



Determinants of influenza vaccination coverage rates among primary care patients in Krakow, Poland and the surrounding region

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ABSTRACT

Objective: Poland is significantly behind other European countries in terms of influenza vaccination coverage. In addition, the vaccination rate among health care personnel in Poland is also very low. The aim of this study was to determine the current barriers to achieving effective influenza vaccination coverage among primary health care (PHC) patients and physicians in Poland and to reveal any associations between the patients' and physicians' characteristics and the influenza vaccination coverage rate among patients.

Method: A cross-sectional questionnaire-based survey was distributed among 18 PHC physicians and 533 their patients in Krakow, Poland and the surrounding region. The data from patients were associated with the doctors' characteristics.

Results: The reasons for not receiving the influenza vaccine differed between patients and their physicians. Among the patient population, the main reason behind vaccination non-compliance was the self-perception of good health, while forgetting about the vaccination was the main reason among the physicians.

The factors that had the positive influence on the patients' decision to receive the vaccination involved: older age, being a widower, being retired, having a chronic disease, being vaccinated against influenza in the past and awareness of influenza complications. Moreover, those patients who had received sufficient influenza vaccination education from their healthcare provider and had been the patients of physicians who had been vaccinated against influenza, had significantly higher vaccination rates.

Conclusion: Improved patients and doctors education strategies are needed to maximize influenza vaccination coverage rates. Information regarding the need and benefits of the influenza vaccine, along with details on where and when to receive vaccination will provide a positive influence on a patients' decision-making process regarding vaccination compliance. Also, the free of charge influenza vaccinations for all primary health care workers should be considered.

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1. Introduction

The World Health Organization recommends annual vaccination against the seasonal influenza for the following population groups: nursing-home residents (the elderly or disabled), people with chronic medical conditions, elderly individuals; and other groups such as pregnant women, health care workers, as well as children from ages six months to two years [1]. Adults over the age of 65 are also classified as high risk [1]. The influenza vaccine

has been shown to decrease the morbidity and complications of seasonal influenza infections. This is the most effective and cheapest way to combat influenza [2]. Safe and effective vaccines have been available and used for more than 60 years [1]. The burden of influenza on global health and the healthcare system is considerable. Many countries have successfully begun to implement policies and campaigns to increase the coverage of the seasonal influenza vaccination [3,4].

In the 2010–2011 season in the United States, coverage for the general population was 40.5% and 69.6% for adults over the age of 65 [5], while in the United Kingdom these coverage rates were 50.4% and 72.8%, respectively, and in France, 40% for the general population and 60% for individuals over 70 [6,7]. Poland is significantly

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behind other countries in terms of influenza vaccination, with vaccination rates of just 4.5% for the general population and 14.2% for adults over the age of 65 in the 2011/2012 season [8].

The vaccination rate among health care personnel in Poland is also very low. According to the latest data it is estimated that only 6.4% of health care providers in Poland receive the influenza vaccine [9].

Numerous studies obtained from different countries have shown successful vaccination campaigns which resulted in an increased vaccination rate among the population, and also in the high-risk elderly group [3,4,10–12]. The proper understanding of the barriers that prevent wide vaccination coverage is an essential provision to design the improvement strategy.

The aim of this study was to answer the following questions:

1. What are the current barriers to effective influenza vaccination coverage as perceived by patients and their PHC physicians in Poland?
2. Is there an association between the demographic and professional characteristics of PHC patients and physicians and the influenza vaccination coverage rate among the patients?
3. Do the personal attitudes of PHC doctors regarding influenza vaccination association with the vaccination coverage rate of their patients?

2. Materials & methods

2.1. Study design

The cross-sectional questionnaire-based survey was conducted between March and May 2013, after the influenza vaccination period. The data was collected by trained interviewers, recruited from among medical students. Prior to the fieldwork, all of the interviewers received detailed instructions about the study protocol. The patient interviews were conducted immediately after the visit with their doctors, while the physicians were interviewed at the end of the consultation session.

The survey received full approval by the Jagiellonian University Bioethics Committee, number KBET/318/B/2012. Informed consent to take part in the study was requested and obtained from both: patients and physicians. The study was conducted according to the GCP rules and confidentiality was maintained.

2.2. Sampling

Simple random sampling by means of random-number table was used. We randomly selected 30 primary care physicians working in Malopolska region (Krakow and surrounding small towns and villages). To draw the sample we used a local register of primary care physicians obtained from national health services. According to the Polish law regulations qualified to work in primary care are physicians certified or who specialize in family medicine, internists, pediatricians and doctors with other medical specialties, who worked in primary care at least 10 years before 29.09.2007.

A phone call was made to the chosen physicians in order to ask for the willingness of participation of their practice in the study. Eighteen doctors agreed to participate (response rate 60%). In each practice the trained fieldworkers, invited 30 consecutive patients visiting their primary care physicians for various reasons. The following eligibility criteria needed to be met in order to participate in the interview: age of at least 18 years, ability to give informed consent, lack of co-morbidities that could prevent effective communication and patient agreement to take part in the study. Of the total 540 patients eligible, 533 individuals (response rate 98.7%) consented to participate. On the same day, 18 physicians, who

were consulting those patients and agreed to participate, were also interviewed.

2.3. Research tool

For the purpose of the study, two questionnaires were designed by the study team. The initial questionnaires were prepared based on data acquired from the review of international literature. Both initially prepared questionnaires were then piloted, the questionnaire for the physicians by 12 well-qualified and experienced family physicians, and the questionnaire for patients by 38 randomly selected PHC patients. Finally, the questionnaire for the patients consisted of 21 questions, including 3 open and 3 semi-open ones. The rest of the questions were multiple choice questions with possibility to choose one or more predefined answers. The first set of questions were related to socio-demographic measures. The next section applied to the individuals' health. This part integrated questions regarding the patients' medical history, specifically concerning chronic diseases.

The last part of the questionnaire included a patient behavioural assessment which included questions concerning past immunization history, vaccination side effects, and reasons for not receiving the vaccination. There were also questions regarding whether or not the patient had received previous information from their physician about the necessity of receiving the vaccination, along with the place and conditions under which to receive the vaccination.

The physicians' questionnaire consisted of 10 questions, among which 2 were semi-open, and the rest had predefined answers. Data was gathered concerning the physicians' sex, age, localization of the practice, number of patients seen at the practice, medical specialty, and number of years in practice. The questionnaire also included questions designed to measure the strength of vaccination recommendation for the patients from the doctor's perspective. Two questions specifically regarded the strength of the doctors' recommendation for patients with and without chronic diseases.

The open and semi-open questions were used as the option "other" for the patients: for other concomitant diseases and other reasons for non-vaccination. The physicians answers for the open question concerned the reasons for non-vaccination.

2.4. Statistical analysis

The statistical analysis was performed using Statistica 10 software (StatSoft Inc.). To present the characteristics of the respondents, calculations were performed assessing the percentage distribution for variables measured on a nominal scale. Measures of central tendency and measures of dispersion (mean and standard deviation) were calculated for quantitative features. To assess the associations between the characteristics of the respondents and their doctors on influenza vaccination status, the chi-square test was used for categorical data and the Student's *t*-test was used for normally distributed variables. A *p*-value of 0.05 was considered statistically significant.

3. Results

3.1. Physicians' characteristics

Ten out of eighteen (56%) of physicians participating in the study were women. The mean age of the physicians was 45.4 years (\pm SD 11.3). Fourteen of the doctors worked in urban practices. Twelve of the physicians (67%) specialized in family medicine, three specialized in internal medicine, and the last three physicians included a pediatrician, psychiatrist, and pulmonologist.

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