

Increasing HPV vaccination rates: The case of the Public Independent Health Center in Radłów—a model of best practice

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Reports, discussions, opinions

Abstract

Objective: The objective of this study was to analyze the implementation of HPV vaccinations among age cohorts covered by the program at the national, county, and specific healthcare facility levels.

Material and methods: The study data were obtained from the website <https://ezdrowie.gov.pl/portal/home/badania-i-dane/raport-o-szczepieniach-przeciwko-wirusowi-brodawczaka-ludzkiego-hpv>, which presents the current level of vaccinated children, as well as data on vaccinations administered at the Public Independent Center in Radłów.

Results: The HPV vaccination coverage rate in Poland is low. Among children eligible for free vaccination, the rate of completed vaccinations ranges between 30% and 40%. Communication with parents, who were provided with information about vaccination options and diseases caused by the HPV virus, had a significant impact on vaccination rates.

Conclusion: Discussions with parents about vaccination contribute to an increase in the number of vaccinations administered. These discussions should be continued, and the public should be educated about the benefits of vaccination.

Keywords

- vaccination
- Human Papilloma Virus
- HPV
- vaccination coverage

Contribution

- A – Preparation of the research project
- B – Assembly of data
- C – Conducting of statistical analysis
- D – Interpretation of results
- E – Manuscript preparation
- F – Literature review
- G – Revising the manuscript

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Article info

Article history

- Received: 2026-04-13
- Accepted: 2026-06-24
- Published: 2026-07-15

Publisher

University of Applied Sciences in Tarnow
ul. Mickiewicza 8, 33-100 Tarnow, Poland

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Conflict of interest

None declared.

Financing

This research did not receive any grants from public, commercial or non-profit organizations.

Introduction

Prevention is one of the most effective tools for combating and preventing infectious diseases worldwide. The main component of passive prevention is the use of ready-made preparations—immunoglobulins—while active prevention involves the administration of vaccines. The mechanism of vaccination involves introducing an antigen into the body to trigger the immune mechanisms of cellular and humoral responses. This protects the body against disease during subsequent exposure to pathogenic microorganisms.¹ Thanks to the use of preventive vaccinations, the epidemiological situation worldwide has improved significantly—the incidence of many infectious diseases has been reduced or completely eliminated.² In 2008, Prof. Harald zur Hausen was awarded the Nobel Prize. He received this honor for the discovery of the human papillomavirus (HPV). Clinical manifestations of HPV infection include warts on the skin and mucous membranes of the mouth, respiratory tract, genital organs, urinary tract, and anus. Studies show that many papillomaviruses are responsible for genital tract infections, which can result in inflammation, flat and pointed condylomas, the initiation of precancerous conditions, as well as squamous cell and glandular cervical cancers. These pathogens also cause skin lesions, manifesting as, among other things, pigmented and erythematous patches, which often serve as the starting point for the initiation of the carcinogenic process.³ It is estimated that over 3,800 cases of cervical cancer are diagnosed each year, while over 2,000 women die from the disease.⁴ HPV vaccines are highly effective. This is confirmed by both clinical and real-world studies. The best results regarding vaccine efficacy are achieved when younger individuals who are not infected with HPV are vaccinated. An example of the vaccine's effectiveness is an analysis conducted 4 years after the completion of the PATRICIA study. In women who had not previously been diagnosed with HPV genotypes 16 and 18, the effectiveness in preventing precancerous lesions and cervical carcinoma in situ associated with the genotypes present in the vaccine was 100%. Observations over the years also show a significant decrease in the incidence of conditions such as genital warts and precancerous lesions in vaccinated individuals. HPV vaccination is safe. The main adverse reactions to the vaccine are local in nature. They are characterized by pain, swelling, and redness at the injection site. Possible adverse reactions also include fever, muscle and joint pain, dizziness, headaches, abdominal pain, nausea, and vomiting.⁵

Vaccination program in Poland

In Poland, in 2008, HPV vaccination was introduced into the routine vaccination schedule as a recommended vaccine. Patients could be vaccinated only at full cost or through local government programs. It was not until June 1, 2023, a universal vaccination program was introduced in Poland as part of the National Oncology Strategy for 2020–2023. It includes, among other things, the implementation of an HPV vaccination program and the coverage of 60% of the adolescent population by 2028.⁴ As of September 1, 2024, vaccinations are administered in a two-dose schedule to individuals aged 9 through 14, with a 6- to 12-month interval between doses. The vaccination series must be started by age 14; the second dose may be administered after age 14. The vaccines approved for use in the program are Cervarix and Gardasil 9.⁶ The Cervarix vaccine contains the L1 protein of human papillomavirus types 16 and 18.⁷ The Gardasil 9 vaccine contains the L1 protein of human papillomavirus types 6, 11, 16, 18, 31, 33, 45, 52, and 58.⁸ In both cases, the vaccination schedule consists of two doses. The second dose should be administered between 6 and 12 months after the first dose.

Global vaccination program

According to a WHO/UNICEF report, 107 countries (55%) out of 194 have introduced HPV vaccination. In Europe, this applies to 77% of countries. The average rate of full vaccination (two doses) was 53%. Only five countries achieved a level of over 90% of people vaccinated with two doses. The countries with the highest vaccination coverage among women under vaccination programs were Denmark, Iceland, Malta, Norway, Portugal, and Sweden. Their coverage rate exceeded 86% of the population. Notably high effectiveness of vaccination campaigns was observed in Sweden, Portugal, Denmark, and Norway. These countries achieved high vaccination coverage among the male population in just 2–3 years after launching their vaccination programs.⁴ Australia was the pioneer in introducing universal HPV vaccination. It is estimated that between 2010 and 2070, the number of cases requiring treatment for precancerous conditions in that country will decrease by over 80%.⁹

Vaccination rates in Poland

The vaccination rate among children in Poland is relatively low compared to other European Union

countries. Nationwide data show that the average number of people vaccinated in the 2010–2016 cohorts is 847,371, which represents 17.88% of the population. These cohorts were included in the HPV vaccination program and were eligible for free vaccination. The largest number of vaccinated children were born in 2011. Among them, 34.85% (150,267 people) received the vaccine. In the Tarnów County, in the Lesser Poland Voivodeship, the largest number of children who received the vaccination were those born in 2010. Among them, 482 children received the vaccination, which accounts for 20.45% of that birth cohort. Vaccinations under the program are also administered at the Public Independent Health Center in Radłów. There, too, children born in 2011 accounted for the highest percentage of those vaccinated among all birth cohorts. However, the percentage is twice as high as the national average and more than three times higher than in Tarnów County. 67 children (70.53%) registered at the clinic received the HPV vaccine. Among the least vaccinated birth cohorts in the national population were children born in 2016, at 6.76% (29,220 people). Data from the Tarnów County reflect the national result, indicating the 2016 cohort as the least vaccinated at 3.09% (66 people). At the Public Independent Health Center, the lowest number of vaccinated children was among those born in 2014, where the vaccine was administered to 14 children, representing 16.87% of those registered at this clinic.¹⁰

Description of good practice

The above data are supported by the implementation and coverage rates of vaccinations at the Public Independent Health Center in Radłów. Initial information about mandatory and recommended vaccinations is provided during the well-baby visit. Even then, parents receive initial information about the option of HPV vaccination. Upon the launch of the free vaccination program, a conversation was held with every parent of children born in 2010, 2011, and 2012. Most of these conversations took place over the phone. Currently, conversations are being held with parents of children born in 2013. During the conversation, parents are informed about the option of free vaccination, the diseases caused by the human papillomavirus are explained, and the vaccination schedule is presented. If the parent wishes to have their child vaccinated, a date is scheduled. If a parent declines, they are informed that they may change their mind until the child turns 14, which

is the cutoff age for free vaccination. If a parent is undecided about vaccination, they are given a few days to consider it, after which another phone call is made. During each conversation, the staff member answers the parents' questions in a detailed and comprehensive manner. Additionally, the doctor provides education about the vaccination during patient visits to the office, informing them of all the benefits.

Results

The highest percentage of vaccinated children was among those born in 2011. These are children who will no longer be eligible for free vaccination because they have reached the age limit of 14. A higher vaccination rate at the clinic in Radłów compared to the national average is also observed among children born in 2016. The number of vaccinations administered is more than three times higher than the national average and more than seven times higher than in Tarnów County, where it accounts for over a quarter of all procedures performed. Vaccinations are administered during the 10-year-old checkup. The lowest vaccination rates—16.25% nationwide, 6.39% in the Tarnów County, and 16.87% at the Public Independent Health Center in Radłów—are observed among children born in 2014.

Table 1. Number of vaccinated individuals from the age groups covered by the free vaccination program

Year of birth	Vaccination rate					
	Poland		Tarnów County		Public Independent Health Center in Radłów	
	N	%*	N	%*	N	%**
2010	135776	29,83	482	20,45	45	54,22
2011	150267	34,85	480	21,36	67	70,53
2012	138026	31,88	424	17,95	47	58,02
2013	86821	20,96	204	9,23	32	41,03
2014	68658	16,25	120	6,39	14	16,87
2015	57417	13,60	110	5,12	17	19,10
2016	29220	6,76	66	3,09	18	22,78

*Percentage of the population; **Percentage of those registered at the Health Center.

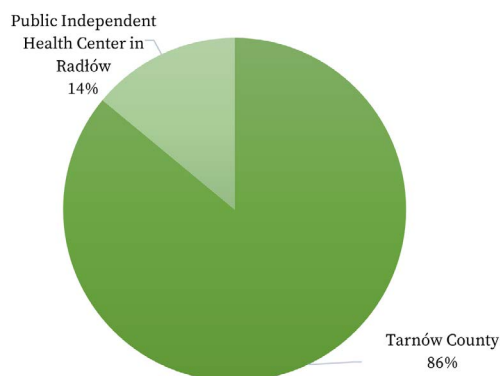


Figure 1. Percentage of vaccinations administered at the Public Independent Health Center in Radłów compared to the Tarnów County in 2011

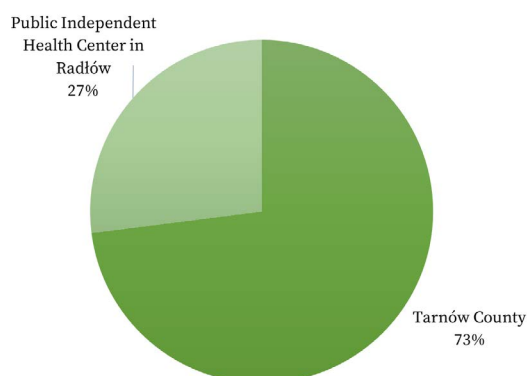


Figure 2. Percentage of vaccinations administered at the Public Independent Health Center in Radłów compared to the Tarnów County in 2016

Discussion

Public health—and thus the population's immunity—should be the primary goal of every country's health policy. Gawłowska-Lichota noted that preventive vaccinations should be considered a key component of preventive care, as they protect the population against many infectious diseases.¹¹ The nationwide program introduced in Poland is expected to yield positive health outcomes for the population and the healthcare system. In his work, Michałek notes that the first significant declines in cervical cancer incidence will become apparent after approximately 10 years. The peak in changes in the incidence of HPV-related cancers is predicted to occur in about 40–50 years.¹²

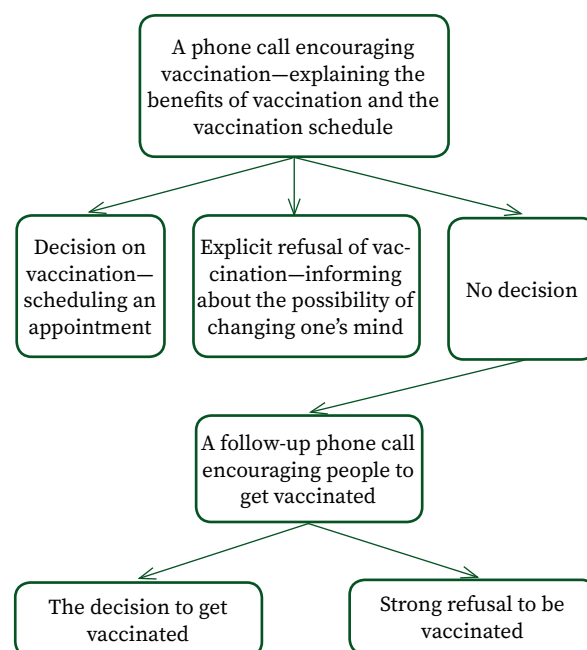


Figure 3. Flowchart of the process for encouraging HPV vaccination

Despite all the positive effects, vaccination rates remain low. Many parents question the necessity and safety of the vaccine.¹³ In her research, Katarzyna Kowalczyk-Amico identified the most important reasons for not vaccinating girls against HPV. She identified the lack of information regarding safety, mechanism of action, and the vaccine's efficacy as the most significant of these.¹⁴ Among the factors reducing the rate of recommended vaccinations is also the family's financial status. Grażyna Cepuch notes that purchasing the vaccine is a financial burden for poorer families.¹⁵ The vaccination program that has been introduced is free of charge, which could significantly increase the number of vaccinations administered. This will allow lower-income families to receive vaccinations without straining their budgets.⁶ Vaccination coverage against the virus in Poland remains low. Barbara Owsianka notes that in order to achieve a high percentage of vaccinated children, a multifaceted approach is necessary, involving local medical staff as well as the government sector, with the use of media campaigns. Studies analyzing factors influencing the increase in vaccination rates have highlighted the role of physicians. It has been documented that family physicians play a significant role in efforts to increase vaccination rates. Medical staff should explain safety aspects to parents and children and outline the health risks for unvaccinated individuals.¹⁶ Cepuch also points to a significant correlation between the level of satisfaction with the

information provided by medical staff and the number of vaccinations administered.¹⁵

The procedure followed at the Public Independent Health Center effectively contributes to increasing the number of people vaccinated. Among all age groups eligible for vaccination, the vaccination rate is high compared to the national average and that of Tarnów County. Direct conversations with parents, explaining the benefits of vaccination, and answering questions have contributed to an increase in the number of people vaccinated.

Conclusions

HPV vaccination rates in Poland remain low compared to other European Union countries. Discussions and the provision of information lead to an increase in the number of vaccinations administered.

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