

## Age-conditioned differences in parents' attitudes towards compulsory vaccination

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**A** – Study Design, **B** – Data Collection, **C** – Statistical Analysis, **D** – Data Interpretation, **E** – Manuscript Preparation, **F** – Literature Search, **G** – Funds Collection

**Summary Background.** Vaccinations are the most effective tool in preventing serious infectious diseases. However, due to an increase in negative opinions on immunization, more and more parents avoid mandatory vaccinations each year.

**Objectives.** The aim of the study was to compare the attitude towards vaccinations of two generations of parents.

**Material and methods.** The study involved 140 individuals with children up to the age of 7 (78 people) and between the ages of 18–19 (62 people). It was carried out among the patients of two community health care centers, using the author's proprietary survey.

**Results.** In the group of young parents having a small child, only 71% of them wanted compulsory vaccinations, as opposed to older parents, among which 94% wished to maintain continue this ( $p < 0.001$ ). The reporting for child vaccinations in the determined time is a bigger issue for the young generation of parents. Statistically significant ( $p > 0.001$ ), the same group, more often than the older generation, expressed opinions concerning the inefficiency of vaccines, too large amount of vaccines in the current immunization program, no need to vaccinate children and the possibility of replacing it through a healthy lifestyle and natural methods of immunization.

**Conclusions.** The young generation of parents increasingly ignores the recommendations for an obligatory vaccination schedule. Parents of those children who were of age were less likely to question the efficacy and sense of mandatory vaccinations. Information booklets should be given out to parents with a child reporting for vaccination.

**Key words:** vaccination, physician, child.

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## Background

Vaccinations are the most effective way to prevent serious infectious diseases. They reduce the spread of infection and prevent complications (including fatal). Systematic vaccination of individuals in society results in immunity of the entire population and, in the long term, may even lead to a total eradication of the disease, in particular an infectious disease, as in the case of smallpox [1]. Regulations on mandatory vaccinations in Poland are the result of participation in international programs of total eradication of infectious diseases (i.e. measles, rubella), which is coordinated by the World Health Organization (WHO). It also provides protection for children from dangerous infectious diseases of high mortality [2]. The effects of these actions are visible, for example, in the number of cases of measles, which has significantly decreased in Poland and still remains at a lower level than in other countries of the European Union [3]. Due to the high level of implementation of the immunization program (over 95%), Poland could serve as a model for other countries.

However, in the late 90s, disturbing changes began. Anti-vaccination movements began persuading people that there is no need for vaccinations, when the particular disease has a low morbidity rate and promoting information on side effects of the vaccines used is becoming more and more popular. Such opinions are easily available on the Internet and other media, thus strongly influencing parents,

influencing them to restrain from vaccinating their children [4]. Epidemiological data in Poland from 2004–2013 clearly shows an increase in the number of unvaccinated children whose parents do not report them for compulsory vaccination [5]. And so, in 2011, there were 4,689 of of such children, a year later the number increased to 5,340 and in 2013, 7,248 children were not vaccinated because of their parents decision to abstain from compulsory vaccination.

## Objectives

The aim of the study was to compare the ratio of vaccination among young parents and parents of children who have already completed a vaccination program.

## Material and methods

The study group consisted of 140 parents with children. 52% of the analyzed population lived in a city with more than 100,000 inhabitants, 29% lived in a small town, and 19% in rural areas. Respondents were divided into two groups according to their children's age. The parents whose children attended preschool and elementary school were assigned to group I (78 people in total). Parents of older children were assigned to group II (62 people at total). The study was conducted in two primary health care facilities.



The evaluation was performed with the author's proprietary, anonymous survey. The survey questions concerned the effectiveness of the vaccines, the need for a vaccination schedule for children and the attitude of parents towards the vaccines. Parents were given the survey to fill in during a medical visit. The results were processed using the Statistica v.10 program. Variable distribution calculations were made using the Shapiro-Wilk test.

## Results

The first group consisted of 78 parents (mean age 29.3 years  $\pm$  3.0), with one child under the age of 7 (mean age 4.6 years  $\pm$  5.9). The second group included 62 parents (mean age 47.6 years  $\pm$  5), with one (24%) or two children (76%). The age of children in the second group 2 ranged from 18 to 19 years (mean age amounted to 18.05 years  $\pm$  2.3), and these children underwent all mandatory vaccinations. In this group, 87% of parents declared higher education, and 13% had a high school education. There were no statistically significant differences in terms of education among the parents of the two study groups ( $p < 0.05$ ).

At the beginning, the parents were asked about their opinion regarding mandatory vaccinations among children in Poland and in following deadlines of the vaccination schedule (Table 1).

The difference in parents' opinions regarding the further presence of mandatory immunization and an immunization schedule is statistically significant. Only 71% of young parents with small children were in favor of maintaining man-

datory vaccinations, in contrast to the older parents, 94% of whom are in compliance ( $p < 0.001$ ).

Similar differences were observed in reporting with the child for vaccination (Table 2).

**Table 1. Opinion of parents concerning the mandatory vaccination schedule**

Answer	Group I	Group II
Yes, it is needed	55 (70.5%)	58 (93.5%)
No	23 (29.5%)	4 (6.5%)

$$\chi^2_y = 10.342; p = 0.001.$$

Young parents are less likely to bring their children for vaccination on time in comparison to older parents, who in 97% of the cases followed the vaccinations schedule ( $p < 0.001$ ).

The following questions concerned views on the number of vaccines in the vaccination schedule, their effectiveness, the need for vaccination when the disease does not occur or is rare and methods that may replace vaccines (Table 3).

Young parents, significantly more often than the older generation ( $p < 0.001$ ), were of the opinion that vaccines are ineffective, the mandatory immunization schedule covers too many vaccines, vaccines are unnecessary when an infectious disease does not occur or is rare and that it is possible to replace vaccines with a healthy lifestyle and natural methods of immunization.

**Table 2. Compliance with deadlines and reporting with the child for vaccinations**

Answer	Group I	Group II	Group I vs. Group II	
				<i>p</i>
Yes, I report and comply with deadlines	51 (65.4%)	60 (96.8%)	18.856	0.001
No	15 (19.2%)	2 (3.2%)	6.862	0.008
I do not know	12 (15.4%)	0 (0.0%)	8.562	0.003

**Table 3. Opinions of parents concerning vaccines**

Question	Group I			Group II			Group I vs. Group II		
	Yes	No	I do not know	Yes	No	I do not know	Yes	No	I do not know
Do you think that there are too many vaccines in the schedule?	50	20	8	20	40	2	$\chi^2 = 14.012$ $p = 0.001$	$\chi^2 = 21.317$ $p = 0.001$	$\chi^2_y = 1.623$ ns
Do you think that vaccines are ineffective?	31	44	3	8	50	4	$\chi^2 = 2.382$ $p = 0.001$	$\chi^2 = 9.196$ $p = 0.002$	$\chi^2_y = 0.098$ ns
Do you think that vaccines are unnecessary when the contagious disease does not occur?	45	12	21	11	49	2	$\chi^2 = 22.971$ $p = 0.001$	$\chi^2 = 56.914$ $p = 0.001$	$\chi^2_y = 12.455$ $p = 0.001$
Do you think that the vaccine can be replaced with a healthy lifestyle and natural methods?	47	11	20	10	23	29	$\chi^2 = 34.955$ $p = 0.001$	$\chi^2 = 73.977$ $p = 0.001$	$\chi^2_y = 13.814$ $p = 0.001$

## Discussion

Due to a mandatory immunization schedule, vaccinations in Poland are common and publicly available. According to the decree of the Minister of Health, the immunization schedule is modified every year in the context of new medicines and contraindications for individual vaccines

[6]. Changes in the immunization schedule are dictated by the epidemiological situation in Poland and in neighboring countries, in accordance with current WHO recommendations and the financial situation of the state.

Twenty years ago, a vaccination schedule was implemented both in educational institutions and beyond. Parents of children not attending nursery school or kindergar-

ten were requested, in writing, to report for vaccination on a particular date. In accordance to the Education System Act of 1991, facilities providing care for children were obliged to provide access to the office of disease prevention and first aid [7]. After changes in the education system (reducing the number of nursing offices) and health care (GPs were to be responsible for preventive care), parents in smaller cities have limited access to distant medical facilities and to health care service for their children [8, 9]. In addition, young parents can choose vaccines that are not reimbursed by the National Health Fund and have Internet access to knowledge that is not available for older parents. Knowledge on vaccines changes dynamically, and health care professionals must meet the increasing demands of parents. Parents should receive reliable information on the effectiveness and usefulness of the vaccinations provided to their children [10].

A recent analysis performed by the Center for Public Opinion Research showed an overall positive attitude of Poles towards vaccinations. However, detailed questions revealed that 21% of the respondents believe that vaccinations do no good, 40% of them negatively refer to the promotion of vaccines as they believe that it is only the result of pharmaceutical companies involvement and that it has nothing to do with the actual need for immunization. According to 73% of the individuals, only part of the vaccinations should be mandatory, and 25% of them believe that vaccinations should be entirely voluntary [11].

This skeptical attitude towards vaccines is also a reflection of the views of young parents. Amongst the younger generation, in contrast to older parents, a more negative attitude towards vaccines, as well as towards following the immunization schedule, is visible. Young parents wish to decide upon the vaccinations themselves, believing that if a particular infectious disease does not occur, there is no need to vaccinate a child, and thus they often want to replace vaccines with a healthy lifestyle and natural methods.

In order to prevent an increase in the number of unvaccinated children, the physician is obliged to report this fact

to the Sanitary-Epidemiological Station, which may result in a fine imposed upon the parents. However, children covered only by private health care are, for a long time, beyond the control of the national health care system [12].

Recently, an outbreak of measles became one of the major health problems in the US and Western Europe. A significant increase in morbidity resulted in the fact that in the countries where childhood vaccinations are not mandatory but only recommended, they began to consider making immunization mandatory. This was met favorably by the public – 72% of respondents in Germany supported mandatory immunization in a television survey [13].

An educational and promotional campaign for immunization, which is the response of the Ministry of Health prevailing in Poland and the world situation, should not be the only form of combat against anti-vaccination movements. Local social initiatives and the activities of health care workers are of even of greater value here.

Currently, the physician is facing a new challenge in convincing parents about the usefulness and effectiveness of vaccination. If all their doubts are not explained, they will look for answers somewhere else – most frequently on the Internet [14]. In the 1970s, vaccination was a luxury. Now, with a low incidence of infectious diseases and lack of appropriate education, regular reporting of children for vaccinations has become an unnecessary duty.

## Conclusions

1. The young generation of parents is more likely to be against a compulsory vaccination schedule than the older generation.
2. Parents of adult children less frequently questioned the effectiveness of vaccinations and the reason for mandatory vaccinations than parents of preschool children.
3. In place of mandatory vaccinations, young parents would rather choose natural methods for immunization of their children.

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