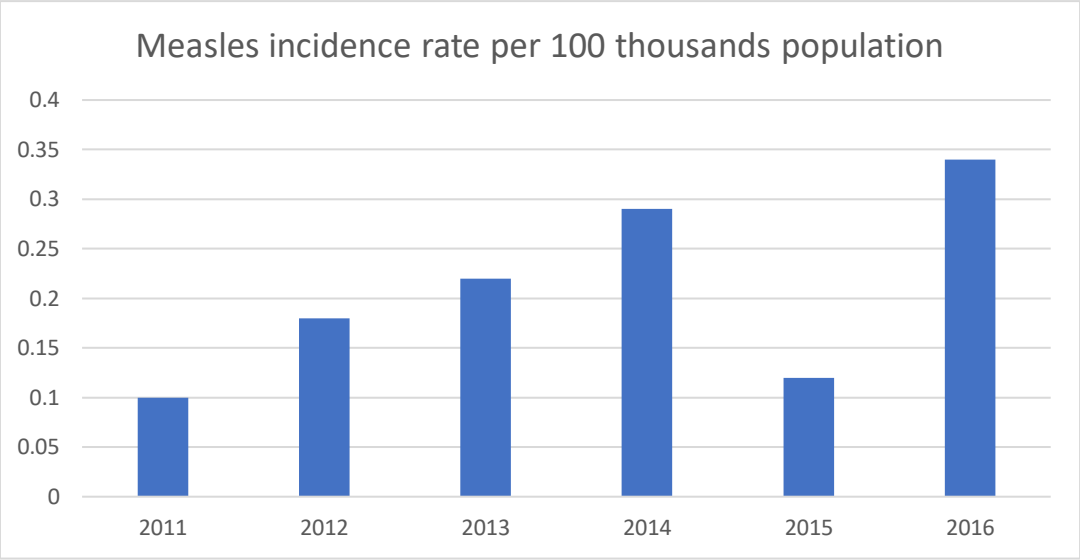

Fig. 2 Measles incidence rate per 100 000 population in Poland in 2011-2016

In 2011, 38 cases (incidence rate 0.1 per 100 000 population) were registered, 110 in 2014 (0.29 per 100 000 population) and 132 in 2016 (0.34 per 100 000 population). By 31 August 2017, 34 cases were reported with incidence rate of 0.09. In the comparable period of 2016 there were 52 cases and the incidence rate was 0.14 per 100 000 population.

In recent years, there has been a steady downward trend in the level of vaccination against measles in the Polish population. Current data on vaccination against measles in Poland is presented in Fig. 3.

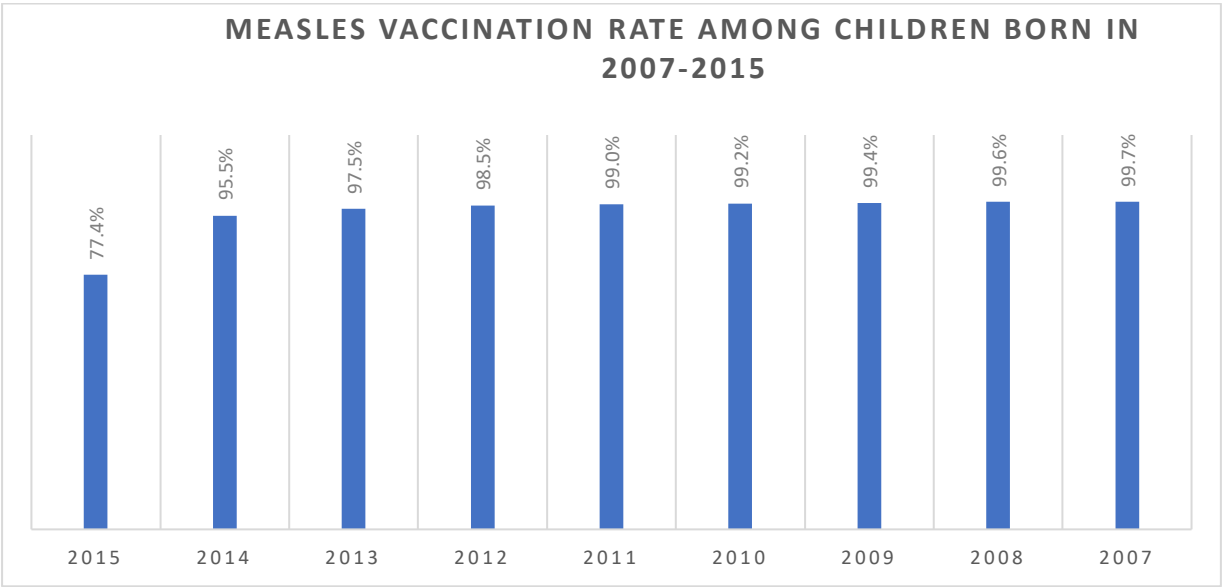

Fig. 3. Measles vaccination rate among children born in 2007-2015

As can be seen in the graph, there is a slight downward trend in the vaccination rate

among children born between 2007 and 2015. According to data from the Institute of Public Health - National Institute of Hygiene and General Sanitary Inspectorate, the level of vaccination in the general population is approaching the 95%, which is assumed to be the lower limit of vaccination effectiveness in the context of population immunity. This means that spreading the infection may be even easier in the near future, especially among those who are not vaccinated and those who are immunocompromised.

Discussion

In recent years we had a few measles outbreaks in Europe. The last one started in January 2016 in Romania and result in 7491 cases and 31 deaths. In addition to Romania, the following EU/EEA countries have reported measles cases in 2017: Austria, Belgium, Bulgaria, the Czech Republic, Denmark, France, Germany, Hungary, Iceland, Italy, Portugal, Slovakia, Spain, Sweden and the United Kingdom.

Physicians diagnose a lot of complications among children. The risk of measles complications is higher in infants and adults (especially malnourished and immunodeficient):
1) otitis media (7-9%), pneumonia (1-6%, high mortality), encephalitis (0.1%, mortality 15%, 25% permanent neurological consequences) and myocarditis, convulsions 0.5%), blindness (extraoculus optic neuritis)
2) secondary bacterial infections and potentiation of latent tuberculosis (measles causes significant transient immunosuppression) - often with severe course, can lead to death;
3) subacute sclerosing panencephalitis (SSPE) - rare (1-4/100,000 but 1/8000 when measles), progressive neurodegenerative disorder leading to death; It usually develops a few years or more after measles (median 7 years).
Incidence rate is 0.1-1/1000 deaths (but even 20-30% in infants in developing countries)/

In Poland, mandatory vaccination against measles was introduced in 1975. The vaccination model has changed over the years. Currently, this vaccine is a combined vaccine with vaccination against rubella and mumps. The first dose of the vaccine is adminstered at 13 months old. Previously, children are protected by antibodies passed by their mother. Further doses are given at 10 years of age. MMR vaccines should not be given to people who have had a mumps, measles or rubella less than 4 weeks ago. Women should not be vaccinated during pregnancy and pregnancy planning [5].

In recent years, there has been a steady downward trend in the level of vaccination against measles in the Polish population. This situation may be related to the increasing activity of anti-vaccination movements that specifically bind MMR vaccination with the

occurrence of so-called post-vaccination autism. At this point it is worth stressing that the occurrence of such a complication has never been confirmed by reliable research.

By combining these facts, one cannot fail to conclude that the increase in incidence is due to a decrease in the number of vaccinated people. It is therefore important to find the root cause of parents' evasion from the compulsory vaccination of their children. One reason for this appears to be an increase in the activity of anti-vaccines associations that spread harmful and untrue information about vaccination. Once again, it is worth pointing out that none of the information provided by these organizations is reflected in the results of sound scientific research, and this is especially true in case of post-vaccination autism. For this reason, the educational role of health services, especially GPs, obstetricians, midwives and paediatricians, is becoming even more important. Every medical professional is responsible for denying untruthful health information, providing reliable information, and dispelling doubts among the people misleaded by alternative medicine associations. The introduction of legal solutions to prevent evasion from compulsory vaccination should also be considered. However, one thing is certain, as soon as possible and in every possible way, the aim is to increase the percentage of people vaccinated against measles in Poland. Answering the question in the title of the article - the most serious epidemic we have now to deal with is the one associated with the anti-vaccination movements whose activity brings the recurrence of diseases we have already almost forgotten.

Conclusions

In recent years, reports from the National Hygiene Institute show a significant increase in the number of measles cases, particularly in relation to 2011. In addition, reports from the same institute on the vaccination rate among polish population vaccination indicate a disturbing downward trend. The situation is so dramatic that we are beginning to approach a level that is defined as the lower limit of vaccination effectiveness in the context of population immunity.

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