GENERAL ARTICLE

Status of vaccination against influenza among the Ukrainian population

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ABSTRACT

Background: Influenza is a seasonal, highly contagious infectious disease and one of the most important respiratory tract infections, from a public health point of view. The most efficient and cost-effective means of combating influenza in the world is vaccination. Unfortunately, vaccination rates against influenza in Ukraine are low; eventhough Ukraine has an official published policy on seasonal influenza vaccination. Although seasonal influenza vaccination is recommended by the appropriate organizations, the vaccine is neither free of charge nor reimbursed.

Objectives: To describe vaccination coverage, morbidity and mortality data in Ukraine and to identify the main reason not to be vaccinated. The goal was to develop a communication strategy in favor of vaccination.

Methodology: Data from the national routine surveillance for influenza in the 2015-2016 season was assessed. After processing data a communication strategy was produced.

Results: During the season, 14.9% of the population were affected by influenza and with 733 cases of severe acute respiratory infection were identified, of which 391 deaths, including 5 children under the age of 17, 2 pregnant women and 3 fatal cases among healthcare workers. The population's coverage of the vaccine against influenza was very low; specifically only 0.3% of the population was vaccinated during 2015-2016. The proportion of children vaccinated against influenza was 19.0%, with 5-9 years old and 10-14 years old being more vaccinated. Vaccines were mainly purchased by enterprises' and organizations' funds and by personal citizens' means. Vaccine effectiveness was not estimated in Ukraine and cost effectiveness was estimated partially only in one region.

Conclusions: From the present research it was found that vaccination data was available for only 93.5% of deaths in 2015-2016 and none were vaccinated for seasonal influenza. In addition, the population's coverage of the vaccination was very low. The majority of the respondents reported that healthcare workers did not recommend vaccination. Finally, a communication strategy for healthcare workers was suggested in order to strengthen vaccination.

Key words: Influenza vaccination, public health, risk groups, seasonal influenza, Ukraine

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INTRODUCTION

Influenza infection can cause a wide range of symptoms and quite often complications, including severe viral pneumonia with multiorgan failure, exacerbation of underlying medical conditions and invasive bacterial, coinfection. Influenza is a vaccine preventable disease and annual vaccination is the most effective means to prevent it. The World Health Organization (WHO) recommends that the following priority groups are vaccinated annually against seasonal influenza (WHO 2012): pregnant women, elderly persons irrespective of other risk factors, individuals older than 6 months with underlying health conditions, children aged 6–59 months, healthcare workers including those who work in nursing homes or settings with persons with disabilities.

WHO estimates that each year approximately 5–15% of the population will be infected. In addition, the annual global number of severe infections is estimated at 3–5 million (WHO 2003). Influenza is associated with increased morbidity and mortality, often due to associated infections such as pneumonia (Rothberg et al 2008), and excess healthcare expenditure.

Vaccination is accepted to be the most effective means of protection against influenza and its complications and is recommended in most countries (WHO 2005, Molinari et al 2007). Annual vaccination against influenza can prevent 70–90% of influenza-related illness in healthy individuals. In addition, in the elderlies it can reduce the severity of illness/complications and the risk of death by up to 60% and 80%, respectively (Blank et al 2012). The economic burden of influenza in population is recognized worldwide, and in order to decrease it many countries have implemented vaccination programs.

Official policy on seasonal influenza in Ukraine

Ukraine has an official published policy on seasonal influenza vaccination. Eventhough, seasonal influenza vaccination is recommended, the vaccine is neither free of charge nor reimbursed.

Vaccination against influenza is conducted at healthcare establishments or at temporary clinics for immunization, which meet the regulation requirements set by the Ministry of Health (Legislation of Ukraine 2017). According to the Ukrainian law "On approval of normative legal acts on issues of organization and holding of sanitary and anti-epidemic measures aimed at preventing the occurrence and spread of influenza and acute respiratory infections" (Legislation of Ukraine 2015) vaccinations are carried out annually in September – November, primarily among people of risk group. Vaccination against influenza is performed by medical staff based on clinical data of the population. Information on the number of persons vaccinated against influenza (see in attachments) is submitted to the Center of influenza and ARVI on a weekly basis during the epidemic season. This Department summarizes the information on vaccinations from different regions of the country and it informs annually the Ministry of Health.

The main aims of this study were to describe seasonal influenza immunization policies, identify recommendations for different risk groups, obtain vaccination coverage data for 2015-2016, and to develop communication strategy in order to communicate to the population the need for vaccination.

METHODS

Subjects - recruitment

Data form the national surveillance for influenza in the 2015-2016 season were analyzed in order to highlight vaccination coverage, morbidity and mortality. A research was conducted among the population to determine attitudes towards vaccination against influenza and the main reason for not being vaccinated with the goal of developing a communication strategy. The questionnaire consisted of 7 questions (see attached) and was distributed randomly to the population in Kyiv as a hard copy. Responses were analysed using Excel 2007 (Microsoft, Redmond, WA, USA). Data collected will provide a baseline from which to measure future progress in vaccination coverage, as well as changes in influenza vaccination policies.

RESULTS

Analysis of morbidity and mortality from influenza in 2015-2016

Season 2015–2016 was characterized by high intensity of influenza epidemic, with a maximum rise of the incidences in mid-January-beginning of February. Dominant etiological factor in this season was virus A(H1N1)pdm09. During that time 14.9% of the population was infected, and 259 thousand people were hospitalized, that is 4.5% of the total population. The proportion of children up to 17 years among hospitalized patients was 67.1%. With severe acute respiratory infection 733 cases were identified. From those 391 deaths were recorded, including 5 children under the age of 17 and 2 pregnant women. Furthermore, 924 healthcare professionals manifested respiratory infections and three people were recorded as dead.

In this period, increased mortality among risk groups were recorded, such as among people with chronic diseases (respiratory and cardiovascular diseases, kidney and/or metabolic diseases), persons older than 60 years, persons residing in communes (orphanages, homes for the elderly etc.) or working in public places

(teachers/professors, healthcare staff, persons being in contact with a large number of people, pregnant women). Vaccination information was available for 93.5% of deaths that happened during 2015-2016, revealing that none was vaccinated for seasonal influenza.

Analysis of vaccination against influenza in 2015-2016

The population's vaccination coverage against influenza was very low. For the years 2015-2016 only 0.3% of the Ukrainian population (129138 persons) was vaccinated. In more details, 21% of the vaccinated population was children under 17 years old (children from 6 months to 1 year old accounted for 1.0%, 1 – 4 years old for 8.0%, 5 to 9 years old for the 28.0%, 10 - 14 years old for 40.0 %, and those from 15 to 17 years old accounted for 23.0%. Furthermore, the 22.8% of the vaccinated population belonged to risk groups and the most vaccinated individuals were healthcare professionals. Vaccination was mainly performed from mid-October 2015 to beginning of April 2016 (Fig. 1).

Information on financing the purchase of influenza vaccines across the Ukrainian regions is presented in figure 3. Up to 60% of the funds were provided by the heads of enterprises and organizations in Luhansk and Rivne regions. Unfortunately, the 27% of the citizens purchased, at their own expense, influenza vaccinations.

The highest number of people vaccinated against influenza (42544 individuals) resides in Dnipropetrovsk region; the least vaccinated in Chernihiv, Zhytomyr and Khmelnytsky regions (237, 298 and 674, respectively). Vaccination against influenza in the Dnipropetrovsk region was performed with expenses form the local budget (nearly 1 million gryvnias=31.910 euros). In Chernihiv region the request to the state administration for the allocation of funds for the purchase of vaccines was rejected resulting in the lowest number of vaccinated individuals in Ukraine.

Vaccine effectiveness and cost- effectiveness

Vaccine effectiveness is not estimated in Ukraine. According to the analysis carried out by experts of the appropriate services, it was determined that, an average of 7 days treatment costed 250 UAH (7.9775 euros) per day. The cost of treatment of influenza patients in 2014 and 2015, accounted around 675 and 638.8 million UAH, accordingly (21539250 and 20384108 euros). It should be noted that under today's socio-economic conditions, in the event of an epidemic, such costs will increase. At the same time, the use of vaccine prophylaxis makes it possible to reduce these costs by 3-5 times.

Analysis of study conducted in 2015-2016 influenza season

The Influenza Center and ARVI conducted a study among randomly selected people in Kyiv with the aim to find the reasons for Ukrainians to not want to be vaccinated against influenza. A total of 200 people were studied, with 67% females and 33% males. Age group of the sample is presented in table 1. Regarding clinical characteristics, 93 respondents had chronic diseases and 68 were elderly. In the analysis of the responds, it was found that 44.5% of the sample did not received any advice from their family regarding vaccination, 35% of the respondents did not believe in vaccination effectiveness and safety, and 20.5% reported that vaccines were

Fig.1. Number of persons vaccinated against influenza (Ukraine, 2015 - 2016).

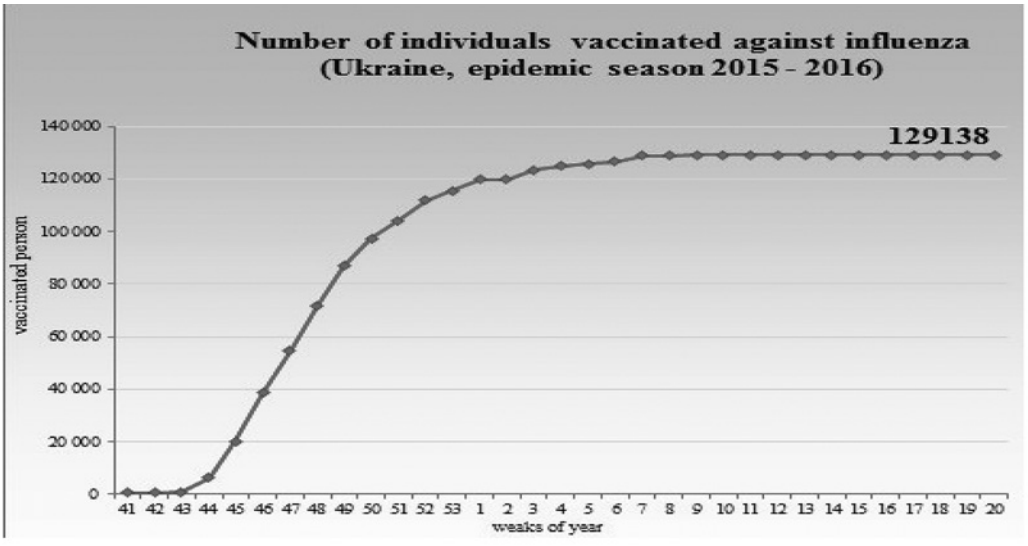
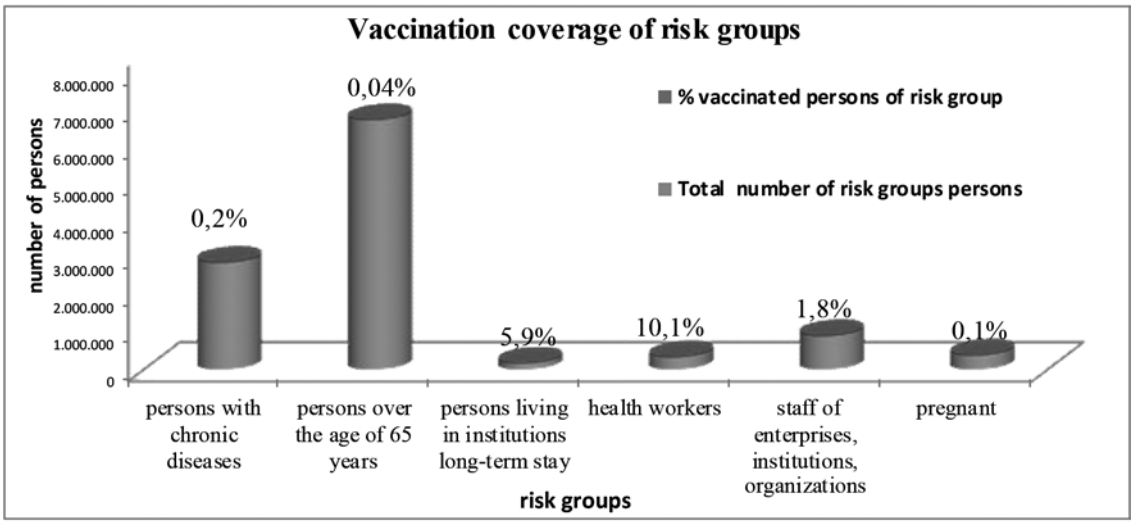


Fig.2 Vaccination coverage of risk groups (Ukraine, influenza season 2015-2016)

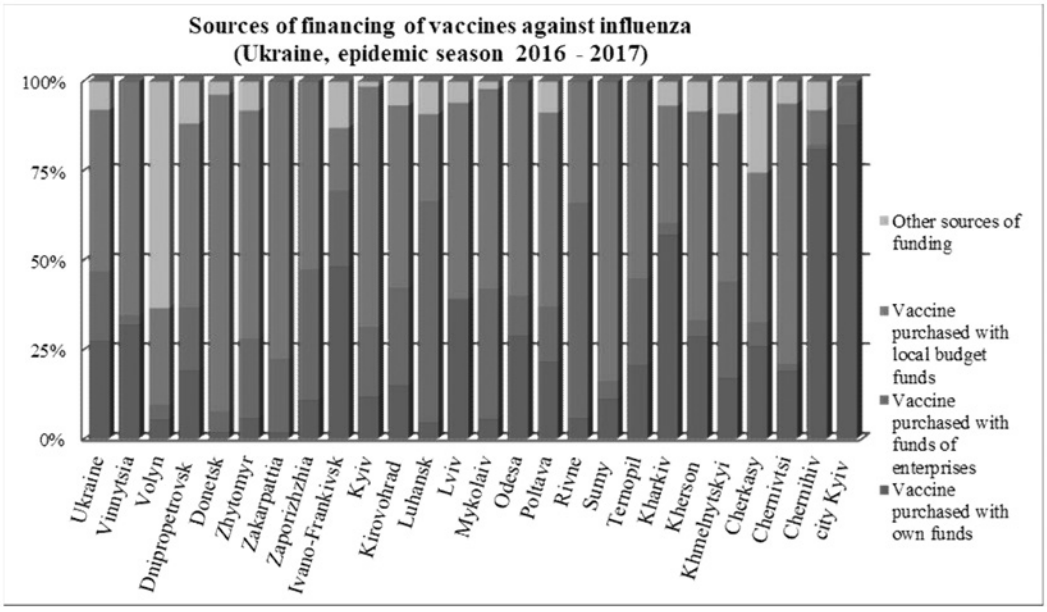


very costly.

As most respondents reported that healthcare professional did not recommend vaccination, it is necessary to develop a communication strategy aiming at healthcare professionals. The ultimate goals would be to increase the support of healthcare professional, to promote a more positive attitude towards vaccination, and to achieve higher levels of vaccination.

An implementation of a training course for healthcare professionals involved in vaccination is needed. The course could be integrated into the existing teaching curriculums or it would be in the form of continuous education program aiming at facilitating the implementation of vaccinations. In this training program it is necessary to include, firstly, assessment of knowledge, skills and abilities of professionals. This will identify the needs for further training, and form a training program. As a second step in this process, advice on how to correctly explain to people the advantages and risks of vaccination against influenza will be provided.

Fig.3 Sources of financing the purchase of influenza vaccines across the regions (Ukraine, influenza season 2015-2016).



Furthermore, training on how to adequately pass information regarding safety and side effects of vaccines is going to be implemented. Finally, ethical relationships and the importance of communication with parents and guardians, pregnant women, the elderly and people with disabilities are going to be addressed. Last but not least, skills of counseling and availability of information materials for the healthcare professionals are going to be included.

To make influenza vaccination more popular, it is advisable to develop and disseminate information materials for general public. But as this is costly and the resources are limited, it would be better to focus on providing high-quality reference materials for healthcare professionals. After appropriate training, these people can act as representatives of the vaccination program against influenza and may be involved in interaction with the media.

Other factors that could increase vaccination uptake could be monitoring of vaccine coverage rate, setting national vaccination coverage objectives per year, reimbursement (90–100%) of vaccination costs, awareness campaigns on radio or television, flyers in healthcare facilities, press adverts or informative websites.

Vaccination is a key tool for reducing morbidity and mortality from infectious diseases, as well as for minimizing outbreaks and epidemics. According to WHO, vaccination is a matter of national security.

Limitations

Lack of data on the effectiveness of vaccination, small sample, lack of data from private practices or clinics, data on vaccine coverage were obtained only from state healthcare settings.

CONCLUSIONS

In conclusion, it could be reported that recommendations and implementation of seasonal influenza vaccination programs in Ukraine broadly followed both WHO and EU recommendations. The findings of the present study confirm that there is a large gap between recommendations and implementation of policies (vaccination uptake), but also between recommendations and availability of mechanisms to monitor uptake. Vaccination coverage rates vary widely across target groups of people. The results show that achieving high vaccination coverage rates for those who are at risk of developing severe complications due to influenza infection remains a serious public health challenge. Furthermore, it is quite common for healthcare professional to avoid recommending vaccination. Implementation of communication strategy on influenza and influenza vaccines for healthcare professional is very important.

Ukraine should strive to strengthen influenza vaccination coverage monitoring systems for target risk groups (elderly, persons with medical risk conditions, pregnant women and healthcare professionals). Data on uptake should be collected from both state and private medical facilities. It is important to encourage healthcare professionals to proactively recommend seasonal influenza vaccination to persons identified as key target groups by the national vaccination programme.

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