

# A survey of knowledge, attitudes and awareness of the HPV and HPV vaccine among obstetricians and gynecologists across Poland

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## ABSTRACT

**Objectives:** The objective of this study was to assess general knowledge regarding human papillomavirus (HPV) and the attitude to primary prevention in form of HPV vaccination (HPVv) among Polish obstetricians and gynecologists (OBGYNs). In addition, we wanted to study the willingness of physicians to promote the HPVv among patients, based on their general attitude to vaccinations as well as HPV-related knowledge. The gynecologists were also asked to assess their patients' awareness of HPV infection.

**Material and methods:** A questionnaire consisting of 25 questions was used to collect the data and with support of the Polish Society of Gynecologists and Obstetricians (PTGiP) and the Polish Society of Colposcopy and Cervical Pathology (PTKiPSM) sent via their mailing lists to all members and beyond. The total amount of 213 fully filled questionnaires were gathered and analyzed using descriptive statistics.

**Results:** Most of the surveyed OBGYNs showed a good knowledge of HPV and HPVv. They were able to correctly identify the high-risk oncogenic HPV types (hrHPV) and admitted to using HPV genotyping in their daily practice and actively promoting HPVv, being in majority supporters of mandatory vaccinations in general. Almost 90% confirmed the importance of informing patients about sexually transmitted diseases (STDs). On the other hand, there was a group of OBGYNs with clearly insufficient knowledge about the HPV and its prevention.

**Conclusions:** General knowledge of Polish physicians about HPV is good, independent of gender and age. The acceptance of all vaccines is high, but the low availability of the HPV vaccines seems to be the biggest problem stopping patients from getting them.

**Key words:** HPV; human papillomavirus virus; HPV vaccine; human papillomavirus vaccine

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## INTRODUCTION

Human papillomavirus (HPV) is the most common viral infection of the reproductive tract, which causes different conditions, including precancerous lesions with potential progress to cancer. Due to transmission by skin-to-skin contact, the prevalence is high but most of the infections do not cause any symptoms and resolve spontaneously. In women, persistent infection with high-risk HPV (hrHPV: 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, 68) may lead to high-grade squamous intraepithelial lesions (HSIL) and, if untreated, to cervical cancer. The most popular oncogenic HPV types are 16 and 18 — they are responsible for 71% of cases of cervical cancer. Almost 90% of all squamous-cell

carcinomas of the cervix are positive for hrHPV DNA (16, 18, 33, 45, 58) [1, 2]. According to European Cancer Information System provided by European Commission, for women in the European Union aged 15–44 cervical cancer is the second most common type of cancer after breast cancer [3]. Based on mentioned data, implementation of primary prevention is necessary. Primary prevention in form of HPVv is already available and aims to prevent the spread of HPV in many countries. Its acceptance varies from country to country, largely dependent on the state of knowledge about diseases caused by HPV as well as cultural, social, and religious factors. As of year 2021, 40 out of 53 World Health Organization's Europe Region countries (WHO/ER)<sup>1</sup> have

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founded HPVv national immunization programs, Poland not being one of them yet.

A primary prevention of HPV related disease is available from year 2006, when the quadrivalent vaccine was first licensed, followed by the bivalent vaccine in 2007 and the nonavalent vaccine in 2014. Fully or partially funded HPVv was provided for girls in 25/53 (47%) WHO/ER countries and for both boys and girls in 15/53 (28%) countries [4]. All three available vaccines prevent infections with HPV-type 16 and 18, the quadrivalent covers also type 6 and 11, the nonavalent extends additional protection against type 31, 33, 45, 52, 58. The vaccines can be administered in males and females from the age of nine years to protect against conditions caused by specified types of HPV: cancer of the cervix or anus, precancerous lesions in the genital area (cervix, vulva, vagina or anus) as well as genital warts.

### Objectives

The aim of this study was to assess the general attitude of Polish OBGYNs towards vaccination programs, their knowledge regarding HPV, cervical cancer prevention and HPVv, and its implementation into everyday medical practice. The doctors were also asked to assess their patients' knowledge about HPV. In Poland a free HPVv is founded by some of the local governments and even then, only for girls and within a very strict age limit. Most of the patients must pay out-of-pocket to receive the immunization in the private sector. It was expected that the results of the study could contribute to health policy in terms of health manpower development for vaccine introduction to the public in the future. According to the Ministry of Health, the National Oncologic Strategy (NOS) claims starting of girls' public vaccination in Poland at the turn of the year 2021/2022.

### MATERIAL AND METHODS

An anonymous cross-sectional online survey was conducted between January and May 2021. The study was designed to obtain information about the knowledge of, attitudes toward HPV infection and vaccinations and its possible correlations among Polish OBGYNs. The Polish Society of Gynecologists and Obstetricians (PTGiP) and Polish Society of Colposcopy and Cervical Pathology (PTKiPSM) supported the survey by disseminating the link for the inquiry via their mailing list to all members and beyond. A goal of the study was to include as many participants as possible. At the initial stage, no formal calculation of sample size was carried out. One reminder was sent out after two months.

The questionnaire survey (Appendix A,) was designed by the authors and consisted of 25 questions exploring following categories: demographics (age, gender, type and period of medical practice, average number of patients admitted weekly), general opinion on preventive vaccinations, basic HPV knowledge, attitude towards the HPVv and other vaccines. The questionnaire was preceded by preliminary information which consisted of an explanation of the purpose of the study and details on how to contact the authors. The participants were informed that the survey was part of a scientific study. Participation in the inquiry was anonymous and voluntary. The form did not allow participants to continue, unless they had answered all the questions. Part of the questions allowed multiple answers, whereas in some questions there was only one answer possible. A few questions had the option to add a free text answer if desired. Questions were designed according to similar literature already published.

The analysis was conducted mainly with the use of descriptive statistics. The results are presented in the form of frequency tables and cross tables. Attitude assessment was categorized on a VAS 10-point scale. Level of attitude was grouped into three classes: 1–6, 7–8 and 9–10.

## RESULTS

### Sociodemographic background characteristics of the participants

The total amount of 213 fully filled questionnaires were gathered. According to the current data provided by the Supreme Medical Council (*Naczelna Izba Lekarska*), there were 6.698 active OBGYN-specialists registered in Poland but due to the opportunistic nature of participant recruitment, a response rate could not be calculated. Most of the completed surveys ( $n = 121$ ; 56.8%) were done by women. The group of OBGYNs 30–40 years of age was the main one (100, 46.9%), while physicians < 30 years of age accounted for only 2.8% ( $n = 6$ ). The majority indicated town with over 500,000 inhabitants as their place of residence (74.6%;  $n = 159$ ). Inhabitants of villages accounted for 4.2% ( $n = 9$ ). Almost all professionals ( $n = 192$ ; 90.1%) mentioned private practice as their place of employment. For most of them, it was the only place of employment - these doctors constituted 23.9% of the study group ( $n = 51$ ). Others combined employment in a private practice with employment in a hospital or out-patient department. From the 213 OBGYNs who completed the survey, the clinical experience ranged from less than 5 years ( $n = 23$ ; 10.8%) to more than 20 years

1 Albania, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Malta, Monaco, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, Turkey, Turkmenistan, Ukraine, United Kingdom of Great Britain and Northern Ireland, Uzbekistan

**Table 1. Baseline characteristics of surveyed Polish OBGYNs (n = 213)**

Variable	n (%)
Age	
< 30 years	6 (2.8%)
30–40 years	100 (46.9%)
41–50 years	28 (13.1%)
51–60 years	41 (19.2%)
> 60 years	38 (18.0%)
Gender	
Female	121 (56.8%)
Male	92 (43.2%)
Place of practice (multiple options can be selected)	
City > 100,000 residents	159 (74.6%)
City < 100,000 residents	62 (29.1%)
Village	9 (4.2%)
Type of practice (multiple options can be selected)	
Private practice	192 (90.1%)
National healthcare practice (office)	136 (63.8%)
National healthcare practice (hospital)	81 (38.0%)
The period of practicing in gynecological and obstetric care	
< 5 years	23 (10.8%)
5–10 years	63 (29.6%)
11–20 years	42 (19.7%)
> 20 years	85 (39.9%)
Number of patients per week	
< 30	40 (18.8%)
30–60	108 (50.7%)
61–90	32 (15.0%)
> 90	33 (15.5%)

(n = 85; 39.9%). 50.7% (n = 108) of respondents reported seeing 30–60 patients per week, 18.8% (n = 40) saw < 30 patients per week and 15.5% (n = 33) saw > 90 patients per week. An overview of demographic data is given in Table 1.

### The state of doctors' and patients' knowledge about HPV and vaccination

Majority of respondents (n = 162, 76.1%) assessed the patients' knowledge about HPV and HPVv as insufficient. 77.9% (n = 166) of health care professionals correctly identified type 16 and 18 as highly oncogenic. 51.2% (n = 109) properly knew all three types (bi-, quadri- and nonavalent) of HPV vaccine. Of all participants, 89.2% (n = 190) admitted to perform HPV genotyping.

### Doctors' attitudes towards vaccination

More than 90% of OBGYNs carried out the conversation about STDs with patients and 96.2% (n = 205) presented the possibility of HPVv. In total, 84.5% (n = 180) were supporters of mandatory vaccinations in general, while 99.5% (n = 212) considered the HPVv as important. However, only 79.3% (n = 169) rated their confidence in the HPVv at 9 or more on the VAS scale. In terms of safety and effectiveness, 83.6% (n = 178) and 80.8% (n = 172) respondents marked a value of 9–10 on the VAS scale, respectively. The lower

and upper age limit for the HPV vaccination considered by the respondents varied (Tab. 2). Most surveyed physicians saw the lower age limit for HPVv between 9–12 years of age (n = 132, 62%), followed by the age 13–16 (n = 49, 23%). The vaccine was being offered to older patients as well: 46.9% (n = 100) of surveyed OBGYNs did not see any age limit stopping them from presenting their patients with the possibility of HPVv or the limit was above 50 years. On the other hand, 105 of the respondents (n = 105) advised only women younger than to 50 to get the vaccine. The survey showed that 90.1% (n = 192) of participants offered the HPVv to patients that have already started sexual intercourse. However, only 77.5% (n = 165) presented such possibility to patients that have undergone cervical ablation or surgery. Of all 213 OBGYNs, 152 (71.4%) used a 3-dose HPVv schedule.

### Doctors' opinions towards HPVv

As many as 151 respondents (70.9%) considered the availability of HPV vaccine in Poland as very limited. 77% (n = 164) believed, that HPV vaccinations should be mandatory and reimbursed for both girls and boys. Almost all surveyed physicians (n = 207, 97.2%) did not agree with the statement that HPVv favors early sexual initiation.

## DISCUSSION

The knowledge about high-risk oncogenic HPV types is obligatory to every OBGYN: from all 14 hrHPV types, 5 alone (16, 18, 33, 45, 58) account for approximately 90% of the squamous cell carcinomas of the cervix which are positive for HPV DNA [1, 2]. The survey's findings revealed that the awareness on HPV subtypes of Polish professionals were at a high level but still with a need for further education. Very high number of respondents recognized the hrHPV types 16 and 18 correctly (98.1% and 98.6% respectively). Still, it is alarming that 33.3% saw type 6, 11, 42, 43 as high-oncogenic. Low-risk HPV strains (lrHPV), such as HPV 6 and 11, as well as 42 and 43, cause over 90% of genital warts, which rarely develop into cancer [5]. Compared to similar studies, the OBGYNs in the present study showed slightly higher knowledge about hrHPV: 84.1% of family physicians and 45% of pediatricians in the USA did [6, 7]. A study conducted among Polish doctors during residency in pediatrics, gynecology and obstetrics, and dermatology and venereology showed that their knowledge about HPV was low, independent of sex, age, and specialization [8].

The first HPVv was licensed in year 2006 and since then there are three highly efficacious vaccines available in the market: bivalent, quadrivalent and nonavalent. The nonavalent vaccine turned out to be the most popular among Polish gynecologists, with 91.1% respondents recognizing it, followed by quadrivalent (73.2%) and bivalent (65.3%). The nonavalent and quadrivalent vaccines offer similar protection

**Table 2. Results of the HPV survey conducted among Polish OBGYNs (n = 213)**

Question	n (%)
What is your overall attitude to mandatory vaccinations?	
I am a supporter of mandatory vaccinations	180 (84.5%)
I am a supporter of vaccinations, but I believe that it should not be mandatory	33 (15.5%)
How do you rate the mandatory vaccinations in terms of SAFETY on a scale from 1 to 10?	
9–10	178 (83.6%)
7–8	34 (16.0%)
< 7	1 (0.4%)
How do you rate the mandatory vaccinations in terms of EFFECTIVENESS on a scale from 1 to 10?	
9–10	172 (80.8%)
7–8	40 (18.8%)
< 7	1 (0.4%)
Which of the following HPV genotypes are considered highly oncogenic? (Multiple options can be selected)	
16	209 (98.1%)
18	210 (98.6%)
6	11 (5.2%)
11	15 (7.0%)
42	17 (8.0%)
43	28 (13.1%)
Do you order genotyping for HPV types 16 and 18?	
Yes	190 (89.2%)
No	23 (10.8%)
What types of HPV vaccines do you know? (open question)	
Bivalent	139 (65.3%)
Quadrivalent	156 (73.2%)
Nonvalent	194 (91.1%)
I don't know any	6 (2.8%)
Do you consider HPV vaccination as important?	
Yes	212 (99.5%)
No	1 (0.5%)
Do you carry out the conversation with patients about sexually transmitted diseases?	
Yes	200 (93.9%)
No	13 (6.1%)
Do you carry out the conversation with patients about the possibility of HPV vaccination?	
Yes	205 (96.2%)
No	8 (3.8%)
What is the lower age limit when you present a patient with the possibility of HPV vaccination? (open question)	
< 9	20 (9.3%)
9–12	132 (62.0%)
13–16	49 (23.0%)
> 16	11 (5.2%)
I do not offer my patients this vaccination	1 (0.5%)

**Table 2 (cd.). Results of the HPV survey conducted among Polish OBGYNs (n = 213)**

Question	n (%)
What is the upper age limit when you present a patient with the possibility of HPV vaccination? (open question)	
< 20	4 (1.9%)
20–30	29 (13.6%)
31–40	33 (15.4%)
41–50	39 (18.3%)
> 50 and/or without age limit	100 (46.9%)
Other:	
Until menopause	4 (1.9%)
Until first sexual intercourse	3 (1.4%)
I do not offer my patients this vaccination	1 (0.5%)
Do you propose HPV vaccination to patients who already had first sexual intercourse?	
Yes	192 (90.1%)
No	21 (9.9%)
Do you propose HPV vaccination to patients who have undergone cervical ablation or surgery?	
Yes	165 (77.5%)
No	48 (22.5%)
How do you assess your patients' knowledge of HPV and HPV vaccination?	
Satisfactory	7 (3.3%)
Acceptable	38 (17.8%)
Insufficient	162 (76.1%)
I have no opinion	6 (2.8%)
What primary dosing schedule of the HPV vaccination do you use?	
1-dose	6 (2.8%)
2-dose	55 (25.8%)
3-dose	152 (71.4%)
How do you assess the availability of the HPV vaccine in Poland?	
All vaccine variants are available (2-, 4-, and 9-valent)	26 (12.2%)
Only 2-valent and 4-valent vaccine variants are available	21 (9.9%)
The HPV vaccine is very difficult to obtain	151 (70.9%)
I have no opinion	15 (7.0%)
In your opinion, should HPV vaccination be mandatory and reimbursed?	
Yes, for girls and boys	164 (77.0%)
Yes, but only for girls	37 (17.4%)
No	10 (4.7%)
I have no opinion	2 (0.9%)
Do you think that HPV vaccination favors early sexual initiation?	
Yes	6 (2.8%)
No	207 (97.2%)
How do you rate your confidence in the HPV vaccination on a scale of 1 to 10?	
9–10	169 (79.3%)
8–7	32 (15.0%)
< 7	12 (5.6%)

against a combined outcome of cervical, vaginal, and vulval precancer lesions or cancer [9]. Alarming, almost 3% admitted to not knowing any of the above. Among doctors who actively use the vaccines, most of them (71.4%) preferred the 3-doses regime, followed by 25.8% who administered two

doses. According to Centers for Disease Control and Prevention and based on the available immunogenicity evidence, a 2-dose schedule (0, 6–12 months) had efficacy equivalent to a 3-dose schedule (0, 1–2, 6 months) if the HPV series was initiated before the 15th birthday [10]. It is interesting that

there were physicians who admitted in the survey to giving only one dose. Long-term observational studies are needed to determine the effectiveness of reduced-dose schedules against HPV-related cancer endpoints, and whether adopting these schedules improves vaccine coverage rates [9].

To successfully implement new recommendations and methods into everyday practice it is important to not only possess the necessary knowledge but also to use it in everyday practice. Health care workers are the real faces of any immunization systems and their knowledge and skills are crucial to the success of immunization programs [2]. According to a 2020 survey of gynecologists' behaviors and attitudes, 91% of respondents believed co-testing (HPV and liquid based cytology) was valuable for their patients' health and more than 8 in 10 were likely to use co-testing for screening [11]. Among Polish gynecologists, 89.2% recommended HPV-testing but still almost 11% did not, even though HPV-based screening is recommended by The Polish Society of Gynecologists and Obstetricians (PTGiP) and Polish Society of Colposcopy and Cervical Pathology (PTKiPSM) [12]. Research on knowledge, attitudes, and beliefs among Canadian physicians reported that 75% obstetricians-gynecologists (n = 395), 60% family physicians (n = 408), and 48% pediatricians (n = 461) were aware that persistent HPV is a necessary cause of cervical cancer [13, 14].

Healthcare providers play the key role in influencing parents' decision making to allow their children to receive HPVv [15]. There is a continued need to increase parental knowledge about the HPVv to close the gap on vaccine nonadherence [16]. According to previous studies, patients' knowledge about HPV remained low and was influenced by gender, education, income, race, and other sociodemographic characteristics [17, 18]. Over 76.1% of surveyed OBGYNs thought that their patients did not know enough about problems connected with HPV infection. Only 21.1% of patients were estimated to have a satisfactory knowledge about HPV. This topic certainly needs more attention and further studies should follow in order to assess the real dimensions of patients' knowledge and attitude toward this STD. On the other hand, 93.9% of surveyed gynecologists claimed to talk with their patients about STDs, with only 6.1% refraining from it. At this point it has to be reminded that inadequacies in physician knowledge may serve as a barrier to the appropriate diagnosis and treatment of STDs [19].

According to WHO there are six pillars of a strong immunization program, among them the most important two: reaching every person and staff training [20]. Therefore, the acceptance for any vaccine is related to various factors for decision making in vaccination of the population, the acceptance by healthcare providers being one of them [21]. Among Polish gynecologists most of the respondents were

in favor of mandatory vaccinations provided by the National Health Care Provider and implemented in national vaccination program (84.5%). The minority found them necessary but not mandatory (15.5%). Those results show a very positive attitude of OBGYNs towards immunization programs and correspond with other studies where a large majority were in favor of the mandatory vaccination law (91%) [22]. The safety of mandatory vaccinations was rated very high, with 83.6% of gynecologists giving the highest marks (9–10/10), 16% finding them safe (7–8/10) and only 0.4% grading them lower (< 7/10). The respondents assessed the effectiveness of mandatory vaccines as high, almost 81% of them gave maximal scores.

Acceptability of HPVv has been studied worldwide. Previous studies demonstrated that HPVv acceptability was generally positive among healthcare providers. Physicians were expected to have good acceptance and positive attitude toward HPVv. They were also expected to have good knowledge on HPV infection and its relation to cervical cancer. Moreover, healthcare providers were considered the primary and most trusted source of health and vaccine information for the public. According to available data, rumors about vaccine safety had been one of the principal obstacles for the acceptance of HPV vaccination by the public [23]. Therefore, it is positive that the HPVv is very important for Polish gynecologists: 99.5% found this vaccination relevant and almost 94% claimed to talk with their patients about the possibility of immunization. They also showed high trust in the effectiveness of the HPVv: almost 80% respondents agreed with its potential.

Available HPVv can be used in males and females from the age of nine years but most of international vaccination programs start with children at the age of 12 [24]. The questionnaire's results showed that in Poland most of the gynecologists advise to perform the vaccination by girls at the age from 9 to 12 (62%), followed by female teenagers at the age from 13 to 16 (23%). Surprisingly, there are physicians who advise to get the vaccine under 9 years (9.3%), which is not allowed by the European Medicines Agency (EMA) or over 16 years (5.2%). An annual, web-based survey of American healthcare professionals including physicians and nurse practitioners from year 2012 showed that only 14.5% of providers recommended the vaccine to all age-eligible females and 20.2% recommended it to females aged 11–26 years, more frequently to girls older than 11–12 years and another study brought similar results, where fewer physicians strongly recommended HPV vaccination for 11- to 12-year-old female patients than for older female patients [25, 26]. A big part of the respondents did not find any age limit at which the vaccine is not advisable — almost 47% gynecologists would advise to vaccinate women over 50 years old and/or without any age limit. It is indeed

possible that some individuals over the age of 50 may also benefit from vaccination, but the benefit has not been well researched yet. According to a study, which has been published in *Lancet* in 2016, in women older than 25 years, the HPV 16/18 vaccine continues to protect against infections, cytological abnormalities, and lesions associated with HPV 16/18 and cervical intraepithelial lesions CIN1+ irrespective of HPV type, and infection with non-vaccine types HPV 31 and HPV 45 over seven years of follow-up. Part of enrolled participants had a history of HPV infection or disease [27]. It was interesting to find out that over 90% of surveyed doctors would advise a patient who already had sexual initiation to get the vaccine but only 77.5% offered to vaccinate a patient after ablative or surgical procedure at the cervix. From August 2019 there is an ongoing randomized, double blinded, placebo controlled Dutch trial with primary objective of the efficacy of nonavalent HPV vaccination in women with HSIL who underwent a loop electrosurgical excision procedure (LEEP) in preventing recurrent HSIL after at 24 months follow-up. The recruitment is planned to end in August 2022, with results to follow [28]. The current knowledge indicates that patients having vaccination after LEEP experience a slightly lower risk of recurrence than women who had not, although not statistically significantly different.

It is reassuring that over 97% respondents did not associate HPVv with earlier age at the first intercourse and that 77% surveyed gynecologists supported mandatory and refundable vaccination for both girls and boys. On the other hand, a little over 17% found immunization of only women necessary and almost 5% did not think these vaccines should be mandatory and implemented in the national vaccine program. In comparison, in a recent study almost 36% of British healthcare professionals admitted to not being adequately informed about HPV-related topics and having interest in more frequent training [29]. The above results show the importance of continuous education among physicians in order to close the knowledge gap.

Still, the biggest problem in Poland seemed to be the lacking availability of the vaccine with over 70% of the respondents finding the availability of any HPVv low. The reasons are related to the rapid growth in this vaccination worldwide and the increasing number of national vaccination programs including boys. The production of the vaccines in question takes two years, moreover the responsible pharmaceutical companies due to low production capacities are not able to meet all demand and thus HPVv are supplied first to markets that already have HPV national vaccination programs. According to the Polish Ministry of Health, the return of full availability of the HPVv is expected at the turn of the year 2021/2022. A national vaccination program is to follow.

## CONCLUSIONS

The findings of this study suggested that the knowledge of Polish health care providers was sufficient; however, their awareness should be improved in terms of basic knowledge of HPV, cervical screening, and the efficacy of the vaccine. Overall, the OBGYN's attitude was positive to HPVv and the acceptance of HPVv was high. Most of them had good attitude about the severity of HPV-related diseases and the benefit of HPVv. The barrier that might influence vaccination achievement was the lack of accessibility of the vaccine. As a result, health policymakers should consider appropriate training programs for healthcare providers to gain more knowledge and improve their attitude. Those programs could potentially increase the acceptance for HPVv among gynecologists in the future and thereby also increase patient awareness of the risks of HPV infection and the benefits of available primary prevention.

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## Conflict of interest

No conflict of interest was declared by the authors.

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## APPENDIX A

### The questionnaire for physicians concerning vaccination against HPV

Dear Sir or Madam,

Under the scientific supervision of professor Robert Jach, we conduct a questionnaire study at the Clinical Department of Gynecological Endocrinology and Gynecology of the University Hospital in Krakow, which is aimed at understanding the approach of physicians to vaccination against HPV.

The conclusions drawn from the data collected thanks to Your kindness will allow us to analyze the knowledge, acceptance and implementation of primary prevention of cervical cancer in daily gynecological practice.

The questionnaire consists of 25 questions and takes approximately 5 minutes to complete.

Please send any questions and additional comments to the e-mail address: rabaran@su.krakow.pl

\*Required

#### Demographic data

1. Gender\*
  - female
  - male
2. Age\*
  - < 30 years
  - 30–40 years
  - 41–50 years
  - 51–60 years
  - > 60 years
3. Place of practice (multiple options can be selected)\*
  - city > 100,000 residents
  - city < 100,000 residents
  - village
4. Type of practice (multiple options can be selected)\*
  - private practice
  - national healthcare practice (office)
  - national healthcare practice (hospital)
5. The period of practicing in gynecological and obstetric care\*
  - < 5 years
  - 5–10 years
  - 11–20 years
  - > 20 years
6. How many patients do you admit on average per week? (please provide number)\*
 

.....

#### Opinion on preventive vaccinations

7. What is your overall attitude to mandatory vaccinations?\*

  - I am a supporter of mandatory vaccinations
  - I am a supporter of vaccinations, but I believe that it should not be mandatory
  - I am opposed to vaccinations
  - I have no opinion

8. How do you rate the mandatory vaccinations in terms of SAFETY on a scale from 1 to 10?\*

1	2	3	4	5	6	7	8	9	10
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. How do you rate the mandatory vaccinations in terms of EFFECTIVENESS on a scale from 1 to 10?\*

1	2	3	4	5	6	7	8	9	10
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### Knowledge about HPV

10. Which of the following HPV genotypes are considered highly oncogenic? (multiple options can be selected)\*
  - 6
  - 16
  - 42
  - 11
  - 18
  - 43
11. Do you order genotyping for HPV types 16 and 18?\*

  - Yes
  - No

12. What types of HPV vaccines do you know?\*

.....

#### Practice

13. Do you consider HPV vaccination as important?\*

  - Yes
  - No

14. Do you carry out the conversation with patients about sexually transmitted diseases?\*

  - Yes
  - No

15. Do you carry out the conversation with patients about the possibility of HPV vaccination?\*

  - Yes
  - No

16. What is the lower age limit when you present a patient with the possibility of HPV vaccination?\*

.....



17. What is the upper age limit when you present a patient with the possibility of HPV vaccination?\*

.....

18. Do you propose HPV vaccination to patients who have already started sexual intercourse?\*

- Yes
- No

19. Do you propose HPV vaccination to patients who have undergone cervical ablation or surgery?\*

- Yes
- No

20. How do you assess your patients' knowledge of HPV and HPV vaccination?\*

- Satisfactory
- Acceptable
- Insufficient
- I have no opinion

21. What primary dosing schedule of the HPV vaccination do you use?\*

- 1-dose
- 2-dose
- 3-dose

22. How do you assess the availability of the HPV vaccine in your country?\*

- All vaccine variants are available (2-, 4-, and 9-valent)
- Only 2-valent and 4-valent vaccine variants are available
- The HPV vaccine is very difficult to obtain
- I have no opinion

23. In your opinion, should HPV vaccination be mandatory and reimbursed?\*

- Yes, for both girls and boys
- Yes, but only for girls
- No
- I have no opinion

24. Do you think that HPV vaccination favours early sexual initiation?\*

- Yes
- No

25. How do you rate your confidence in the HPV vaccination on a scale of 1 to 10?\*

- |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1                        | 2                        | 3                        | 4                        | 5                        | 6                        | 7                        | 8                        | 9                        | 10                       |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Thank you very much for your participation in the survey.