

ОРГАНІЗАЦІЯ ОХОРОНИ ЗДОРОВ'Я

DOI: 10.21802/acm.2021.1.4

STUDY OF THE AWARENESS OF HEALTHCARE WORKERS ON ORGANIZATIONAL ASPECTS OF VACCINATION

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ВИВЧЕННЯ ОБІЗНАНОСТІ МЕДИЧНИХ ПРАЦІВНИКІВ ЩОДО ОРГАНІЗАЦІЙНИХ АСПЕКТІВ ВАКЦИНАЦІЇ НАСЕЛЕННЯ

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Abstract. Aim. To analyze the awareness of healthcare workers on the organization of vaccination.

Materials and Methods. In 2018 – 2019 sociological survey was conducted among 1384 healthcare workers from 4 Ukrainian regions: 353 primary care physicians, 233 specialized medical care doctors, 88 healthcare managers, 700 nurses, and 10 others.

Results. Gaps in the knowledge and beliefs of health professionals associated with the organization of vaccination were founded: less than half of the surveyed health workers understand that vaccination is carried out with any certified vaccine, regardless of the country of origin; a significant part of respondents tend to prescribe drugs not recommended by international guidelines (53.6%), antihistamines (15.9%) and anti-inflammatory (8.0%) drugs before vaccination; do not know about the possibility of doing several vaccinations in one visit (47.3%) and that the cold chain breach affects the effectiveness of the vaccine (52.4%). It was found that the most knowledgeable about the organization of immunoprophylaxis of the population are the health care managers and medical personnel who have passed special training on vaccination vs the least informed specialized medical care doctors.

Conclusions. It is necessary to develop a set of scientifically based measures to improve the awareness of health professionals about the organization of vaccination in order to improve the coverage of the population with immunoprophylaxis.

Key words: vaccination management, awareness, healthcare workers

Резюме. Мета. Проаналізувати обізнаність медичних працівників з організації проведення вакцинації населення в межах їх компетенції.

Матеріали і методи. Впродовж 2018-2019 років провели соціологічне дослідження 1384 медичних працівників 4-х областей України: лікарів первинної медичної допомоги (353 особи), лікарів-спеціалістів (233), керівників медичних закладів (88) та молодших спеціалістів з медичною освітою (700), інших (10).

Результати. Встановлено прогалини в знаннях та переконаннях медичних працівників, пов'язаних з організацією вакцинації населення: менше половини опитаних медичних працівників розуміють, що щеплення проводять будь-якою сертифікованою вакциною, незалежно від країни-виробника; значна частка респондентів схильні призначати перед щепленням не рекомендовані міжнародними настановами обстеження (53,6%), антигістамінні (15,9%) та протизапальні (8,0%) лікарські засоби; не знають про можливість робити за один візит декілька щеплень (47,3%), і що порушення холодового ланцюга впливає на ефективність вакцини (52,4%). Виявлено, що найбільш обізнаними з питань організації імунопрофілактики населення є керівники медичних закладів і медпрацівники, які пройшли спеціальні тренінги з вакцинації, а найменш поінформовані – лікарі-спеціалісти.

Висновки. Необхідно розробити комплекс науково обґрунтованих заходів із поліпшення обізнаності медичних працівників щодо організації вакцинації з метою поліпшення охоплення населення імунопрофілактикою.

Ключові слова: організація вакцинації, обізнаність, медичні працівники

Problem statement and analysis of the latest research. The COVID-19 pandemic has focused on the dangers of human diseases in the absence of the most effective means of prevention – vaccines [1].

After all, thanks to the invention of vaccines, it was possible to control, and in some cases eliminate, most infectious diseases that led to the premature death of people [2, 3]. Achievement of public immunity has become possible due to the introduction of mandatory immunization programs

in almost all countries of the world [4, 5]. According to the National Calendar of Preventive Vaccinations (2018) in Ukraine, vaccinations against tuberculosis, diphtheria, tetanus, pertussis, polio, hemophilia, measles, mumps, rubella, hepatitis B are mandatory. However, the coverage of even this rather limited list of mandatory vaccinations is far from the reference, and during the current pandemic, according to the forecasts of the WHO and the United Nations Children's Fund (UNICEF), the situation may deteriorate significantly

[6]. The reasons for low immunization coverage are both organizational shortcomings and communication challenges [7, 8].

Unfortunately, recently in many countries around the world, including Ukraine, vaccine hesitancy among the population has developed significantly [9]. Despite the fact that sporadic cases of polio, tetanus, pertussis and measles outbreak in 2017-2018 have intensified public debate about the importance of vaccination [10-12], anti-vaccine movement remains powerful, and with the development of modern information technology is spreading rapidly among large masses of the population. Vaccination hesitancy has become particularly dangerous in the context of the current COVID-19 pandemic [13].

It is clear that health professionals play a priority role in shaping public opinion about vaccination [14, 15]. It is unlikely that primary care physicians and other health care workers who do not have the appropriate knowledge, will be able to communicate effectively with patients, answer all their questions, and form a clear understanding of the importance and need for immunoprophylaxis [16].

Objective. To analyze the awareness of healthcare workers on the organization of vaccination.

Materials and Methods

The cross-sectional sociological survey was conducted among healthcare workers in the scope of a specially designed program in response to measles outbreak in Ukraine and the world in 2017 – 2018. Data collection was conducted during 2018 – 2019 based on healthcare facilities of Dnipropetrovsk, Donetsk, Ivano-Frankivsk, Poltava regions and among students of the Summer School “Transformation of healthcare systems” (Chernihiv, 2018). The study covered 1384 people, including 353 (25.5%) primary care physicians, 233 (16.8%) specialized medical care doctors, 88 (6.4%) healthcare managers, 700 (50.6%) nurses and 10 (0.7%) others (journalists, lawyers, sociologists, etc.; all of them were participants of the Summer School).

Respondents were divided into age groups (under 30 years old – 12.9%, 30 – 39 y.o. – 24.2%, 40 – 49 y.o. – 29.0%, 50 – 59 y.o. – 21.2%, over 60 – 12.8%). Gender distribution among participants presents 86.8% of females, 13.2% – males. Regarding the region of residence of the respondents the study covers 83.2% Eastern Ukrainians and 16.8% are from Western part of the country. The study comprises those healthcare professionals who attended trainings on vaccination and those workers who were not present at such education events (51.7% and 48.3% respectively).

Respondents present different age and gender groups ($p < 0.001$). Among primary care physicians and healthcare managers almost one fourth is over 60 years old – 27.8% and 25.0% respectively, compared to 12.9% among specialized medical care doctors and 6.1% among nurses. At the same time, the percentage of participants under 30 years old is the highest among nurses (17.1%), quite significant among primary care physicians (11.9%), and specialized medical care doctors (7.7%), being extremely low among healthcare managers (1.1%). Regarding gender composition, the lowest percentage of females ($p < 0.001$) was among healthcare managers (65.9%) and specialized medical care doctors (69.5%). In contrast, the highest proportion of females was

among primary care physicians (79.3%) and nurses (98.7%).

The part of respondents covered with trainings on vaccination was the highest among healthcare managers (67.0%), reached more than a half of participating primary care physicians (56.1%) and nurses (53.9%), only one third (32.2%) among specialized medical care doctors attended the trainings.

A database based on MS Excel software products was created for statistical processing. The frequency of the studied traits per 100 respondents and the standard error for proportions ($\pm m$) were calculated. The null hypothesis about the accuracy of differences between comparison groups was tested by calculating the chi-square (χ^2) correspondence criterion [17].

The design of the research was approved by the Ethics Committee of Ivano-Frankivsk National Medical University (protocol № 98/17 of 21.12.2017).

Used methods: epidemiological, sociological, and biostatistics.

Results and Discussion

Answering the question on preferences in choosing a vaccine manufacturer, less than half of the surveyed health workers (43.5 \pm 1.3%) said that it does not matter – the main thing is that the product is certified by WHO or other international organizations (24.5 \pm 1.2%), or registered in Ukraine (19.0 \pm 1.1%). The rest of the respondents would like to vaccinate their children and themselves with vaccines produced in France (47.2 \pm 1.4 responses per 100 respondents), Belgium (42.9 \pm 1.3%) and much less often in the United States (11.8 \pm 0.9%), India (6.4 \pm 0.7%), Russia (5.7 \pm 0.6%), Korea (4.0 \pm 0.5%), other countries (0.4 \pm 0.2%).

This distribution of responses did not depend on the age of the respondents ($p > 0.05$). However, female health workers were pickier about vaccine manufacturers. Only 41.7% of them trusted any certified vaccine, compared to 54.6% of male respondents ($p < 0.001$).

The healthcare managers most often relied on any certified vaccine – 79.5% vs. 42.9% of primary care physicians, 40.2% of nurses and 37.4% of specialized medical care doctors ($p < 0.001$) – Fig. 1.

In our opinion, such answers demonstrate the lack of knowledge on the organization of vaccination among doctors and nurses. As an illustration, among those who received trainings on the vaccination, 54.6% answered correctly against 35.4% of health care workers who did not have such training ($p < 0.001$).

At the same time, these answers indicate a significant potential for further overcoming the knowledge gap of health professionals and the need not for one-time (as training), but for systemic measures to promote vaccination in society.

Current international guidelines for the organization of vaccination does not require any examinations and medical interventions before its implementation [2, 4, 5], because it delays the process requires patients' unnecessary expenditures of time and money, and thus pushes some of them from vaccination. On the other hand, it also leads to unnecessary costs for health care systems and increases their financial burden.

However, the study found that half of the respondents (53.6 \pm 1.4%) prescribed clinical blood / urine tests to their

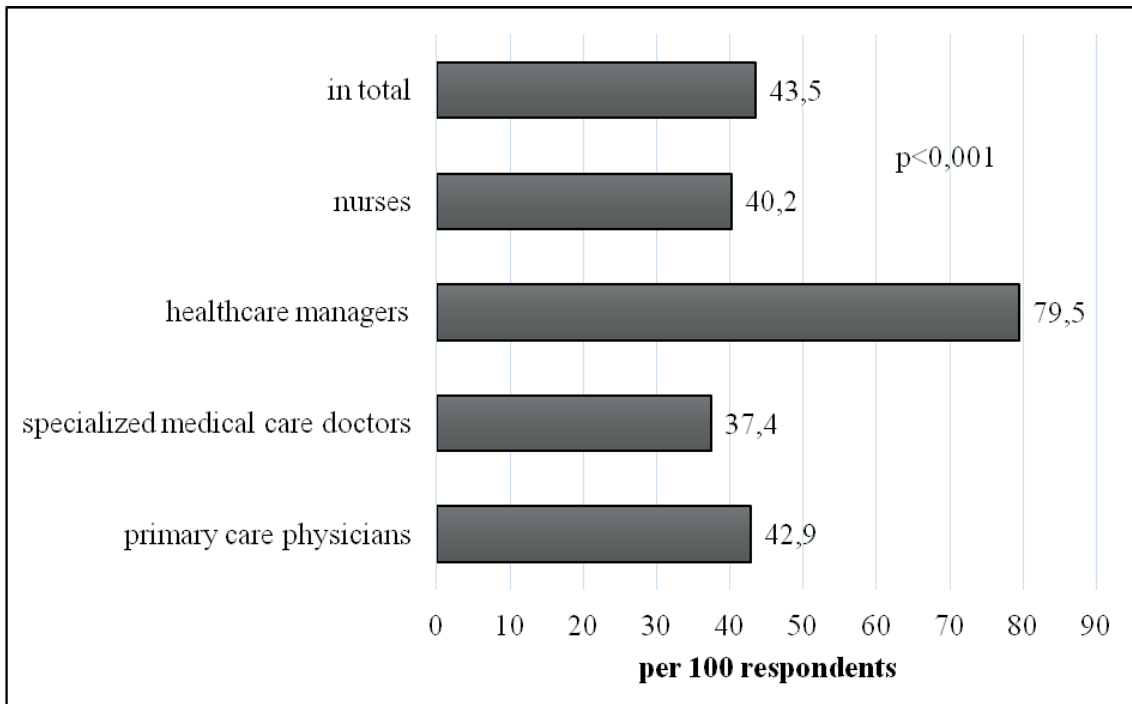


Fig. 1. Frequency of positive responses of interviewed health professionals about the requirement to use any certified vaccine, regardless of the country of origin

patients before vaccination (Fig. 2).

Quite a significant percentage of respondents are convinced that before vaccination it is necessary to prescribe antihistamines (15.9%) and anti-inflammatory (8.0%) drugs for prophylactic purposes. Moreover, antihistamines were more often prescribed by experienced health professionals (24.0% of 60-year-olds and older versus 11.4% up to 30 years, $p < 0.001$), and anti-inflammatory drugs – young people (15.8% younger than 30 years versus 5.1% - 8.4% among

health workers over 40 years old).

The greatest readiness to appoint unnecessary examinations before vaccination (Fig. 2) was demonstrated by specialists – 74.8% vs 51.1% of nurses, 46.6% of primary care physicians and 44.7% of healthcare managers ($p < 0.001$).

The distribution of answers to this question did not depend on gender ($p > 0.05$) but differed in the location of the healthcare facilities ($p < 0.001$). Medical workers in Western Ukraine were less likely than their counterparts in the

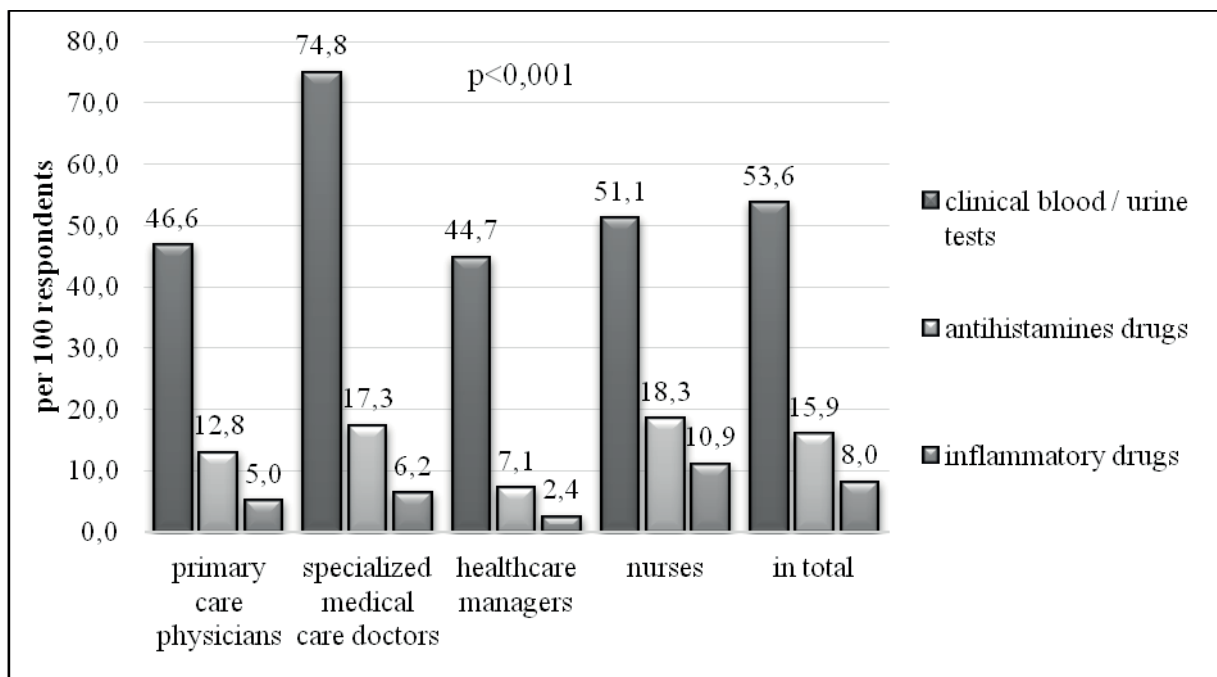


Fig. 2. The amount of examinations and prophylactic administration of drugs prescribed before vaccination by the interviewed medical workers

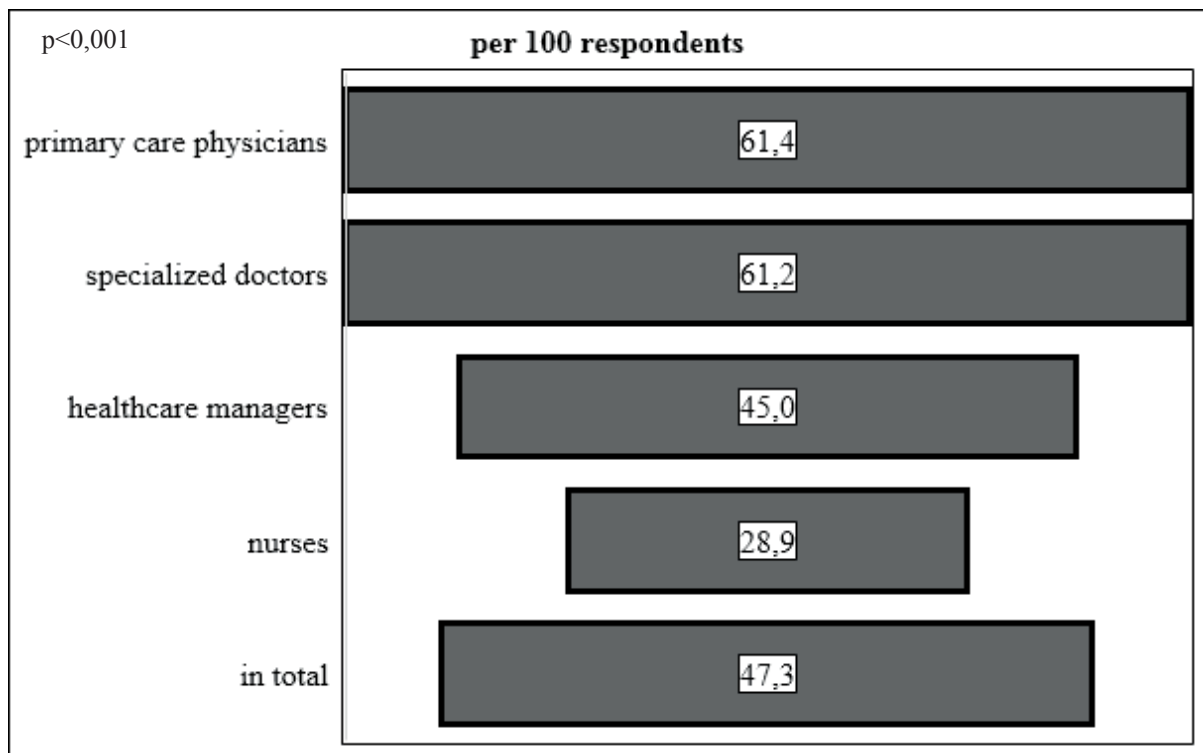


Fig. 3. The awareness of the interviewed health professionals about the possibility of more than one vaccination per visit

eastern regions, to prescribe general tests (38.9% vs. 57.9%, respectively) and antihistamines (9.5% vs. 17.7%) before vaccination, but more often anti-inflammatory drugs (12.3% vs. 7.4%).

It was found that healthcare workers who were trained on the organization of vaccination are less likely than respondents without such training ($p < 0.001$) to prescribe general blood/urine tests before vaccination (45.7% vs. 61.9%), antihistamines (12, 4% vs. 19.5%) and anti-inflammatory (5.6% vs. 10.5%) drugs.

To facilitate the vaccination process and increase its coverage, international experts recommend, if possible, to do several vaccinations in one visit [2, 4, 5]. However, less than half of the surveyed health workers were aware of this statement (47.3±1.4%, Fig. 3). Their share did not depend on the gender of the respondents ($p > 0.05$) but increased with age and work experience from 40.1% under the age of 30 to 53.7% among the over 60 ($p < 0.001$).

Best aware of this issue (Fig. 3) were the healthcare managers (61.4%) and primary care physicians (61.2%) compared to nurses (45.0%) and specialized medical care doctors, among whom there was the lowest the share of those who agree that several vaccinations can be done in one visit (28.9%, $p < 0.001$).

Medical workers in the eastern regions generally chose this answer less often than in healthcare facilities of Western Ukraine (42.3% vs. 65.6%, respectively, $p < 0.001$).

Logically, health workers who received special vaccinations were better informed - 63.3% of correct answers compared to 30.3% among those who did not receive such training ($p < 0.001$).

Outbreaks of measles have been reported recently in adults. The largest of them was observed in 2017-2018 [10-12]. One of the reasons for this was the non-compliance of

the cold chain during the logistics of vaccines, which reduced its effectiveness in producing antibodies. However, only 47.6% of the surveyed health workers, regardless of age, gender, place of work, knew this. The answers were different depending on the specialty ($p < 0.001$) and the availability of special knowledge ($p < 0.001$). The most informed were again the healthcare managers (61.4%) in comparison with primary care physicians (54.2%), nurses (45.4%) and specialized medical care doctors (36.7%). Medical workers with trainings on the organization of vaccination had better knowledge than those who did not undergo such training – 54.5% vs. 40.2%.

Perhaps the knowledge on this subject depended on the practical need for them. After all, only 58.4% of respondents, regardless of age and gender ($p > 0.05$), said that they have a direct impact on compliance with the cold chain. It is logical that such persons were the most among the healthcare managers (71.6%), nurses (63.9%) and primary care physicians (63.0%) and the least – among specialized medical care doctors (31.6%, $p < 0.001$). Among those who have received training on vaccination in the past, there are more people involved in the cold chain compliance than in the comparison group – 65.5% vs. 50.7% ($p < 0.001$). This may be associated with the fact that those who are often faced with vaccination, actually have a priority necessity for appropriate training and they are willing it.

Conclusions

Gaps in the knowledge and beliefs of health professionals associated with the organization of vaccination were founded: less than half of the surveyed health workers understand that vaccination is carried out with any certified vaccine, regardless of the country of origin; a significant part of respondents tend to prescribe drugs not recommended by international guidelines (53.6%), antihistamines (15.9%) and

anti-inflammatory (8.0%) drugs before vaccination; do not know about the possibility of doing several vaccinations in one visit (47.3%) and that the cold chain breach affects the effectiveness of the vaccine (52.4%).

It was found that the most knowledgeable about the organization of immunoprophylaxis of the population are the health care managers and medical personnel who had special training on vaccination vs the least informed specialized medical care doctors.

Prospects of further researches: to develop a set of scientifically based measures to improve the awareness of health professionals about the organization of vaccination in order to improve the coverage of the population with immunoprophylaxis.

The authors declare no conflict of interest.

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Received: 07.04.2021

Revised: 25.04.2021

Accepted: 07.05.2021