

EPIDEMIOLOGICAL STUDY

Influenza vaccination – knowledge, attitudes, coverage – can they be improved?

Madar R, Repkova L, Baska T, Straka S

*Institute of Epidemiology, Jessenius Faculty of Medicine, Comenius University, Martin, Slovakia. madar@jfmed.uniba.sk***Abstract**

The reasons for low rate of influenza vaccination in Slovakia have been analyzed in selected target groups. In our questionnaire study we focused on the level of knowledge about this vaccination and the attitudes towards it. We selected three target groups: medical students, nurses and printing company workers. The authors as well tried to identify the ways how the flu vaccination coverage could be increased in the future.

The questionnaire survey revealed several surprising facts. Though almost all the respondents knew about the existence of influenza vaccine, less than one quarter of them have ever received influenza shot. Despite our expectations that the main source of information about influenza prevention in medical students and nurses would be from their medical and nursing studies, it was shown to be from mass media instead. Even more staggering was the distrust towards the vaccination as a reason for not being vaccinated in a high proportion of both the medical students and the nurses. The majority of medical students would not even want to get a vaccination, even if it were to be provided for free.

These results suggest that if we want to improve the low influenza vaccination coverage within the general population of our country, we will have to focus our attention primarily on the professional groups of medical workers and medical and nursing students who should be able to provide the public with the competent advice.

Therefore, changing the current negative approach and improving the deficit in knowledge concerning vaccination are the key tasks for all under- as well as postgraduate teachers of medicine and nursing in Slovakia, especially, but not exclusively, of those specialised in public health. (Tab. 3, Fig. 2, Ref. 8.)

Key words: influenza, vaccine, vaccination coverage.

Influenza is a highly contagious acute viral disease of the respiratory tract affecting individuals of all age groups. It is characterised by an abrupt onset of fever, chills, headache, myalgia, dry cough and sometimes sore throat and prostration. Although it is usually a self-limited disease with recovery within 7 days, it can be complicated by bronchitis, secondary bacterial pneumonia and in children by otitis media (1). Primary influenza pneumonia and secondary bacterial pneumonia carry a high case fatality rate. The highest incidence and case fatality rate due to influenza is amongst the risk groups that include patients with underlying chronic respiratory, cardiovascular, renal and metabolic diseases, as well as immunodeficient and elderly persons (2, 3, 4). Individuals belonging to any of these risk groups are in Slovakia annually entitled to a free dose of influenza vaccine. What's more, increased morbidity and mortality during an influenza epidemic lead to a significant rise of financial expenses due

to both direct losses (treatment) as well as indirect losses (sick-leave) (5). Despite the fact that free annual influenza vaccination of individuals at risk is recommended by the legislation in our country, an overwhelming majority of them remain not vaccinated. On average only about 6–9 % of the Slovak general population receive influenza vaccine annually, which is much lower compared to the developed European countries (6, 7, 8). The authors carried out their questionnaire study with the aim of finding out the reasons for the very low influenza vaccination coverage in our country.

Institute of Epidemiology, Jessenius Faculty of Medicine, Comenius University, Martin, Slovakia

Address for correspondence: R. Madar, MD, Institute of Epidemiology, JLF UK, Sklabinska 26, SK-037 53 Martin, Slovakia.
Phone: +421.43.4134715

Material and methods

The questionnaire were distributed among three target groups:

- 84 medical students during the first semester of their fifth year of study before the start of their epidemiology course,
- 46 nurses working in the Department of Intensive Medicine in the Eastern Slovakian district hospital,
- 100 employees of a printing factory in the central region of the country.

All the medical students and nurses eligible for the study have been addressed. A sample of respondents from the printing factory was selected by using random selection of every 10th on the list of employees arranged in alphabetical order. Statistical tests for difference were determined by comparing the range of 95 % confidence interval for each estimate, at the $p=0.05$ level.

The questionnaire was formatted and printed on both sides of a single sheet, and it contained the following questions:

Are you aware that there is a vaccination against influenza that can prevent this disease?

If yes, what source of information have you received it from?

Have you ever received a vaccination against influenza in the past?

Did you receive a vaccination against influenza just before or during the previous flu season 2001/2002?

If you have not received an influenza vaccination in the past, what was the reason?

What is the level of your knowledge about vaccination against influenza?

Would you like to learn more about influenza and the vaccination against it?

If yes, in what form would you like to get that kind of information?

If you were to be offered a free vaccination, would you make use of it?

In your opinion, what is the main reason for the low influenza vaccination coverage within the general population?

Results

The response rate of the employees of the printing factory was 94 % (94 respondents) while in medical students and nurses it reached 100 % (84 resp. 46 respondents) (Fig. 1). However, actual number of respondents slightly differed question to question. The average age of the printing company employees was 40 years, while in nurses and medical students it was 31 years and 23 years respectively. Age distribution of respondents is shown in Figure 2. The majority of respondents (59 %) were female.

The overwhelming majority (100% of nurses, 98.8% of medical students and 94.7 % of printing factory employees) was aware of the existence of a vaccine against influenza. The main source of such information was in almost two thirds of all three groups mass media (e.g. journals, TV or radio) followed by information received from a medical doctor (Tab. 1). The history of previous vaccination against influenza was similar in all three groups rang-

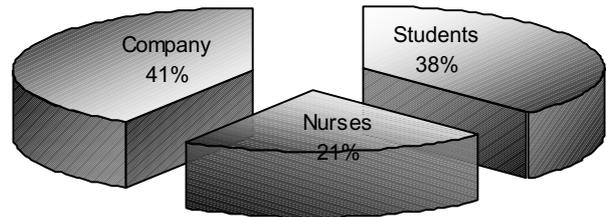


Fig. 1. Proportion of questionnaire respondents.

ing between 21.7 % and 22.6 %. However, the number of individuals having received vaccination in the previous flu season (2001/2002) was the lowest in the group of printing factory employees (6.4 %), while in nurses and medical students it was significantly higher (19.3% and 19.6% respectively).

The main reason why non-vaccinated individuals did not receive flu vaccine in the past was the distrust towards the vaccination in 50 % of the medical students and 43.2 % of the nurses, while in the printing factory respondents it was mainly the cost of the vaccine (36.5 %) followed closely by distrust to the vaccination (35.1 %) (Tab. 2).

The majority of respondents considered subjectively their knowledge about influenza vaccination as average (Tab. 3). Only 20.2 % of the medical students and 13.0 % of the nurses considered their knowledge to be above average and sufficient to provide information to other people.

The main reason of the low influenza vaccination coverage of the general population was, according to printing company respondents, the lack of finance, while in the nurses and medical students it was mainly insufficient information closely followed by financial reasons. In the event of the vaccination being provided free of charge, 60.9 % of the nurses indicated that they would make use of it. Contrastingly, 55.4 % of medical students and 51.2 % of company employees would still not want to be vaccinated against influenza even when offered the vaccine free of charge.

It was felt desirable to have more information about influenza vaccination by 95.7 % of the nurses, 68.7 % of the medical students and 61.5 % of the printing factory employees.

Most medical students (49.4 %) and company employees (38.6 %) would prefer to receive more information directly from

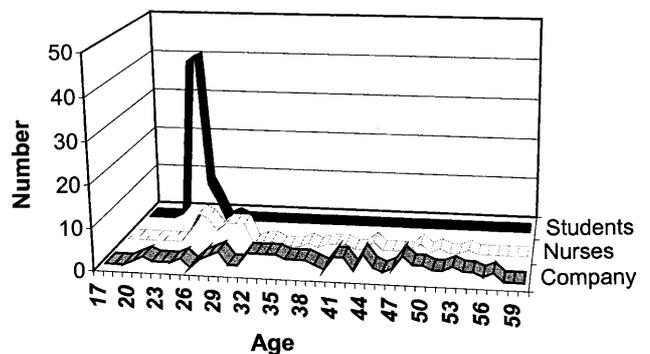


Fig. 2. Age distribution of respondents.

Tab. 1. Source of information about influenza vaccination.

	Company (%±CI 95%) (n=94)		Nurses (%±CI 95%) (n=46)		Students (%±CI 95%) (n=84)	
Responded	88	93.6%	46	100%	83	98.8%
Medical doctor	37	42.0±10.3	15	32.6±13.5	21	25.3±9.4
Journals, TV, radio	58	65.9±9.9	31	69.6±13.3	60	72.3±9.6
Other	13	14.8±7.4	6	13.0±9.7	19	22.9±9.0

Several respondents selected more than one answer

Tab. 2. Reasons for not receiving influenza vaccination in the past.

	Company (%±CI 95%) (n=94)		Nurses (%±CI 95%) (n=46)		Students (%±CI 95%) (n=84)	
Responded	74	78.7%	37	80.4%	48	57.1%
I do not trust to vaccination	26	35.1±10.9	16	43.2±16.0	24	50.0±14.1
I am afraid of adverse events	18	24.3±9.8	7	18.9±12.6	4	8.3±7.8
I don't have enough information	11	14.9±8.1	4	10.9±10.1	11	22.9±11.9
Financial reasons	27	36.5%	10	27.0±14.3	15	31.3±13.1

Several respondents selected more than one answer

Tab. 3. Level of knowledge of respondents about influenza vaccination.

	Company (%±CI 95%) (n=94)		Nurses (%±CI 95%) (n=46)		Students (%±CI 95%) (n=84)		Total (%±CI 95%) (n=224)	
Responded	92	97.8%	46	100%	84	100%	222	99.1%
Low, insufficient	17	18.5±7.9	6	13.0±9.7	8	9.5±6.3	31	14.0±4.6
Average, sufficient for myself	70	76.0±8.7	34	73.9±12.7	59	70.2±9.8	163	73.4±5.8
Above average, sufficient for providing information to others	5	5.4±4.6	6	13.0±9.7	17	20.2±8.6	28	12.6±4.4

health workers, while nurses would prefer information provided by lecture(s) (46.7 %).

Discussion

Our questionnaire survey revealed several surprising facts. Despite the fact that almost all the respondents were aware of the existence of the influenza vaccine, less than one quarter of them have ever received an influenza shot. Higher coverage of vaccination was expected mainly amongst the medical students and especially in the nurses group who have gone through several years of medical and nursing studies and are in daily contact with possible sources as well as susceptible recipients of infection – their patients. This was more understandable in medical students who were just at the beginning of their epidemiology

course. Despite our expectation that the main source of information about influenza prevention in medical students and nurses would be from their medical and nursing studies, it was shown to be from mass media instead. Even more staggering was the distrust towards the vaccination as a reason for not being vaccinated in a high proportion of both the medical students and the nurses. The majority of medical students would not even want to get a vaccination, even if it were to be provided for free. Only a small proportion of medical students and nurses felt that they had enough knowledge to enable them to inform other people about the illness and its prevention, and this should be an important role in their every-day practice.

All this suggests that if we want to improve the low influenza vaccination coverage within the general population of our country, we will have to focus our attention primarily on the pro-

fessional groups of medical workers and medical and nursing students who should be able to give to the public the most competent advice possible. Providing sufficient information to individuals at risk, who are unaware of being annually entitled to a free dose of influenza vaccine, would most probably lead to a decrease in the morbidity and mortality with significant reduction of financial expenditure. The questionnaire study also showed that information should be provided to medical professionals in a way that will change their negative attitude and their barely understandable distrust towards the vaccination. Vaccination is the most effective and cost-effective method of the prevention of infectious diseases at the beginning of the 21st century and medical personnel should do their best to promote it to the lay population who can significantly benefit from it. With the current state of knowledge and the rapid development of vaccinology science, distrust towards vaccination is unjustified and out of place. Changing the current negative attitude to vaccination and improving the deficit of knowledge concerning vaccination are therefore the key tasks for all undergraduate as well as postgraduate teachers of medicine and nursing in Slovakia, especially, but not exclusively, of those specialised in public health.

In our opinion, little confidence in influenza vaccination by the general public is also caused by several ungrounded reports on vaccination failures, which have not been, however, specifically virologically identified and could be influenza-like diseases caused by other agents not involved among influenza vaccine

antigens. There have also been several cases of ungrounded negative propagation of influenza vaccination by some medical professionals in Slovakia speaking about the associations of some conditions (e.g. Guillain–Barre syndrome) with influenza vaccination without the use of evidence based medicine.

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