

INFLUENZA VACCINE COVERAGE IN AGE-RELATED RISK GROUPS IN POLAND, 2004–2007

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SUMMARY

Routine vaccination of certain groups of persons, including children and the elderly might provide additional protection to persons at risk for influenza complications and reduce the overall influenza burden.

The aim of the paper was to estimate the influenza vaccine coverage in persons aged 0–4 years and >65 years in Poland in 2004–2007. Official data collected by National Institute of Hygiene, National Institute of Public Health and Central Statistical Office were analyzed.

Among vaccinations performed in all persons, the percentage of vaccinations performed in children aged 0–4 years varied from 1.6% to 2.0%. The estimated vaccination coverage in this age group of population was <2%. Among persons aged >65 years the influenza vaccine coverage increased from 7% in 2004 to 14% in 2007. Subjects aged >65 years represented 25–36% of all vaccinated individuals.

The influenza vaccination rates among age-related risk groups in Poland remain low. No or very low increase in a total vaccination coverage rates, as demonstrated in our paper, indicates that meeting the WHO targets concerning influenza vaccination coverage will be very difficult, if no further action is taken concerning vaccine uptake.

Key words: influenza, vaccination, coverage, children, elderly

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INTRODUCTION

Routine vaccination of certain groups of persons, including children and the elderly might provide additional protection to persons at risk for influenza complications and reduce the overall influenza burden (1).

According to Advisory Committee on Immunization Practices (ACIP) recommendations from July 2008, vaccination against influenza should be recommended to all persons in whom vaccination is not contraindicated for health reasons (2). In Europe Austria is the only country that recommends vaccinating the entire policy, other European countries recommend influenza vaccination to high-risk groups (3).

The main new recommendation from the ACIP involves influenza vaccination for children. The previous recommendation called for routine vaccination of children from 6 months through 59 months of age. The new recommendation calls for a routine vaccination of children from 6 months to 18 years of age, however a routine vaccination of children between the ages of 6 and 59 months should continue to be a primary focus of influenza prevention because these children are at higher risk for complications of influenza (2, 3). In Europe recommendations for children vaccinations are different, but generally vaccination against influenza is recommended to children younger than 5 years (Table 1) (3).

In the USA recommendations of ACIP for influenza vaccination for adults have not changed. All adults aged 50 years or older should receive the vaccine. Other adults who should receive

routine vaccination include women who will be pregnant during the influenza season; healthcare personnel; household contacts of children younger than 5 years and adults who are at least 50 years old; and individuals with chronic cardiovascular, pulmonary, and metabolic disorders (including diabetes mellitus) (1). European recommendation for adult vaccination against influenza are similar – Table 1 illustrates European recommendations related to age-specific risk groups (3).

Vaccination against influenza has been included to the Polish schedule of vaccinations since 1994 – as a recommended one (it is chosen and paid by a patient, without any reimbursement). Vaccination is recommended to adults older than 55 years and persons with chronic medical conditions (respiratory, cardiovascular, kidney diseases, immunodeficiencies). Recently, in some regions of Poland, influenza vaccinations are free for persons older than 65 years (they are paid by local governments). It should be mentioned, that vaccination against influenza is not popular among Polish patients. A general influenza vaccination coverage is estimated as low as 5.6% in 2007, which places the country at the bottom of the list of influenza vaccination take up in Europe (4).

Aim

The aim of the paper was to estimate the influenza vaccine coverage in persons aged 0–4 years and > 65 years in Poland in 2004–2007.

Table 1. Age-related risk groups for influenza vaccination in Europe

Age group	Countries
6 months-12 months	Austria, Estonia, Finlandia, Latvia, Slovakia, Slovenia
>1 year – 2 years	Austria, Estonia, Finlandia, Latvia, Slovakia, Slovenia
>2 years – 5 years	Austria, Estonia, Slovakia
>50 years	Austria, Poland
>65 years	Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxemburg, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom

MATERIAL AND METHODS

Data collected in 2004–2007 by National Institute of Hygiene, National Institute of Public Health, Department of Epidemiology and Chief Sanitary Inspectorate, Department of Communicable Diseases Control, published yearly as a bulletin “Vaccinations in Poland”, available on www.pzh.gov.pl, were analyzed. These data, concerning number of doses of vaccines given to patients and age of vaccinated persons, are collected from reports prepared by Sanitary-Epidemiological Stations on the local levels. Data for these reports are supported from medical records by general practitioners who perform vaccinations in their practices.

Data collected by National Institute of Health may be not completed because some vaccinations (for example in private surgeries) might have not been reported by practitioners, but it is a marginal situation.

Demographic data (number of persons aged <5 years and >65 years in 2004, 2005, 2006 and 2007) were obtained from Central Statistical Office (www.stat.gov.pl).

The vaccine coverage rate was calculated as a percentage of vaccinated individuals among all individuals at respective ages (<5 years and >65 years). Data used for calculations illustrates Table 2.

RESULTS

Number of vaccinations against influenza in children aged 0–4 years ranged from 19,834 shots (in 2007) to 34,262 shots (in 2005) and has remained stable and at very low level so far (Fig. 1).

Among vaccinations performed in all persons, the percentage of vaccinations made in children age 0–4 years varied from 1.6% to 2% (Fig. 2).

The influenza vaccination coverage in this age group of population ranged from 1.3% to 1.9% (Fig. 3).

Number of vaccinated persons aged >65 years ranged from 369,297 (in 2004) to 446,421 (in 2006) (see Fig. 1).

Persons aged >65 years represented 25% (in 2005) to 36% (in 2007) of all vaccinated individuals (see Fig. 2).

Among persons aged >65 years the influenza vaccine coverage increased from 7% in 2004 to 14% in 2007 (see Fig. 3).

DISCUSSION

There is no doubt that the most effective strategy for reducing the effect of influenza is an annual vaccination. Strategies focusing on providing vaccinations to persons at higher risk for influenza complications should be strongly recommended, although coverage among majority of these groups remains low (1).

Rationales for vaccination against influenza among children less than 5 years and adults older than 65 years have been well estimated and described.

Young children are at a serious risk of influenza infection, hospitalization and complications (5). The attack rate among children has been estimated at 10% to 40% annually, with approximately 1% of infections resulting in hospitalization (6, 7, 8). The risk of influenza-associated hospitalization in healthy children younger than 24 months has been shown to be equal to or greater than the risk in previously recognized high-risk groups

Table 2. Demographic data and data concerning vaccinations (number of doses and age of vaccinated) obtained from official sources and used for calculations

Year	2004	2005	2006	2007
Number of persons aged <5 years	1.794,481	1.780,631	1.794,481	1.823,446
Number of persons aged >65 years	5.018,273	5.075,823	5.116,510	5.131,376
Total number of given influenza vaccines	1.356,708	1.603,125	1.371,605	1.212,651
Number of influenza vaccines given to persons aged <5 years	22,637	33,242	26,804	19,834
Number of influenza vaccines given to persons aged >65 years	36,9297	403,672	446,421	442,221

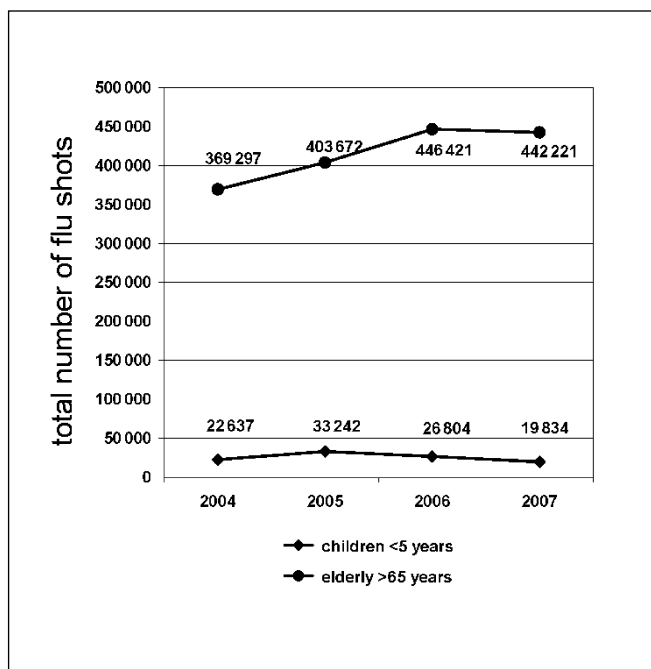


Fig. 1. A total number of flu shots given in age-related risk groups in Poland, 2004–2007.

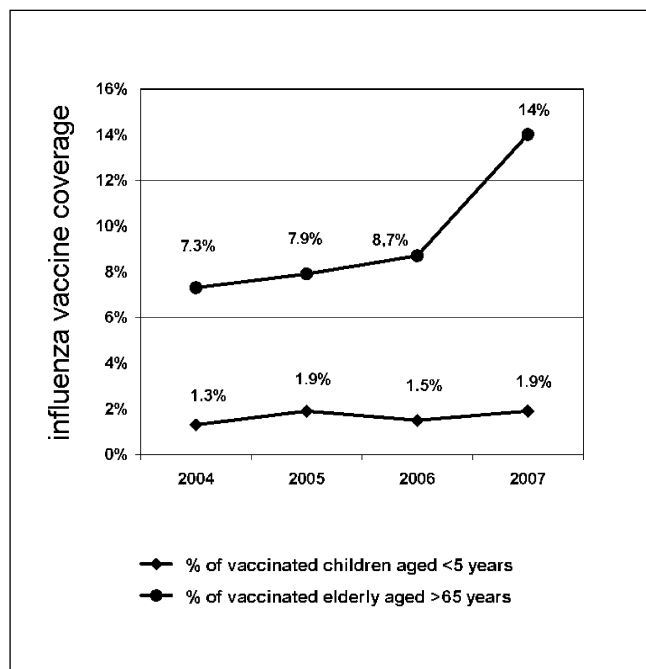


Fig. 3. Influenza vaccination coverage among children aged <5 years and the elderly aged >65 years in Poland, 2004–2007.

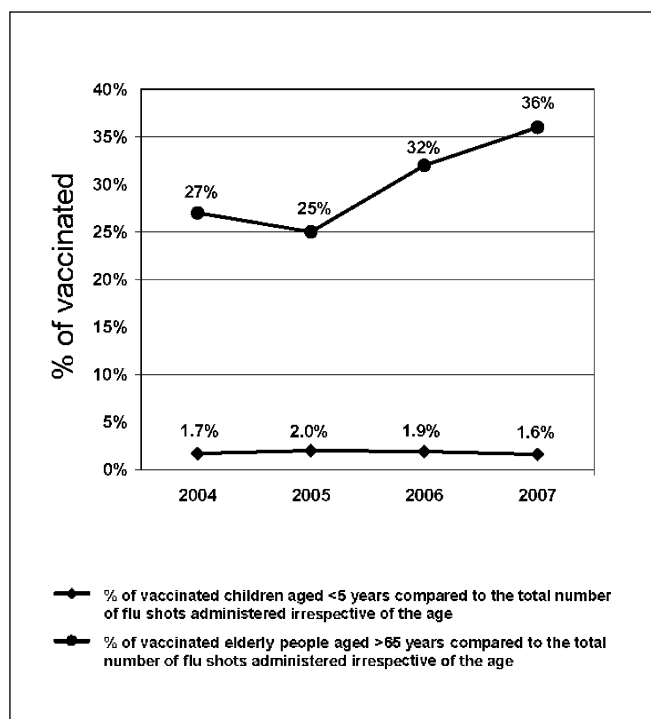


Fig. 2. Vaccinations given to children aged <5 years and the elderly aged >65 years compared to the total number of given flu shots (independently from the age).

(9). Children 24- through 59 months of age experience increased morbidity attributable to influenza illness, with increased rates of outpatient visits and use of antibiotics (10). Because of these facts, all health care professionals, influenza campaign organizers

and public health agencies should develop plans for expanding outreach and infrastructure to immunize children for whom influenza vaccine is recommended, including healthy children younger than 5 years (9).

Traditionally the highest influenza coverage rates are observed in USA. An analysis of influenza vaccination coverage levels demonstrated that during 2004–2005, when vaccination of children aged 6–23 months was recommended, 1-dose coverage was 57% (11, 12).

Comparable European data are lower: for example vaccination coverage in Spanish infant population was estimated as 5,1%, in children with associated conditions it was 17,5%, and 4,4% in healthy children in 2003. In the following years influenza vaccine coverage among Spanish children was higher (12.9–26.3%) (13, 14). In Israel 2.7–6.5% of children were vaccinated against influenza in 2003–2004 season (15).

The influenza vaccination coverage among Polish children aged 0–4 years is low (<2%) and persisted on the same level in 2004–2006. These data may be underestimated because not all vaccinations might have been reported. Reporting is required only for obligatory vaccinations while influenza vaccine is a recommended one. Another problem which may influence these results is a lack of data concerning propriety of vaccination. Children younger than 8 years require two doses of vaccination when they are vaccinated for the first time in their life (1). Official data analyzed in our paper did not provide enough information on how many vaccinated children were given required two doses of vaccine.

It is interesting that the highest number of administered influenza vaccine was observed in 2005 when avian influenza virus was reported among swans in Poland – that might have been a possible reason of an increased interest in influenza vaccination among parents of young children.

Waning immunity and co-morbidities (i.e. chronic diseases) make the elderly the second age-related group particularly vulnerable to influenza. Influenza infection among the elderly is associated with an increased mortality rate, increased risk of hospitalization, greater risk of disability and reduced quality of life (16–18). Influenza and pneumonia comprise the sixth leading cause of death in the United States and the fifth leading cause among adults aged 65 and over (19, 20). The elderly population has the highest age-specific case fatality rate from influenza and accounts for 90% or more of deaths (19, 20, 21).

In the USA the estimated national influenza vaccine coverage in 2005 among persons aged >65 years was 66%, and compared with the coverage estimates from previous years has increased (22).

Influenza vaccination rates for the elderly (>65 years) differ widely across Europe, the highest rates are observed in United Kingdom (78%), France (69%), Spain (67%), Ireland (65%), Germany (61%), Finland (54%), Portugal 51%), the lowest in Austria (37%), and the Czech Republic (32%) (according to ESWI data) (4). These data illustrate that only few countries have already met or will meet in the future the WHO target level – vaccination of 75% of population older than 65 years (4).

It is an obvious observation that, compared to other countries, influenza vaccination coverage in age-related risk groups in Poland is low. The influenza vaccination coverage among Polish children aged 0–4 years is less than 2% and among the elderly is 14%, however, an increasing trend has been observed recently (from 7% in 2004 to 8.7% in 2006 and 14% in 2007). The percentage of the elderly among all vaccinated persons is higher each year probably as a result of health education focussed on this group of patients and provision of free vaccination for elderly people by local administration.

These free vaccination programmes for the elderly were introduced in 2004 (for example in two large Polish towns: Warsaw and in Poznan), every year more local governments incorporate influenza vaccinations for seniors into their public health plans, but it is impossible to estimate what rate of the population of Polish elderly is offered free influenza vaccination – because of the lack of such data. However we may expect that the increasing trend of influenza vaccinations among the elderly is correlated with free vaccination programmes.

Traditionally the highest influenza vaccine coverage (19% in 2007) among the elderly older than 65 years has been observed in Mazovian Region (with Warsaw as a capital), where the action of free vaccination has been continued for 5 years, in other regions without reimbursement of vaccination the coverage rate was lower (for example 5% in north-eastern region) (23). This observation also supports the hypothesis that an increased coverage rate may be connected with lack of payment for the vaccine by patients.

CONCLUSIONS

The influenza vaccination rates among age-related risk groups in Poland remain far below World Health Organization recommendations. No or very weak increase in vaccination coverage rates, as demonstrated in our paper, indicates that Poland will not be able to meet the WHO targets, if no further action is taken concerning vaccine uptake. Observed recently an increasing trend

concerning influenza vaccine uptake among the elderly, which may be explained by providing free vaccines, may indicate possible ways of improving the influenza vaccine coverage. More educational activities directed both to patients and health care workers would be needed to improve a general knowledge about influenza vaccination benefits.

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Received December 10, 2008
Accepted in revised form June 4, 2009